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The role of Academic Health Centres in improving population health: a multiple-case study in Australia and England

Thesis submitted by:

Alexandra Edelman

BA; BPPM (Hons); GradDipLegStud; MPH

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Abstract

Background

The ongoing establishment and support of Academic Health Centres (AHCs) as organisational forms in Australia and England, United Kingdom (UK) emphasises their ability to drive translational research and innovation to benefit patients and broader populations. There are high expectations that AHCs in these countries will integrate and improve health care, education and research through collaborative governance mechanisms, thereby improving health and supporting economic growth.

Despite the growing number of AHCs in Australia and England and public investment in them, however, little is known about how AHCs operationalise their goals to achieve their impact expectations, including what mechanisms might facilitate their success. Moreover, there is uncertainty within Australian and UK governments about how success should be defined and measured in AHCs. This study responds to these knowledge gaps, and a lack of published empirical research that examines AHCs alongside population health concepts, by exploring the role of AHCs in Australia and England in improving population health. Population health is defined in the study as a social model of health that is concerned with both aggregate health improvements and their equitable distribution.

Methodology

The project adopts a multiple-case study design and draws from institutional theory to explore the normative, regulative and cultural-cognitive forces shaping a population health role in four unique AHCs in Australia and England, UK. Rather than delivering an evaluation of AHCs against population health benchmarks, the study adopts an exploratory approach to address the following research questions:

a) How is population health characterised and described within AHCs?
b) How are population health goals operationalised by AHCs?
c) What are the key enablers and barriers of AHC activity relevant to population health?

Qualitative data collection involved: interviews with 85 individuals in positions to drive, shape and implement the direction, structures and activities of each AHC; analysis of 43 strategic documents; and direct, non-participant observation resulting in 18 observation memos.

Results

The cross-case analysis resulted in four inductive cross-case themes that are framed as propositions:

1) The AHC structures reproduce existing organisational silos and power dynamics, limiting their ability to effect systems change;

2) The terms “translation” and “innovation” are interpreted too narrowly in the AHCs to enable enactment of population health roles;

3) The AHCs are oriented more towards improving health care rather than population health; and

4) Impact goals in the AHCs are wide-ranging and are assumed to be linked despite little attention to impact pathways.

The four themes comprehensively demonstrate that the AHCs in their current form are neither structured, incentivised nor indeed expected by AHC stakeholders to deliver a population health role beyond improving health care within existing health system structures. As such, the findings strongly contradict the statements in policy documents, and in the AHCs themselves, that AHCs present a solution to population health inequities, or even to structural health systems issues such as service fragmentation.

Discussion

Although several of the case study AHCs were driving important improvements to clinical care and health care policy, the findings of this research demonstrate that the AHCs’ capacity and intent to deliver a population health role was substantially inhibited by both: the nature of their organisational structures (including governance arrangements and composition of partners); and government requirements and expectations (including designation criteria and funding schema). Building on these findings, six contingencies, in the form of “if…then” statements, are proposed to support enactment of a population health role in AHCs. These present as potentially testable mid-range theories about how AHCs can enact a population health role and constitute an important building block for further research in the field.

1) If there are tensions between collaborating partners in the AHCs owing to competing institutional logics and power imbalances, then collaborative governance is unlikely to succeed unless there is explicit recognition of the nature of the tensions and active enactment of governance mechanisms to address them.

2) If AHCs hold population health goals, then their composition and governance models need to reflect and enable inter-sectoral elements and activity beyond academia and (biomedically-oriented) health care.

3) If research “translation” and “innovation” are to be used as the key operational concepts in the AHCs, then there needs to be deliberate efforts to adopt socioecological conceptions of the terms to support operationalisation of population health goals.

4) If designation criteria for AHCs are to support a population health role, then they need to position population health improvement as the overarching goal, with subsidiary indicators clearly linked to a theory of change about impact pathways.

5) If funding schema for AHCs are to support a population health role, then they need to enable the AHCs to operationalise their own, locally determined population health agendas over realistic timeframes.

6) If AHCs are to respond to growing expectations that they adopt a population health role, then the “tripartite mission” considered definitional of AHCs needs to be challenged and extended to reflect the focus of AHCs on issues outside of clinical care.

Significance

Population health offers an important value framework for AHCs, reflecting their existence as public good organisations and a growing global recognition that AHCs have an important role within health systems to not only improve clinical care but also address broader health outcomes disparities. If AHCs in Australia and England really are to transform health care and improve population health outcomes, however, work is urgently needed to further explore, test and operationalise the six contingencies identified in this study.

The population health aspirations among stakeholders in the case study AHCs, including substantial and historic intent among leaders to effect real health systems change to improve health outcomes (emblematic in the very establishment of the AHCs), indicate an environment receptive to critical self-examination and adaptation. Such adaptation is needed if AHCs are to effectively deliver a population health role.

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Acronyms

AHC	Academic Health Centre
AHRA	Australian Health Research Alliance
AHRTC	Advanced Health Research and Translation Centre
AHSC	Academic Health Science Centre
AHSN	Academic Health Science Network
BRC	(NIHR) Biomedical Research Centre
CIRH	Centre for Innovation in Regional Health
CLAHRC	(NIHR) Collaboration for Leadership in Applied Health Research and Care
GM	Greater Manchester
GM AHSN	Greater Manchester Academic Health Science Network
GMCA	Greater Manchester Combined Authority
GMHSC	Greater Manchester Health and Social Care (Partnership)
HHS	Hospital and Health Service
HInM	Health Innovation Manchester
HTSA	Health Translation South Australia
MAHSC	Manchester Academic Health Science Centre
NHMRC	National Health and Medical Research Centre (Australia)
NHS	National Health Service (UK)
NIHR	National Institute for Health Research (UK)
OxAHSC	Oxford Academic Health Science Centre
PHN	Primary Health Network (Australia)
SA Centre	South Australia Health Research and Translation Centre
TAAHC	Tropical Australian Academic Health Centre
UK	United Kingdom
US	United States of America
WHO	World Health Organization

1. Introduction

1.1 Background

Defining Academic Health Centres

Academic Health Centres (AHCs) are defined in the literature as organisations that integrate a mission to deliver high quality basic and clinical research, education to health professionals and clinical care to patients (French et al. 2014). This “tripartite mission” (French et al. 2014, p. 382), or “three legged stool”, is characteristic of the field of *academic medicine,* which is founded on a premise that “a healthier future for all” will eventuate by synergistically combining the three fields of endeavour (Rahn 2015, p. xv). In the United States (US), AHCs have led advancements in health care and specialised health professional training, acting as “ideas factories” for new biomedical discoveries and the development of medical technologies (Rahn 2015, p. xv).

Worldwide, AHCs are expected to operate as vehicles for mobilising knowledge into practice in order to improve the responsiveness of health systems to emerging evidence (Dickinson and Ledger 2018; French et al. 2014). The term “AHC” and variants, such as Academic Health Science Centre and Academic Health Science Network, are becoming more widely used (French et al. 2014). The increasing spread of these organisational forms responds to a widespread challenge facing health systems: how to mobilise knowledge into health care practice (Dickinson and Ledger 2018). This study adopts a very broad interpretation of the “AHC” nomenclature to encompass the wide range of initiatives that attempt to deliver this tripartite mission and that have a focus on mobilising knowledge to practice.

Governance arrangements of AHCs vary widely. While fully integrated organisations – involving ownership of the teaching hospital or healthcare system by the academic enterprise – are more common in the US (Wartman 2015a), network-type arrangements, characterised by alliances between diverse organisational members, are more common in Australia and the United Kingdom (UK) (Dickinson and Ledger 2018). Ovseiko et al. (2010) identify three main organisational models of AHCs in the UK:

1. The *joint leadership and management* model, characterised by a joint leadership and management structure over the academic and clinical components of the medical school and National Health Service (NHS) organisation/s;
2. The *joint partnership board* model, characterised by the creation of an AHC board linking the academic and clinical enterprises as a vehicle to strengthen collaboration between the partnering organisations; and
3. The *unlinked partners* model of academic-clinical enterprise relationships, wherein no structural linkages exist between the partners, although relationships between the

organisations might be facilitated through network-type arrangements based on consent and collaboration rather than through hierarchies with reporting lines.

The *joint partnership board* and *unlinked partners* models are common in the UK (Ovseiko et al. 2010) and in Australia (Edelman et al. 2019). These models typically involve separate health care organisations, universities, research institutes and other health system organisations working together through a collaborative governance infrastructure, with the aim of improving strategic and operational connectivity between their health care, education and research functions and capabilities (Dickinson and Ledger 2018). The "tripartite mission" of improving health care, educating health professionals and conducting excellent research (as introduced above) is what unifies the various structural forms and foci of AHCs internationally (French et al. 2014, p. 382).

Establishment in Australia and England

In Australia, the 2013 Strategic Review of Health and Medical Research (McKeon et al. 2013) catalysed policy-level discussions about formally establishing AHCs, which were termed *Integrated Health Research Centres* in the Review. The vision of the Review authors was that the proposed Centres would, with reference to international experience, drive "greater integration and embedding of research in the health system" by facilitating "best-practice translation of research directly into healthcare delivery" (McKeon et al. 2013, p. 69). The National Health and Medical Research Centre (NHMRC) had, in parallel, championed the goal of improving "the integration of research, professional education and patient care" in Australia (NHMRC 2010, p. 8). In a discussion paper in 2010, the NHMRC put forward a vision to establish *Advanced Health Research Centres* to enhance "collaboration and integration of universities, MRIs [Medical Research Institutes] and hospitals", whose purpose would be to accelerate "research translation and evidence-based clinical care" (NHMRC 2010; quoted in McKeon et al. 2013, p. 68). Part of the rationale for the establishment of these new collaborative entities in Australia was to address broader health systems fragmentation, complexity and inefficiency (Dickinson and Ledger 2018). The Strategic Review of Health and Medical Research also reported an opportunity for the proposed Centres to engage primary care and public health institutions to support a focus on "prevention" as well as "treatment" (McKeon et al. 2013).

A formal, competitive "designation" process of AHCs commenced in Australia in 2014 led by the NHMRC (NHMRC 2020a). Successful designation of clusters of collaborating healthcare, research and education organisations, for a period of up to five years, follow an application processes and assessment by an international expert panel (NHMRC 2020a). The designation criteria require evidence of effective integration of research and education capability with health service delivery for defined populations (NHMRC 2014). The NHMRC termed the designated AHCs *Advanced Health Research and Translation Centres* (AHRTCs) if they encompassed organisations in large metropolitan areas, and *Centres for Innovation in Regional Health* (CIRHs) if the collaborating organisations were predominantly regional, rural and/or remote; with applicants themselves selecting the most relevant designation category at submission. The CIRH designation scheme was established after the AHRTC scheme, with the first designation round for CIRHs opening in 2016 (NHMRC 2016). As at September 2020, the NHMRC had led three designation rounds (2014, 2016 and 2018) culminating in the designation of seven AHRTCs and three CIRHs across Australia (**Table 1**). The designation itself does not involve funding and seeks to formally recognise "the value of excellence in leadership and collaboration in research, translation, training and health care" (NHMRC 2019). Instead, the designated AHRTCs and CIRHs access funding from the Medical Research Future Fund (MRFF) through the Rapid Applied Research Translation initiative, which involves planned disbursement of $218 million over 10 years to designated centres (MRFF 2020). In addition to the NHMRC-designated AHRTCs and CIRHs, several self-defined AHCs in Australia exist outside of the NHMRC designation scheme. An alliance of designated AHRTCs and CIRHs (called the *Australian Health Research Alliance*) was established shortly after the first designation round to bring the designated centres together "to solve some of our greatest healthcare challenges" (AHRA 2020).

Explaining the role of the Centres in Australia's health system on the NHMRC website, one of the AHRTC leaders describes the initiatives as being the first of their kind):

> *"AHRTCs and CIRHs are Australia's first, at-scale, purpose-built vehicles for supporting translation of research, and driving research translation, to impact and [drive] better outcomes for patients" (NHMRC 2020b).*

As well as improving clinical care, the ultimate expected goal of the designated centres is "to improve the health and wellbeing of patients and the populations served" (NHMRC 2019). A review of the AHRTC and CIRH programs commenced in 2019, with the purpose of considering "the design and operation of the NHMRC Translation Centre initiative" and advising the NHMRC Chief Executive Officer about whether the initiative:

> *"could be modified or reformed to strengthen research-based health care and training to improve the health and wellbeing of patients and communities, and the integration of research into multiple health services" (NHMRC 2018, p. 3).*

At the time of writing, the outcomes of this review process had not been published. Recognising that the Review might result in changes to the current scheme, the assessment panel for the 2018 designation round suggested that re-accreditation processes for designated centres be suspended pending outcomes of the Review (NHMRC 2019).

Table 1: NHMRC-designated AHRTCs and CIRHs in Australia as at September 2020

Centre name	**AHRTC or CIRH**	**Location**	**Year designated**
Melbourne Academic Centre for Health	AHRTC	Melbourne	2015
Monash Partners Academic Health Science Centre	AHRTC	Melbourne	2015
Health Translation SA	AHRTC	South Australia (state-wide)	2015
Sydney Health Partners (AHRTC, recognised in 2015)	AHRTC	Sydney	2015
Brisbane Diamantina Health Partners	AHRTC	Brisbane	2017
SPHERE Maridulu Budyari Gumal	AHRTC	Sydney	2017
Western Australian Health Translation Network	AHRTC	Western Australia (state-wide)	2017
Central Australian Academic Health Science Network	CIRH	Central Australia	2017
NSW Regional Health Partners (CIRH, recognised in 2017)	CIRH	Regional New South Wales	2017
Tropical Australian Academic Health Centre	CIRH	Northern Queensland	2019

Data source: NHMRC 2020a.

In the UK, establishment of AHCs followed the publication of a series of reports championing the need for better research integration within the NHS in England. The Department of Health's national health research strategy for 2006-2010, Best Research for Best Health, reported a need for "research that meets the current and future needs of patients and the public" (Department of Health 2006, p. 15). The strategy provided for the establishment of the National Institute of Health Research (NIHR) in 2006, with the aiming of creating "a health research system in which the NHS supports outstanding individuals, working in world-class facilities, conducting leading-edge research focussed on the needs of patients and public" (Department of Health 2006, p. 2). The NIHR consolidated NHS research and development investment into the one coordinating body and initiated a series of funded programs that aimed to effect alignment between collaborating universities and NHS organisations around: biomedical research (through *NIHR Biomedical Research Centres*); and applied health research (through *NIHR Collaborations for Leadership in Applied Health Research and Care* – later renamed *NIHR Applied Research Collaborations*) (Ovseiko et al. 2010; NIHR 2020a).

In parallel, a report on the Review of UK Health Research Funding in 2006 recommended the development of a strategy to ensure that "two key gaps in the translation of health research" be urgently addressed: translating basic and clinical research ideas into new products and clinical approaches; and implementing these in clinical practice (Cooksey 2006, p. 3). The Review also underscored a need for research and development investment in the UK to be translated into both "health" and "economic" benefit (Cooksey 2006, p. 4). Subsequently in 2008, a strategic review of the NHS in England, High Quality Care for All, recommended the establishment of *Academic Health Science Centres* (AHSCs) "to bring together a small number of health and academic partners to focus on world-class research, teaching and patient care" (Darzi 2008, p. 57). The intended purpose of the AHSCs, drawing from international experience, was "to take new discoveries and promote their application in the NHS and across the world" (Darzi 2008, p. 57). Rather than be applied indiscriminately, the AHSC label was to be applied to collaborating partners following a competitive application and assessment processes by an international expert panel, recognising concentrations of "expertise and excellence" on par with the best centres internationally (Darzi 2008, p. 57).

The Department of Health launched the first designation process for AHSCs in 2008, which was following by a second round in 2013, and a third in 2019 (led by the NIHR), culminating in eight designated AHSCs at the time of writing (**Table 2**). The AHSC designation processes were later mirrored in the Australian approach, and involved competitive application and assessment, and subsequently no direct funding for successful Centres. Successful AHSCs are required to bid for re-designation every five years to maintain their AHSC status. A delay in the AHSC designation scheme in 2019 followed a period of reflection on the role of AHSCs in the UK, including in the context of Brexit (House of Lords 2019).

Not long after the establishment of the AHSC scheme, NHS England established 15 *Academic Health Science Networks* (AHSNs) across England in 2013, the aim of which was to "spread innovation at pace and scale – improving health and generating economic growth" (AHSN Network 2019). Unlike the AHSCs, the AHSNs are funded by NHS England, receiving between £2 million and £7 million per AHSN per year at the time of their establishment (Ovseiko et al. 2014).

Table 2: Designated AHSCs England as at September 2020

Centre name	**Location**	**Year designated/ re-designated**
Cambridge University Health Partners / Academic Health Science Centre	Cambridge	2009/2014/2020
Imperial College Academic Health Science Centre	London	2009/2014/2020
King's Health Partners / Academic Health Sciences Centre	London	2009/2014/2020
Manchester Academic Health Science Centre	Manchester	2009/2014/2020
UCL Partners / Academic Health Science Centre	London	2009/2014/2020
Oxford Academic Health Partners / Academic Health Science Centre	Oxford	2014/2020
Newcastle Health Innovation Partners / Academic Health Science Centre	North East of England	2020
Bristol Health Partners / Academic Health Science Centre	Bristol, North Somerset and South Gloucestershire	2020

Data source: NIHR 2020b.

Table 3 shows a policy timeline of the AHC establishment milestones in Australia and the UK, and **Table 4** compares the criteria for establishment of AHSCs (England) and AHRTCs (Australia) as used in the 2013 (England) and 2014 (Australia) designation rounds. Both schemes emphasise excellence in research and health education, evidence-informed clinical care, and effective collaboration between partnering organisations. Slight differences include the UK criteria additionally requiring evidence of contributions to life sciences industry development and economic growth, and the Australian criteria including public health and health services research as important research foci in addition to basic medical research with clinical application.

Following the period of reflection about the role of AHSCs in the England (noted above), the latest designation criteria for AHSCs (in 2019) additionally included expectations that the AHSCs would interact more with the AHSNs. While the new criteria remain broadly the same as the previous criteria, the additional expectation is that the designated AHSCs will demonstrate "alignment with the AHSN" in the region in which the AHSC is located (NHSA 2020). In turn, AHSNs are expected to interact with AHSCs towards a shared goal of "accelerating the speed of innovation in healthcare to the national population" (NIHR 2020b). The designation criteria for AHRTCs and CIRHs in Australia has remained the same in all designation rounds, with the possibility of changes being made in response to findings from the NHMRC review.

Table 3: Policy timeline in the formal establishment of AHCs in Australia and England

Year	Australia	Year	England
2006-2010	• Creation of AHCs nascent, no formal designation scheme. • National Health and Medical Research Centre (NHMRC) publishes discussion paper in 2010 putting forward a vision to establish Advanced Health Research Centres (NHMRC 2010, in McKeon et al. 2013).	2006-2010	• *Review of UK Health Research Funding* report released in 2006, setting a framework for increased investment into translational research to tackle two perceived translational gaps (Cooksey 2006). • Department of Health formulates *Best Research for Best Health 2006-2010* (Department of Health 2006), a national health research strategy that consolidated research and development investment within the NHS into the National Institute of Health Research (NIHR). • NIHR launches designation and funding process for Biomedical Research Centres and Collaborations for Leadership in Applied Health Research and Care in 2006 and 2007 respectively (NIHR 2020). • A strategic review of the NHS (*High Quality Care for All: NHS Next Stage Review*) released in 2008, recommending adoption of Academic Health Science Centres (AHSCs) as national policy (Darzi 2008). • Department of Health launches first designation round of Academic Health Science Centres (AHSCs) in 2008, resulting in five AHSCs becoming designated in 2009 for five years.
2011-2015	• *Strategic Review of Health and Medical Research* report released in 2013 (McKeon et al. 2013) advocating establishment of Integrated Health Research and Translation Centres. • NHMRC opens first round of designation for Advanced Health Research and Translation Centres (AHRTCs) in 2014, resulting in four AHRTCs becoming designated in 2015 for five years. • The Australia Health Research Alliance (AHRA) established to facilitate collaboration between designated centres.	2011-2015	• Second AHSC designation round opens in 2014, leading to one additional AHSC established and five re-designations. • Academic Health Science Networks (AHSNs) established across England in 2013.
2016-2020	• NHMRC opens first round of designation for Centres for Innovation in Regional Health (CIRHs) in 2016, at the same time as the second designation round for AHRTCs. Three additional AHRTCs and two CIRHs designated in 2017. • First formal review of AHRTCs and CIRHs commences in 2018, led by NHMRC. • NHMRC opens third round of designation for AHRTCs in 2018, and second designation round for CIRHs. One additional CIRH designated in 2019.	2016-2020	• Third round of AHSC designations commences in 2019. Two additional AHSCs established in 2020, six re-designated.

Table 4: Criteria used in designation of AHSCs (England) and AHRTCs (Australia) in 2013 and 2014

Broad category	**England - Designation criteria for AHSCs (Bennett 2013)** According to Department of Health, submitting collaborations should provide evidence of:	**Australia - Designation criteria for AHRTCs* (NHMRC 2014)** According to the NHMRC, submitting collaborations should provide evidence of:
Collaborative governance	- Strategic alignment of NHS provider and university objectives. - Strong partnership governance.	- Strong collaboration amongst the research, translation, patient care and education programs.
Research and translation into health care	- Highest volume critic mass and world class excellence in basic medical research. - Strong clinical informatics platform to underpin delivery of AHSC objectives. - The ability to translate scientific advances into patient benefit, in order to improve patient care and healthcare delivery. - Excellence in patient care. - Strong patient and public involvement and engagement.	- Excellence in innovative biomedical, clinical, public health and health services research. - Leadership in outstanding research- and evidence-based clinical care, including for the most difficult clinical conditions. - Health professional leaders who ensure that research knowledge is translated into policies and practices locally, nationally and internationally. - Programs and activities to accelerate research findings into health care and ways of bringing health care problems to the researchers.
Health professional education	- Excellence in health education.	- Research-infused education and training.
Life sciences industry engagement and economic growth	- Strong track record of, and capacity for, productive research collaborations with the life sciences industry and contribution to economic growth.	

**Note: CIRH designation criteria (established in 2016) are identical but with focus on "regional" populations.*

1.2 Statement of the problem

In Australia and England, AHCs are relatively new additions to already complex health system landscapes. There are high expectations that AHCs in these countries will integrate and improve health care, education and research through collaborative governance mechanisms, thereby improving patient health as well as broader community health and supporting economic growth (House of Lords 2019; AHRA 2020). AHCs tend to be presented in the policy literature as a panacea for all manner of health system challenges and priorities – from addressing so-called translation gaps and improving health services efficiency and quality, to improving patient and population health outcomes, to growing life sciences industries and broader economies (McKeon 2013; French et al. 2014). Yet, little is known about how AHCs operationalise their goals to achieve their impact expectations, including what mechanisms might facilitate their success (Dickinson and Ledger 2018; French et al. 2014). The dominant focus in the literature on AHCs in Australia and the UK has tended to be on organisational structuring rather than on the mechanisms they employ to deliver their goals (Dickinson and Ledger 2018). Moreover, apart from some critical commentaries in the global literature, mostly focused on AHCs in the US context, few studies have taken a step back to examine what AHCs really offer the populations they are expected to serve (Edelman et al. 2018).

This study addresses these gaps by exploring the role of AHCs in improving population health, looking beyond the policy statements to understand the nature of population health -related goals in AHCs, and how they are being operationalised. The study commences with the premise that population health, defined as a social model of health that is concerned with both aggregate health improvements and their equitable distribution (Javanparast et al. 2018), is an important value framework for AHCs. Population health is an integral component of the so-called triple aim of health service delivery – to improve patient experience, improve the health of populations, and reduce the costs of health care (Institute for Healthcare Improvement 2012). Definitions vary, but a widely adopted definition put forward by Kindig and Stoddart (2003) differentiates population health from related concepts of public health, health promotion and social epidemiology by its focus on health outcomes, including their distribution and determinants:

> *"[Population health is] the health outcomes of a group of individuals, including the distribution of such outcomes within the group" (Kindig and Stoddart 2003, p. 380).*

This definition is contrasted with previous usages of the term that conflated it with the health of populations (Kindig and Stoddart 2003). By considering *distribution* as part of the population health definition, Kindig and Stoddart emphasise the centrality of inequality and inequity of health outcomes across sub-populations (2003). Health equity, as a component of population health, is defined as the absence of avoidable and unfair inequalities in health (Welch et al. 2016). The concept can be differentiated from health inequalities or statistically described disparities by its moral and ethical dimension ("unfairness"), which requires examination of the inequalities in a social context (Whitehead 1992). Equitable health systems are understood as those that actively ensure universal access to high quality health care, including establishing goals and initiatives to improve health care coverage across disadvantaged populations (Gwatkin et al. 2004).

In addition to explicitly stated population health -related aspirations in their establishment contexts, AHCs exist as part of health systems that are increasingly expected to bear responsibility for population health as well as clinical service delivery (Javanparast et al. 2018). Moreover, a population health framing responds to a need for the analysis of health policy to embrace broad notions of societal good, such as achieving health equity, rather than being driven solely by value judgements against specific, explicitly stated, policy goals (Erasmus and Gilson 2008).

1.3 Aim of the research

The aim of the research is to explore the role of AHCs in Australia and England in improving population health. The study does not aim to undertake an evaluation of AHCs against population health benchmarks, but rather to explore population health goals in AHCs and how they are being operationalised using relevant theories, concepts and frameworks.

1.4 Research questions

The study addresses the following research questions:

a) How is population health characterised and described within AHCs?
b) How are population health goals operationalised by AHCs?
c) What are the key enablers and barriers of AHC activity relevant to population health?

To take account of the substantial diversity in AHC structures and their health system contexts, addressing these questions involved examination of both the unique features of the AHCs selected for analysis as well as the health system contexts in which they are situated.

1.5 Significance of the study

Despite the growing number of AHCs in Australia and England and public investment in them, many questions likely to be posed by policy actors remain unanswered. For example, should AHCs be used as implementation vehicles for complex health systems reform? Can they be held accountable to the health of the populations in which they are based? Or are other types of impact indicators (e.g. academic excellence and commercialisation indicators) more relevant to their role? What does "success" really look like within AHCs? And who are the expected beneficiaries of their work?

At the time of writing, policymakers in both Australia and England had recently undergone processes of review or reflection on the role of AHCs. Although the results of these processes had not yet been publicly reported, their initiation demonstrates the intent of governments in both countries to better understand the role of AHCs and how success should be defined, underscoring the policy relevance of the study. Accordingly, by seeking to explore the role of AHCs in improving population health, the findings of this research are likely to be of use to those involved in developing, leading, funding, managing and evaluating AHCs in Australia and the UK, as well as other contexts where AHCs are established or developing as organisational forms. The study also addresses a need for empirical and theory-driven studies on AHCs in the global literature (French et al. 2014; Edelman et al. 2018).

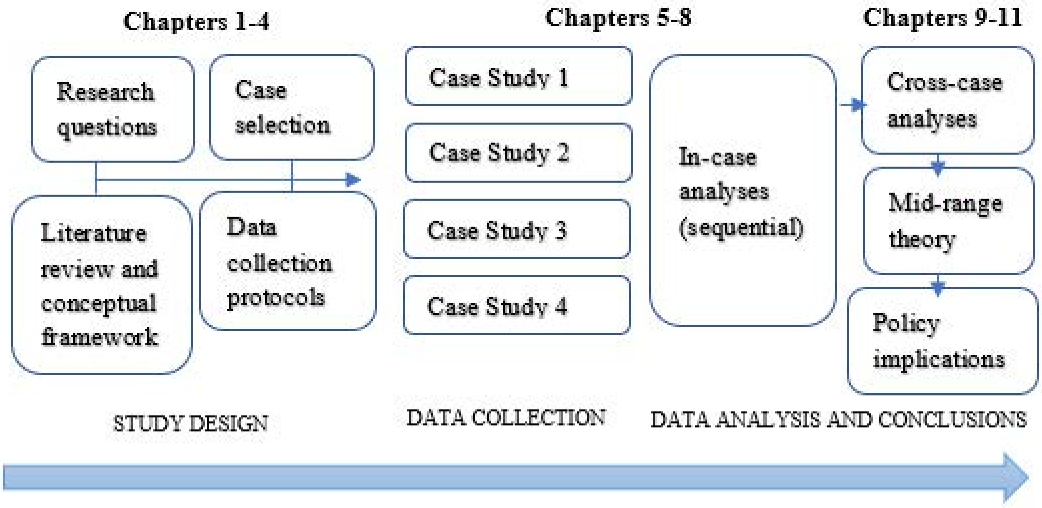
This thesis contributes to these policy discussions and literature gaps by offering detailed insights into the aims, structures and activities of four distinct AHCs in two countries. By using institutional theory to examine regulative, normative, and cultural-cognitive elements within the AHCs, the thesis draws attention to the ways that a population health role is enabled; and conversely, to misalignments between the institutional elements that may be hindering enactment of a population health role. The findings provide a foundation for future research to further examine and address the key impediments identified, and draw attention to key institutional features that existing and prospective AHCs should be aware of and respond to in their governance structures. The thesis therefore brings a population health lens to ongoing discussions about the purpose and societal contribution of AHCs in Australia and England, revealing the ways in which their structures and activities are oriented (or not) towards improving health outcomes and their distribution within populations. These insights will help policy actors to clarify the intended role and contributions of AHCs within health systems, which may inform ongoing “designation” (government accreditation) processes and the development of impact indicators within AHCs.

1.6 Thesis structure

The thesis is divided into 11 chapters. Following the introduction, the globally-focussed literature review sets a foundation for the rest of the study and informs the development of the conceptual framework and study methodology (**Chapters 3 and 4**).

The literature review examines the state of the evidence on the equity role of AHCs and is accompanied by two peer-reviewed publications as appendices. Following the chapters on the conceptual framework and study methodology, five chapters present the results of the study, commencing with four in-case chapters and proceeding to a single cross-case chapter. Reflecting best practice in multiple-case study research (Yin et al. 2014), the four in-case chapters were developed sequentially and then collectively informed the development of the cross-case chapter, which compares findings across the cases through cross-case themes (**Figure 1**). The discussion chapter presents an integrated discussion of the findings in relation to the literature and includes suggestions for future practice, policy and research as well as a summary of the main strengths and limitations of the study. The conclusion summarises the key findings and contribution of the study and thesis to the body of knowledge.

Figure 1: Flow diagram showing thesis structure alongside the multiple-case study procedure (adapted from Yin et al. 2014)



1.7 Chapter summary

This chapter introduces AHCs as organisations that integrate a mission to deliver high quality basic and clinical research, education to health professionals and clinical care to patients. The chapter describes the development of AHCs in Australia and England, including the processes leading to government “designation” (formal accreditation against competitive criteria) of several AHCs in both countries. The chapter then situates the thesis within the literature on AHCs and policy contexts in Australia and England, which demonstrates that the study addresses a need for empirical examination of AHCs, and more specifically a need for examination of how AHCs define and operationalise any population health -related goals. The aim of the research and research questions are stated, and an overview is given of the thesis structure.

2. Literature Review

2.1 Introduction

A systematic literature review was undertaken in 2017 on the equity role of AHCs. Two peer-reviewed publications were produced from this work; the full review and review protocol (details are at **Appendices G and H**). Given the several years elapsing between conducting the original review and completing the empirical research, an update to this review was undertaken in September 2020. This chapter reports the original review with the review update integrated.

At the time the review was designed, a scoping review of the global literature on AHCs had been recently published by French et al. (2014) but no evidence syntheses existed that examined more targeted questions about who the intended beneficiaries of AHCs are, and how population health - related goals in AHCs are being enacted. The decision to focus the review on health equity, defined as the absence of avoidable and unfair inequalities in health (Welch et al. 2016; Whitehead 1992), responded particularly to suggestions in key policy documents and by some commentators that AHCs are being established to address, or have a track record in addressing, identified disparities in population health outcomes in some countries.

In the US, it is reported that AHCs are well-recognised for their social contributions, which involve caring for poor and underserved populations (The Commonwealth Fund Task Force on Academic Health Centers (US) 2001; Foreman, 2004). Moreover, in recent years, the US health care reform ‘triple aim’ of improving the health of individuals and populations while controlling health care costs is reported to have encouraged a renewed focus within US AHCs on their role in improving the health of populations through equity-focussed activity in patient care, education and research (Gourevitch 2014; Wartman 2015a). In Australia, an expectation that the newly developing AHCs will adopt an equity focus was highlighted in a government initiative emphasising their role in “improving the health of vulnerable groups” (Commonwealth of Australia 2017).

Responding to these equity-related statements and expectations, this globally focussed systematic review seeks to examine the state of the evidence on the equity role of AHCs. The review questions are (1) How is health equity characterised or described in the literature on AHCs? (2) How is the concept of health equity operationalised by AHC activities? And (3) What are the drivers, barriers and facilitators of AHC activity relevant to health equity? The focus of the review is supported by the equity extension to the PRISMA guidelines which emphasises the important role of equity-focussed systematic reviews in contributing to the global agenda to improve health equity (Welch et al. 2016).

Definitions

AHCs are defined in this review as organisations that self-identify, or are identified by others, as academic health/medical (science) centres/systems/networks, integrated health research centres, advanced health research and translation centres, and/or other proxy terms. This definition draws on the mission-based concept of an “AHC” as an organisation that aims to achieve high standards of clinical care, undertake clinical and laboratory research, and educate health professionals through various institutional models of health system-academic integration. Drawing on the Robert Wood Johnson Foundation definition of health equity (Braveman et al. 2017), the review examines how AHCs are (or are not)*:* eliminating unfair and unjust health disparities; and addressing the determinants of these health disparities.

2.2 Literature review methods

The review protocol was registered with the international prospective register of systematic reviews on 22 November 2016 (PROSPERO 2016:CRD42016051802). The protocol also underwent a peer review process and was published in May 2017 (Edelman et al. 2017). The PRISMA guidelines and the equity extension were followed in the process of this review.

Apart from studies reporting clinical interventions or trials, all types of published peer-reviewed and grey literature in English, from any country, were eligible for inclusion in the review. Publications not explicitly addressing the connection between AHCs and health equity concepts were excluded. Original literature searches were limited to the timeframe of 1 January 2000 to 31 December 2016. The review update, which addressed the same aim and research questions as the original review, replicating the original searches with a 2017-September 2020 date range. **Table 5** shows the databases and search terms used in the searches.

Table 5: Search terms used in bibliographic databases for both the original review and update

Medline (Ovid)
(academic health science system* OR academic health system* OR academic health cent* OR academic health science cent* OR integrated health research cent*) OR (*Academic Medical Centers/) AND (equity of care OR health care equity OR health equity OR health care disparit* OR equitable health system* OR health inequalit* OR social accountability OR underserved populations OR universal health coverage) OR (*Health Status Disparities/) OR (*Healthcare Disparities/) OR (*Health Care Reform/) OR (*"Diffusion of Innovation"/) OR (*Community Health Services/) OR (*Public Health/) OR (*Internationality/) OR (*Health Equity/) OR (*Vulnerable Populations/) OR (*"Social Determinants of Health"/) OR (*Health Policy/) OR (*Health Services Accessibility/)
Scopus (title-abstract-keyword)

(academic health science system* OR academic health system* OR academic health cent* OR academic health science cent* OR integrated health research cent*) AND (equity of care OR health care equity OR health equity OR health care disparit* OR equitable health system* OR health inequalit* OR social accountability OR underserved populations OR universal health coverage)
Google Scholar
("academic health science system*" OR "academic health system*" OR "academic health cent*" OR "academic health science cent*" OR "integrated health research cent*") AND ("equity of care" OR "health care equity" OR "health equity" OR "health care disparit*" OR "equitable health system*" OR "health inequalit*" OR "social accountability" OR "underserved populations" OR "universal health coverage")
Cochrane Library
("academic health science system*" OR "academic health system*" OR "academic health cent*" OR "academic health science cent*" OR "integrated health research cent*")
Informit health suite (all summary fields)
(academic health science system* OR academic health system* OR academic health cent* OR academic health science cent* OR integrated health research cent*) AND (equity of care OR health care equity OR health equity OR health care disparit* OR equitable health system* OR health inequalit* OR social accountability OR underserved populations OR universal health coverage)

The Medline (Ovid), Scopus, Google Scholar, Cochrane Library, and Informit health suite databases were searched in January 2017 and again in September 2020 with search terms derived through the ‘pearl harvesting’ method (Sandieson et al., 2014). Additional articles were identified through snowballing, Google and website searches and, in the original review, direct contact with eight international authors and experts in the field. International experts in the field were not approached to supplement searches in the review update.

Following removal of duplicates and initial screening, full text papers were sourced, assessed for eligibility and data extracted. All included papers were allocated to a study type, with quality and relevance appraisal involving a two-step process of initial level of evidence appraisal (The Joanna Briggs Institute and The University of Adelaide 2014) followed by critical appraisal of methodological quality (The Joanna Briggs Institute and The University of Adelaide 2016). Data analysis followed a thematic synthesis approach (Thomas and Harden 2008).

2.3 Literature review results

Characteristics of the included publications

Original bibliographic database searches were performed by the first author during January 2017, with searches for the review update conducted on 29 September 2020. The original review yielded 513 records. Five additional papers were identified through website searching, 25 through the snowballing method, and three were recommended by experts in the field. Following the full text review of 155 papers, 103 were included in the final analysis (**Figure 2**). In the review update, a total of 319 records were identified through database searches, with a further four records identified via web searches and snowballing. Following screening of title-abstract records, full text eligibility assessment was conducted of 59 papers, of which 21 were included in the final analysis (**Figure 3**). In total, 124 papers were ultimately included in the review.

In all, 85 publications were assessed as demonstrating a high degree of relevant to the review questions, with the remaining 39 considered relevant but to a lesser degree. Only five studies (Bisgaier et al. 2012; Malvey et al. 2000; Block et al. 2012; Weissman et al. 2003; Davies) in the original review, and four in the review update (Burke et al. 2018; Edelman et al. 2019; Gourevitch et al. 2019a; Robinson et al. 2020), employed empirical methods, six of which were assessed as having high methodological quality for their study types. No publications were excluded from the review based on this quality and relevance appraisal process.

Figure 2: Flow of information through the original review (searches conducted in January 2017)

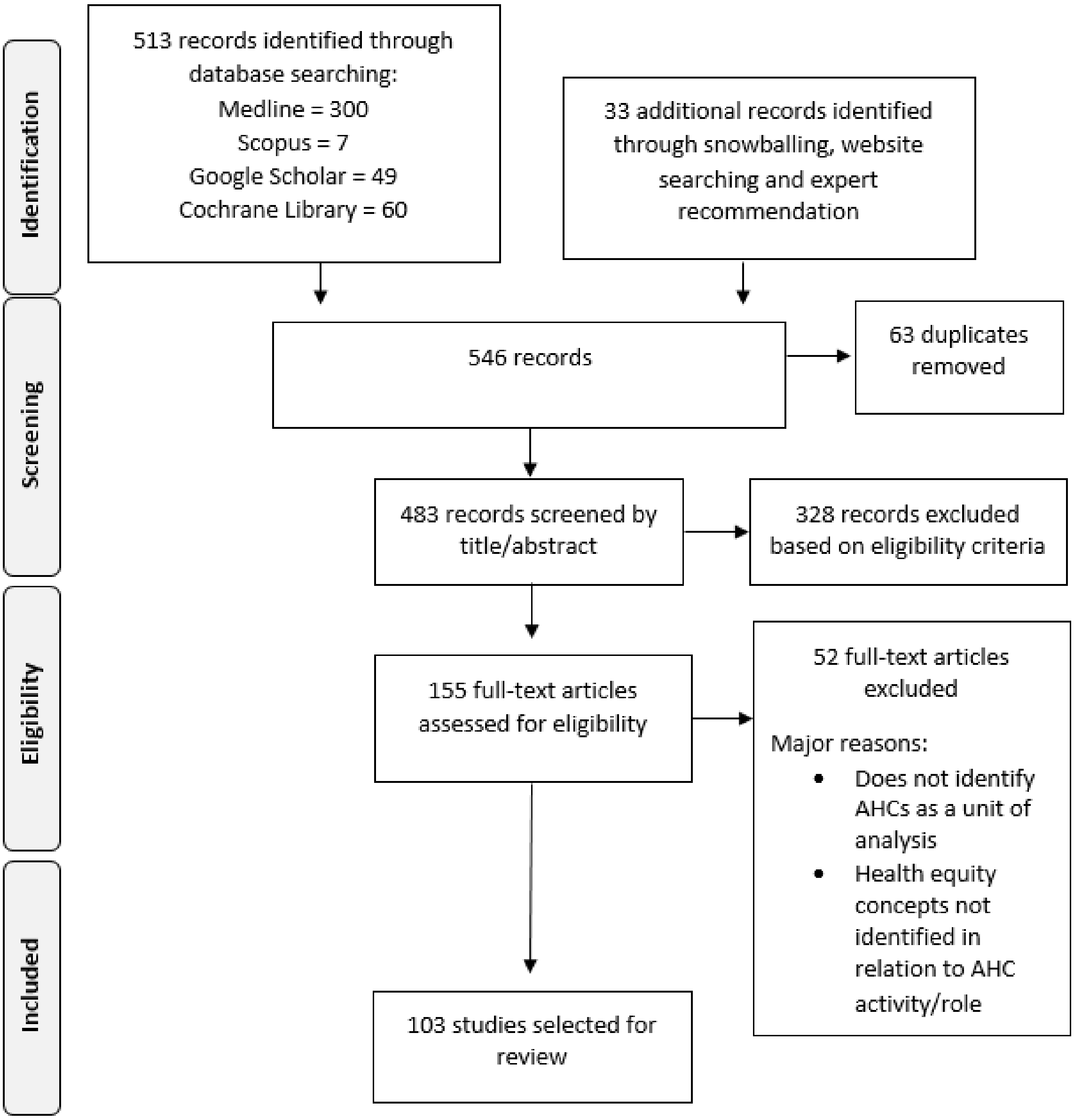
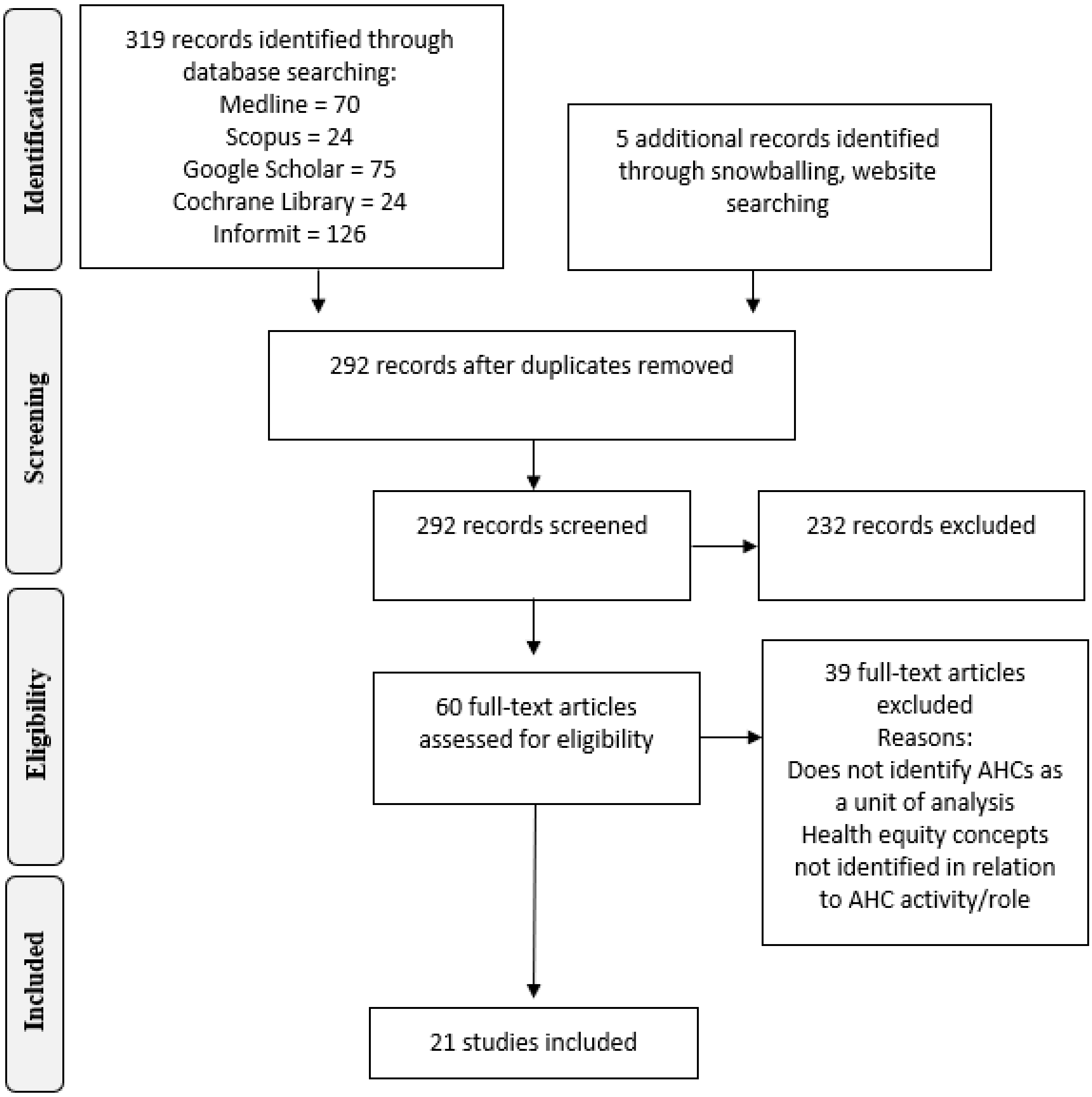


Figure 3: Flow of information through the review update (searches conducted in September 2020)



The study setting of included papers (see **Table 6**) was determined by the country of the AHC/s or AHC models being discussed. Out of the 124 papers included in the review, 103 (83%) examined AHCs in the US, and 21 (17%) examined AHCs in countries other than the US. The vast majority of included papers (121; 98%) were focussed solely on high income countries.

Table 6: Breakdown of publications reviewed by study setting (n=124)

Country of study	Number of publications
United States	103 (83%)
Australia	7 (6%)
Canada	5 (4%)
United Kingdom	4 (3%)
China	1 (1%)
Singapore/United States	1 (1%)
Tanzania	1 (1%)
Uganda/United States	1 (1%)
Global	1 (1%)
High income country	121 (98%)
Low-middle income country	3 (2%)

Included papers were allocated a study type (see **Table 7**) using a modified version of the categories used in the scoping review by French et al. (2014). 98 papers (83%) were classified as “expert opinion” – these included commentary, perspective, and opinion papers, as well as papers describing specific initiatives or programs that did not clearly use empirical methods. (Note that the original literature review protocol and original published systematic review conducted by the current author were identified in the database searches in the review update but were excluded.)

Table 7: Types of publications reviewed (n=124)

Type of publication	Number of publications
Expert opinion	98 (79%)
Empirical research	9 (7%)
Policy report	6 (5%)
Conceptual framework analysis	5 (4%)
Book	3 (2%)
Review	1 (1%)
Other	2 (2%)

How is health equity characterised, described and operationalised?

Analysis of included papers identified eight descriptive themes through which health equity concepts in relation to AHCs were characterised, described and operationalised.

Population health. Multiple commentaries and a book chapter described health equity concepts in relation to the "population health" role of AHCs (Gourevitch 2014; Wartman 2015b; DiSesa and Kaiser, 2015; Berkowitz et al. 2016; Washington et al. 2013; Washington et al. 2016; Perman et al. 2015; Wartman 2010; Aguilar-Gaxiola et al. 2014; Newton and DuBard 2006). Improving population health was highlighted as a key focus of health reform goals in the US, and a key element of a framework for rethinking the way AHCs deliver care in the country (Wartman 2015b; Washington et al. 2013). A focus on populations was contrasted with the traditional focus by AHCs on the health of individual patients (Washington et al. 2016; Washington et al. 2013), and a fundamental disconnect was described between the success of AHCs in the US as leaders in the provision of advanced care and specialist training, and in protecting the overall health of the populace (Wartman 2015a). In the UK and Canada, AHCs were noted to have sought to emphasise population health through the creation of "Academic Health Science Networks" (National Task Force on the Future of Canada's Academic Health Sciences Centres 2010, Ovseiko et al. 2014). Two qualitative studies in the review update explored the development of Australian AHCs, finding broad expectations among policymakers and AHC leaders that the emerging entities would deliver "population health impact" (Robinson et al. 2020, p. 1) and effect "health systems change and improvement" (Edelman et al. 2019, p. 1) through their collaborative governance approaches.

Several papers sought to encourage efforts by AHCs to re-focus their activities towards population health (Gourevitch 2014; Foreman 2004; Perman et al. 2015; Roper and Newton 2006). Specifically, a number of commentaries perceived an overemphasis within AHCs on biomedical research to the detriment of population-focussed research, and suggested research foci to better inform public policy (Roper and Newton 2006; Fischer and McDermott 2013; Gourevitch 2014; Zerzan et al. 2011; MacLellan 2002; Ellner et al. 2015; Bonham et al. 2010). Referring to the education mission of AHCs, several commentaries suggested that AHCs should recalibrate their educational programs to effect better alignment between health professional curricula and population health needs, and encourage the development of inter-professional teams rather than focus on revenue-generating speciality training (Acosta and Aguilar-Gaxiola 2014; Wartman 2010; Gourevitch 2014; Newton and DuBard 2006; Perman et al. 2015; Wartman 2015b; Hall and Grumbach 2010; Wartman and Steinberg 2011). In a qualitative study identified in the review update, Gourevitch et al. (2019a) note a rapid emergence in US AHCs within the last five to ten years of departments addressing population health. The authors suggest that this emergence is reflective of growing interest in advancing population health and health equity within the broad field of academic medicine (Gourevitch et al. 2019a).

Addressing health disparities. Multiple commentaries and two book chapters, all US-focussed, described AHCs as having a particular capacity to lead health system initiatives aimed at addressing health disparities (Foreman 2004; Dzau et al. 2010; Denham et al. 2013; Roper and Newton 2006; Shomaker 2010; Dzau et al. 2014; Clancy 2012; Blumenthal et al. 2004; Acosta and Aguilar-Gaxiola 2014; Zuckerman 2014; Perman et al. 2015). Reasons for this assertion included a perceived capacity of AHCs to interact with all points along a research translation continuum, their multi-professional and multi-disciplinary composition and their position as ‘centres of convergence’ for health care, research and workforce training. Reflecting on the proximity of AHCs in the US to populations with high and complex health needs, their public funding and a perception that AHCs have the capacity and resources to make a difference, one commentary argued that improving the health of underserved populations could not conceivably fall to any other organisation (Foreman 2004), although many patients were described as living in the shadow of AHCs in the US (Lewin et al. 2014), Several recommendations were made in these papers for the adoption of strategies by AHCs to strengthen their equity focus across all three mission areas (service delivery, research, and education). Multiple examples were also identified within the literature of initiatives that aim to operationalise health equity objectives (Berkowitz et al. 2016; Denham et al. 2013; Szilagyi et al. 2014; Silberberg et al. 2007; Landrigan et al. 2011; Yaggy et al. 2006; Aguilar-Gaxiola et al. 2014; Shomaker 2010; Michener et al. 2005; McElfish et al. 2015; Armstrong et al. 2016; Wakeman and Rich 2010; Juniarti et al. 2015; O'Brien and Kaluzny 2014; Kelley 2009; Coleman 2006; Berger 2009), two of which were described empirically (Block et al. 2012l Malvey et al. 2000).

AHCs were seen by several commentators to have a moral and social obligation, and a responsibility, to ensure that all people living within the communities they serve, and particularly underserved populations, have access to affordable health care (Acosta and Aguilar-Gaxiola 2014; Foreman 2004; Perman et al. 2015). Two commentaries and a policy report discussed the need for universal health coverage in the US and the role of AHCs in facilitating this (Pardes 2000; Fischer and McDermott 2013; Committee on the Roles of Academic Health Centers in the 21st Century (US) 2004). Health systems objectives emphasising universal, affordable and equitable health care access in China and Tanzania were also outlined, with the establishment of AHC-style models of academic-health services integration described as central to the achievement of these objectives (Chen 2013; Macfarlane and Kaaya 2012). Multiple papers reflected on the historical provision by AHCs in the US of high-quality care to millions of uninsured Americans and the implications of broader health care reform on uninsured and under-insured patients, including two empirical studies (Bisgaier et al. 2012; Weissman et al. 2003) and two US policy papers (The Commonwealth Fund Task Force on Academic Health Centers (US) 2003; The Commonwealth Fund Task Force on Academic Health Centers (US) 2001). In the review update, one paper reports that the Association of American Medical Colleges in the US is actively exploring of the role of AHCs in improving the health of the communities they serve (Alberti et al. 2018).

Social determinants of health. Several papers considered the role of AHCs in addressing the social determinants of health (SDH) (Washington et al. 2016; Perman et al. 2015; Association of Academic Health Centers 2015; Wartman 2010; Wartman and Steinberg 2011; Betancourt and Maina 2004), defined in one policy paper as the factors (including social circumstances, environment, behavioural choices, and access to medical care) that determine, or strongly influence, the ability to achieve and maintain good health throughout one’s life (Association of Academic Health Centers 2015). Commitment to addressing the SDH was emphasised as a key feature of the role of AHCs in population health improvement (Washington et al. 2016; Wartman et al. 2015a).

Several commentaries referred to the need for a business case to be made for AHCs to address these determinants, highlighting the potential investment value of building expertise and infrastructure in this area before it becomes competitively essential in the near future (Goldman 2014; Wartman et al. 2015; Knettel 2011). Some challenges and barriers to AHCs addressing the SDH were also described, including siloed and fragmented responsibilities to the different (clinical care, education, and research) missions within AHCs, inadequate population health data, insufficient workforce development and logistical and cultural challenges (Association of Academic Health Centers 2015; Wartman et al. 2015a). Recognising the significance of the SDH in shaping health outcomes, one commentary contended that the SDH may be under-appreciated both within AHCs and at the national policy level in the US (Wartman et al. 2015a). Nonetheless, another commentary referred to the existence of multiple programs within AHCs in the US designed to influence SDH (Wartman and Steinberg, 2011).

The SDH featured strongly in the literature identified in the review update. In a paper offering a framework to support and guide efforts of US-based AHCs to deliver a population health role, Gourevitch et al. (2019b) describe growing momentum in US AHCs towards approaches that recognise the SDH. The authors propose "four core approaches" to achieving population health and health equity in AHCs and describe their application within an AHC located in New York City (Gourevitch et al. 2019b, p. 814):

- Engage community (via partnership and collaboration to ensure goals align with real-world priorities and commitments to health equity);
- Turn information into insight (by using multi-disciplinary research to addressed questions about causes of illness and prevention);
- Transform health care (from volume- to value- based approaches in health care financing); and
- Shape policy that advances population health.

The authors describe a key approach being adopted within population health departments in AHCs being the establishment of cross-sectoral partnerships between health care delivery systems and "other sectors with substantial health impact" such as housing and education (Gourevitch et al. 2019a, p. 7). Resulting from interviews with community members in Baltimore in 2015, stakeholders involved in the Association of American Medical Colleges in the US engaged in action planning to identify a list of "community-derived actions for AHCs to promote health equity and justice" against their clinical care, medical education, and research missions (**Table 8**; Alberti et al. 2018, p. 8). The authors contend that AHCs, being "among the most heavily resourced institutions in underserved and under-resources communities" in the US, have "an ethical responsibility to directly address issues of social and economic injustice", foregrounding the SDH (Alberti et al. 2018, p. 2). In Canada, Rodin et al. (2020) argue that while the COVID-19 pandemic has showcased the capacity of some AHCs to respond quickly to the challenges, the experience has strongly highlighted the need for better integration between clinical care (specifically cancer care and palliative care) and public health efforts.

Table 8: Community-derived actions for AHCs to promote equity and justice (Alberti et al. 2018)

Clinical care mission
• Become more aware and ask about the social circumstances of their patients. • Devote less focus to biological determinants and more focus to social determinants. • Incorporate more home visits. • Be more involved with the community and invest in more "out of the office" time.

• Become more attentive and understanding about the needs of the community. Look at each patient as an individual.
Medical education mission
• Learn about the challenges and social circumstances community members face. • Learn how to navigate culturally diverse situations. Understand that each patient is different. • Devote less focus to biological determinants and more focus to social determinants. • Integrate economics, social science, and cultural sensitivity classes into the curriculum. • Learn to listen and consume information from the patient. • Be more involved in the community, by participating in community meetings, asset mapping, or even walking through the community. • Learn more about the traditions of certain communities.
Research mission
• Work together with the community to build trust. • Shorten the participant time requirements for research studies. • Involve community members throughout all phases of the research project. Find effective methods to disseminate information and knowledge. • Find methods to share and educate community members about research projects. • Make research participants feel like what they are doing is helpful to the study.

Community engagement. Community engagement was defined in one paper using the US Centres for Disease Control definition as the “process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people” (Szilagyi et al. 2014, p 585). Three commentaries described the need for AHCs to strengthen links with communities to improve health outcomes within their localities (MacLellan 2002; Levine 2008; Boutin-Foster et al. 2008). These papers argued that partnerships between AHCs and community organisations can develop and strengthen community capacity, address disparities in health care and support the missions of the AHC. Two commentaries argued that adoption of a community-engaged research (CEnR) agenda within AHCs, involving engagement of communities in all aspects of research activity, is necessary if health disparities are to be addressed (Michener et al., 2012, McElfish et al., 2015), and one commentary described an initiative to encourage US AHCs to engage in CEnR targeted to population health needs (Eder et al. 2013).

Although community engagement was described by one commentator in as a relatively new activity within many US AHCs (Szilagyi et al. 2014), several examples of “successful” community-

AHC collaborations in the US were profiled, some of which involve partnerships between AHCs in the US and community health centers (CHCs) (Denham et al. 2013; Acosta and Aguilar-Gaxiola 2014). In the review update, a partnership between a private, place-based foundation and the University of New Mexico's Office for Community Health in the US was profiled as a collaborative approach towards health system strengthening aimed at addressing rural health workforce shortages (Reid et al. 2019, p. 292). The partnership involved enactment of a series of "multi-party agreements" between health system stakeholders in the region, including the only AHC in the state, which reportedly improved health workforce recruitment and support (Reid et al. p. 292). Collaborative, community-oriented approaches are also being pursued in the development of AHCs in Australia (Edelman et al. 2019).

Some reported barriers to enactment of community engagement processes in AHCs included community mistrust of AHCs and a sense that AHCs operate outside of the communities in which they are located; these issues were described in two commentaries as factors limiting effective AHC-community partnerships aimed at improving population health in the US (Wartman and Steinberg, 2011; Michener et al. 2005). In the review update, Barrett et al. (2020) call for AHCs to cultivate community partnerships to understand and address the social and environmental factors that contribute to poor health outcomes, and Park et al. (2019, p. 1276) argue that by embracing "cocreation with communities", AHCs in the US can incorporate the SDH as part of their tripartite mission. Wesson et al. (2018) similarly argue that AHCs in the US must engage in proactive efforts to engage in partnerships with community organisations if they are improve population health.

Global health. Multiple papers addressed the current and potential role of AHCs in *global health* (Wartman 2010; Ackerly et al. 2011; Kolars 2000; Dzau et al. 2010; Hotez 2004; Landrigan et al. 2011), defined in one paper as "a field of study, practice, and research that transcends borders, engages in multidisciplinary activity, and includes both population-based and clinical foci" (Landrigan et al. 2011, p. 3). Two commentaries described the scale and complexity of global health challenges and discussed the role of AHCs in addressing them (Dzau et al. 2010; Ackerly et al. 2011). One argued that AHCs should "create not only novel drugs, devices and other technologies, but also new ways of deploying inexpensive preventive and treatment strategies among populations" in order to contribute to addressing these global challenges (Dzau et al. 2010, p. 949). The responsibility of AHCs to address population health at not only local and national levels, but also global levels, was emphasised in these papers, and this approach was contrasted by one commentator with the dominant operating model of AHCs in the US where care is provided "only to those patients who come through their doors" (Ackerly et al. 2011; p. 1093).

Several examples of global health initiatives driven by AHCs in the US were profiled (Aretz and Mudge 2011; Adli et al. 2011; Quinn 2008; Williams et al. 2008; Koplan and Baggett 2008; Kasper and Bajunirwe 2012), and global health activity of AHCs in the U.S. were described as involving collaborations with partners in China, Singapore, India, and the Middle East in clinical and translational research, global health, health care management, and medical and health professional education (Dzau et al. 2015). One commentary proposed a set of approaches to improve globally focussed initiatives to ensure that US AHCs deliver value to collaborating nations (Kolars 2000).

Health system reform. Multiple commentaries described the financial unsustainability of the US health system, highlighting rising costs, increasingly unaffordable insurance coverage, and challenges in the delivery of quality, equitable and accountable health care, and the implication of this for AHCs (Prislin et al. 2010; MacLellan 2002; Thompson and Anason 2012; Taylor 2016). Multiple papers discussed US healthcare reform and had a specific focus on components of the Patient Protection and Affordable Care Act (PPACA, or *Obamacare*) (Aguilar-Gaxiola et al. 2014; Wartman et al. 2015a; Thompson and Anason 2012; Taylor and Clinchy 2012; Felton 2011). Health equity was described as the primary goal of the PPACA, which is designed to ensure that all Americans have access to quality, affordable health care (Acosta and Aguilar-Gaxiola 2014).

AHCs were described simultaneously, and paradoxically, as having contributed to the problems driving healthcare reform in the US (Washington et al. 2013), as needing to respond and adapt to the reform (Washington et al. 2013; Pricewaterhouse Coopers 2012; Committee on the Roles of Academic Health Centers in the 21st Century US) 2004; Wartman et al. 2015a), and as being well-positioned to take a leadership role in the reform (Goldman 2014; Prislin et al. 2010; MacLellan 2002; Taylor 2016; Rothman et al. 2015). Health care reform in the US was seen to have spurred interest of senior leaders within AHCs in population health, translational and community-based research, and team-based education, training and practice (Wartman et al. 2015a; Goldman 2014). More directly, it was noted that certain PPACA provisions and regulations require that AHCs demonstrate community benefit (Szilagyi et al. 2014). The importance of good leadership in navigating AHCs through this context was also highlighted (Shomaker 2010; Committee on the Roles of Academic Health Centers in the 21st Century (US) 2004; Clancy 2015; Michener et al. 2012; Kirch and Ast 2017; Wartman 2010; Gourevitch 2014; Thompson and Anason 2012; Wartman 2015b).

In the review update, several papers similarly reported on historic shifts in US AHCs from managing clinical care for patients towards broader population health agendas. Three papers (Kaplan and Gourevitch 2020; Kirch and Ast 2017; Konstam et al. 2017) described the introduction in the US of new health reforms foregrounding population health and some of the difficulties involved for AHC leaders in responding to these reforms. Smitherman et al. (2019) argue that the traditional tripartite mission “is no longer sufficient to position AHCs to lead and resolve the intractable drivers of poor health status” in populations, suggesting the addition of a new, fourth mission of “social accountability” (p. 176).

Value-based and accountable financing models. Health equity concepts were also described in relation to the shift observed in the US health care system from volume-based payment structures to value-based structures (Lee 2016; Wartman 2015a; Pines et al. 2014; Dzau et al. 2013; Thompson and Anason 2012; Dinan et al. 2010). The shift was described as moving from a focus on caring for sickness, to one concerned with wellness and patient-centred, coordinated models of care (Thompson and Anason 2012; Dinan et al. 2010). Whereas accountability for quality and safety of healthcare has historically resided at the individual physician level in the US (Mathews et al. 2016), the health reform context was seen to be shaping new health system reimbursement models that emphasise accountability of AHCs to their funders, communities and patients (Gourevitch 2014). Multiple papers examined the creation of Accountable Care Organisations (ACOs) through the PPACA, as one example of a value-based financing model being established in the U.S. (Stein et al. 2015; DiSesa and Kaiser 2015; Berkowitz et al. 2016; Shomaker 2010; Karpf and Lofgren 2012; Antos 2015; Denham et al. 2013; Hall and Grumbach 2010; Wartman 2015b).

Multiple papers discussed the implications of the volume-to-value shift on the business model of AHCs, within which the traditional fee-for-service model has been to reward volume over value and has included a reliance on complex tertiary care procedures to generate income (Karpf et al. 2009; Pricewaterhouse Coopers 2012; Mathews et al. 2016; Gourevitch 2014; Stein et al. 2015; Wartman and Steinberg 2011; Berkowitz et al. 2016; Prislin et al. 2010; Lofgren et al. 2006). The incongruity of this traditional business model with equity-focussed population health goals was highlighted in these papers. Incentives within AHCs to deliver a return on investment, including a driving focus on maximising profit, were described in two commentaries as running counter to their ability to put patients' needs at the centre of their activity or to build primary care capacity (Prislin et al. 2010; Hall and Grumbach 2010).

Several commentaries identified in the review update similarly addressed health financing issues within US AHCs by reflecting on how historical financing models are challenging the ability of US AHCs to meet population health needs and health system priorities. Widespread concerns are reported by Colenda et al. (2020) about the financial viability of AHCs in the US, who contend that their high-cost models and increasing size are putting them at risk "collapsing under their own weight" (p. 1). The authors draw attention to the financial vulnerabilities in AHCs and the implications of this vulnerability for their responsiveness to public health emergencies such as the COVID-19 pandemic (Colenda et al. 2020). Henderson et al (2018) similarly argue that while US AHCs are capable of developing models of primary health care that meet the needs of under-served local communities, their for-profit business model pits their "historical and cultural commitment to primary care education, vulnerable populations, and community health" against their financial dependence on "highly specialized clinical care" (p. 1452). Itri et al. (2017) and Karpf (2017; 2019) also explore the challenges stemming from financing models of AHCs in the US in the context of health care reform.

Karpf (2019) argues that fee-for-service reimbursement models will continue to present a barrier to population health goals in AHCs, with AHCs unlikely to succeed in tackling persisting health inequities without fundamental health financing reform.

Despite a reported perception among policymakers in the US that AHCs, as high-end health care systems, should treat only the most complex conditions, an empirical study of 11.8 million hospitalisations in the period 2012-14 for Medicare beneficiaries (ages sixty-five and older) concluded that efforts to limit care in AHCs to only the sickest patients are likely to result in worse outcomes in patient populations overall (Burke et al. 2018). An account of the response of an AHC in the US (University of Washington Medicine) to the COVID-19 pandemic revealed the challenges facing AHCs in responding quickly to the unfolding emergency while maintaining routine commitments to complex patient care, education and research (Kim et al. 2020).

Role clarification/recalibration. Many papers sought to reconceptualise the traditional or current role, mission and value proposition of AHCs, emphasising their responsibility to improve health, rather than health care (Roper and Newton 2006; McElfish et al. 2015; Ramsey and Miller 2009; Borden et al. 2015; Wartman 2010). Several papers contended that the multiple missions of AHCs have tended to become ends in themselves, potentially obscuring what should be one overarching goal, described variously as “improving value for patients” (Lee 2016), “improving the health of the public” (Ramsey and Miller 2009), “improved health and wellbeing” (Wartman 2010), “serving the health of the nation” (Borden et al. 2015), and “meeting the needs of patients and society” (Newton and DuBard 2006). Several papers queried the role of AHCs within a changed global marketplace and sought to understand the reasons why they should exist at all, at least in the form that they have existed in the past (Lee 2016; Novick 2004; Borden et al. 2015; Ward 2002; Shugart 2002).

Several papers focussed on the Australian context advocated for the development of unique, and potentially virtual, AHC models that extend beyond capital city-based centres and that have a focus on primary care (Jennings and Walsh 2013; McKeon et al. 2013; Fisk et al. 2011; Brooks 2011). In the Canadian context, one commentary argued that AHCs have a role to play in sustaining and enhancing Canada’s “fragile rural health system”, including by promoting health professional generalism within both rural and urban areas (MacLellan 2002). Several commentaries referred to the historical mission of the field of academic medicine as being the pursuit of health for all, and the pursuit of health in the service of society (Clancy 2012; Wakeman and Rich 2010; Betancourt 2006; Ramsey and Miller 2009; Ovseiko et al. 2010; Garson 2006). One commentary, critical of the overriding focus within AHCs on their tripartite mission, contended that the field of academic medicine has lost sight of this original, social mission (Ramsey and Miller 2009).

2.4 Discussion

A prior scoping review of AHCs using systematic methods (French et al. 2014) explored the managerial, political, and cultural perspectives of AHCs and, as in the present review, found the literature on AHCs to be largely normative, atheoretical and predominantly focussed on North America. This review extends and complements French et al.'s review by systematically synthesising and critically appraising the literature on the role of AHCs in improving health equity. Analysis of the literature on AHCs using this health equity lens, which involved examining how AHCs are (or are not) eliminating unfair and unjust health disparities and addressing the determinants of these health disparities, has contributed several unique findings.

The concept of health equity in relation to the role of AHCs was expressed most directly within the themes of *addressing health disparities* and *the social determinants of health*: these themes are central to the definition of health equity used in this review. *Population health,* another theme identified in the review, tended to be the term used in preference to "health equity" to describe equity-related expectations, goals and activities in AHCs. The review also found that health equity concepts were discussed, though less explicitly, in relation to *community engagement*, *global health, health system reform*, *value-based financing models* (including those that emphasise accountability of AHCs to the public and other stakeholders), and finally in relation to a more introspective theme about AHCs' overarching purpose and function, expressed within multiple papers as confusion or uncertainty about the *role and missions of AHCs.* A common focus within these themes was on approaches to better target health resources and to align health system structures to meet actual health needs of groups of people. Accordingly, the literature in these themes touched upon several equity-related aspects by: identifying particular health care needs and disparities, proposing or reflecting on initiatives aimed at addressing them, and proposing or reflecting on ways to monitor and evaluate equity-focussed outcomes (Braveman et al. 2017). However, none of the included papers addressed the various aspects of health equity and its advancement systematically.

Nonetheless, the review found overwhelming evidence of an interest in, and aspiration to improve, the health equity focus of AHCs. A broad consensus was identified that AHCs can and should lead health equity-focussed initiatives aimed at tackling health disparities and their determinants, and better address the health needs of communities and populations. Further, AHCs were seen to have a moral obligation and responsibility to improve health equity through meeting community, public, and population health needs in what was considered by some to be the traditional spirit of academic medicine. The perceived capacity of AHCs to contribute to health equity was seen to arise from the unusual or unique characteristic of AHCs to blend health care, research and health professional education within the one institutional framework. The role of the broader health system and policy context of AHCs in driving, facilitating and inhibiting their health equity role, focus and capacity was also recognised. The papers included in the review update indicate that equity-related issues, particularly the SDH, are increasingly a focus within US-based AHCs.

The interest in the health equity role of AHCs, however, coincided with a substantial degree of uncertainty about the overarching role and relevance of AHCs, and particular confusion about their "many missions". The role confusion revealed a degree of questioning about whether AHCs exist to serve: their own measures of excellence, their patients, the communities in which they are located, their nations, people living in different parts of the world, or a combination of these. The scoping review on AHCs also identified the many missions of AHCs as a key challenge for AHCs (French et al. 2014). This perceived lack of clarity about the overarching role of AHCs may have particular relevance for any health equity-focussed objectives. Achieving clarity in aspirations and direction is understood to be particularly important in the case of health equity which can often be subject to different interpretations, with implications for prioritisation and resourcing (Braveman et al. 2017).

Progress towards any articulated health equity goals requires evaluation and monitoring, involving measuring not only overall and average levels of health but also disparities between sub-groups within a population (Braveman et al. 2017). Equity-focussed monitoring was discussed in some papers in relation to a perceived need to develop population-focussed metrics in AHCs (Aguilar-Gaxiola et al. 2014; Goldman 2014; Lee 2016). One of these papers described a project within US AHCs to develop metrics to measure population health improvement (Aguilar-Gaxiola et al. 2014). Two more recent papers identified in the review update also reported on the development of frameworks/indicators to support and guide efforts of US-based AHCs to deliver on population health goals, improve health equity and address social injustice (Alberti et al. 2018; Gourevitch et al. 2019b). However, the review found almost no evidence of measured outcomes against equity-related metrics, with only two empirical studies included in the review providing some evidence of gaps in the extent to which AHCs are delivering on equity-focussed goals; these were narrowly focussed on US AHCs' perceived safety net role for uninsured patients (Bisgaier et al. 2012; Weissman et al. 2003). Work to implement equity-focused metrics within AHCs may be timely in light of the view expressed in multiple included papers of a misalignment between the perceived equity capacity of AHCs and their actual demonstrated delivery or implementation of equity-focussed goals and initiatives; and this opportunity (and imperative) was recognised directly in several commentaries. Populations seen to be missing out, or at risk of missing out, on the benefits of AHCs included people who do not present as patients to AHC facilities, vulnerable persons, uninsured persons, minority populations, and rural and remote populations.

Overall, both the original review and the review update identified very limited empirical evidence to support the perceptions that AHCs have an equity role and capacity and are delivering (or not) on this role. Only five papers in the original review reported the results of empirical research

(Bisgaier et al. 2012; Malvey et al. 2000; Block et al. 2012; Weissman et al. 2003; Davies 2002), and four of these, all focussed on the US context, did not extend beyond an examination of a particular type of equity focus (their safety net role) nor beyond single equity-focussed interventions at single AHCs. The fifth (Davies 2002) acknowledged a historical social mission of AHCs and equity as a focus of the UK health system but did not draw on empirical methods to explore this focus. The review update, conducted in September 2020, identified a further four papers (Burke et al. 2018; Edelman et al. 2019; Gourevitch et al. 2019b; Robinson et al. 2020) that used empirical methods; but like the earlier papers, these only addressed equity-related issues peripherally or in relation to broad aspirations, rather than focussing on how equity-related aims were being operationalised. The review therefore illuminates large gaps in the contemporary empirical basis to the assertions made in the literature about the health equity role of AHCs. Moreover, despite the growing interest and investment in AHC models in Australia and the UK (Dickinson and Ledger 2018), few papers in the review, empirical or otherwise, were focussed on these two country contexts.

2.5 Conclusion

The review found a growing interest among experts worldwide on the role of AHCs in addressing health equity issues, such as addressing persisting health inequities and directing attention and resources towards the SDH. Within the included papers, equity-related goals and expectations were referred to predominantly as “population health”, rather than as “health equity”, issues. The literature suggests that a global shift is underway in AHCs, led by those in the US, to deliberately and explicitly direct attention away from specialised clinical care to population health improvement. The literature identified in the review update, conducted in September 2020, demonstrates increasing attention over time to mechanisms that might be employed within AHCs to engage in cross-sectoral work to address the SDH, as part of increasingly well-defined population health aims. The findings point to several potential challenges facing AHCs in taking this agenda forward, notably relating to cross-sectoral working, community engagement and misaligned financing models. As the empirical evidence base supporting the equity role of AHCs remains weak, the review identifies a need for future research to examine the nature of population health-related aims of AHCs as well as how such aims are being operationalised. Such research should consider the different health systems and policy contexts in which AHCs are embedded.

2.6 Chapter summary

This chapter reports a globally focussed systematic literature review which examines the health equity role of AHCs. Original searches were conducted in January 2017, with a review update undertaken in September 2020, resulting in inclusion of 124 papers which were analysed thematically. Although mostly expert opinion and predominantly focused on the US context, the findings of the review underscore a growing global interest in the role of AHCs in improving population health but a lack of empirical work exploring this role, supporting the aim of the broader study.

3. Conceptual Framework

3.1 Introduction

A wide and diverse body of theoretical literature is relevant to AHC structures and aims. The development of the conceptual framework draws from a set of key concepts and ideas that are particularly relevant to the aim of the study to explore the population health role of AHCs. Identification of these theories, concepts and ideas was informed by insights drawn from the literature review and policies informing the development of AHCs in Australia and England.

The literature review reported in **Chapter 2** highlights aspects of AHCs that distinguish them from other organisations in terms of their capacity to address entrenched population health disparities. A key distinguishing feature of AHCs, as identified in the review, is their purported capacity to blend health care, research and health professional education within the one institutional framework, enabling them to engage in research translation. ***Knowledge translation***, along with the related concepts of ***innovation*** and ***impact***, is also a central concept in the literature and policy documentation relating to the establishment of AHCs in Australia and England (see **Chapter 1**). Also relevant to AHCs in Australia and England is their existence largely as collaborative entities constituted by a governance infrastructure that brings several separate organisations together around the tripartite mission. Accordingly, ideas and concepts relating to ***inter-organisational collaboration*** are also explored in this chapter and are drawn on in the conceptual framework.

In addition, the development of the conceptual framework considers concepts relating to ***policymaking for population health***, noting the focus of this study on exploring the population health role of AHCs. Population health was identified in the literature review on AHCs as the dominant framing through which equity concepts are described in relation to AHCs. Because AHCs are accountable to processes of government "designation" (formal accreditation) that contribute to their organisational legitimacy, the concept of ***accountability*** is considered in relation to the population health role of AHCs. The concept of *social accountability* is indeed used by some to describe the notion that AHCs have a central role in addressing population health disparities (Smitherman et al. 2019), as identified in the literature review in **Chapter 2.** ***Power*** is a central consideration when examining accountability relationships, particularly in exploration of how formal rules and informal networks and relationships shape the way that actors within AHCs frame and operationalise organisational goals.

Finally, ***institutional theory***, as a set of ideas about how to examine organisations, is introduced to frame the investigation of the issues and concepts outlined in the previous sub-sections. Institutional theory offers a lens through which complex relationships between actors and ideas in institutions can be examined (Scott 2014); accordingly, aspects of institutional theory are used as the foundation of the conceptual framework, supplemented by the key concepts introduced earlier. The use of institutional theory to build an overarching framework for the exploration of organisations is an approach similarly used by Javanparast et al. (2018) to examine how institutional forces, ideas and actors shaped population health planning within primary health care organisations in Australia.

The summaries below are not intended to be comprehensive of each of the relevant theories, concepts or ideas; rather, the intent of this section is to provide an introduction to the selected areas of scholarly enquiry, highlight how they are relevant to AHCs and/or the population health focus of the study, and describe how key features are incorporated into the conceptual framework.

3.2 Knowledge translation, impact and innovation

A wide range of concepts, theories and frameworks are linked to the "tripartite mission" of AHCs to coalesce research, education and service delivery, including those relating to knowledge translation, impact, and innovation. As explained in **Chapter 1**, the concept of "translation" features strongly in the establishment rationales of AHCs in Australia and England, with the terms "innovation" and "impact" also used to describe expectations about the sorts of changes that designated (government-accredited) AHCs will drive within health systems. The definition of knowledge translation adopted by the World Health Organization is:

> *"the synthesis, exchange, and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health." (Ellen 2012, p. 6)*

Many theories and frameworks about knowledge translation, and related concepts of knowledge exchange, research transfer, and research implementation, are about putting knowledge derived from research into practice to close the so-called "know-do gap" (Ellen 2012, p. 5). "Evidence based practice" is also a term used interchangeably with knowledge translation to describe processes of addressing gaps between research knowledge and its application to a range of practical endpoints, including treatment options, policy and practice (Milat and Li 2017, p 2). Similarly, "evidence-based policymaking" refers to the rigours and accurate use of scientific evidence to underpin policy decisions (Parkhurst 2017, p. 4). The field of evidence-based medicine (EBM) is focussed on clinical decision-making to inform patient care and is based on a hierarchical system of classifying evidence – known as levels of evidence (Burns et al. 2011). However, a critique levelled at EBM is that the types of evidence relevant to the organisation and delivery of health care delivery are broader than the levels suggest and include anything from diagnostic and medical treatment evidence to evidence on processes of political decision-making (Parkhust et al. 2018). Despite the popularity of EBM as a policy goal, it neglects the complexities inherent in evidence-based policymaking including the contested nature of evidence and the role of politics and ideologies (Parkhurst et al. 2018; Greenhalgh et al. 2018).

Literature describing different knowledge translation frameworks and models is growing internationally (Milat and Li 2017). Among researchers, understanding of the mechanisms involved in translating research into policy and practice is also increasing (Williamson et al. 2015). For example, co-producing research with end-users, such as policy stakeholder groups with the ability to influence policy and program decision-making processes, is identified as a key enabler; in part because such approaches increase the relevance of research as well as motivation to use the findings (Zardo et al. 2014; Bucknall 2012). However, translational research is often defined using different endpoints and is therefore an imprecise concept (Milat and Li 2017). For example, a time lag of 17 years between "discovery" of new ideas and "delivery" of these discoveries across healthcare settings is often quoted in relation to the perceived role of the UK AHSCs and AHSNs in accelerating translation (Londonwide LMC 2020). However, a study investigating the origins of this time lag found that so-called translational gaps were inconsistently defined in the literature and the oft-cited 17 years was an average calculated from a variety of studies that used different endpoints, different domains and different approaches (Morris et al. 2011). The authors argue that the notion of time lags may be warranted in some instances but detrimental others; what matters most is "what is necessary or desirable" as an endpoint of research effort (Morris et al. 2011, p. 519).

Frameworks on research impact consider the endpoints of research and translational effort. Multiple different frameworks for measuring research impact exist in the literature, with each referring to types of benefit (e.g. academic, clinical, health, or economic) that can occur from research (Greenhalgh et al. 2016). Impact assessments are increasingly becoming incorporated into formal funding and research quality assessment processes in a range of countries, including in Australia and the UK (Edelman et al. 2020). One of the most widely used frameworks in research impact assessments is the Payback Framework developed by Buxton and Hanney (1996) which identifies impacts along a continuum from knowledge production, to research capacity-building, to informing policy and product development, to health and health benefits, and finally to broader economic benefits. Building from the Payback Framework, the popular Canadian Academy of Health Sciences (CAHS) Impact Framework (2009) identifies a range of indicators in each category that evaluators can use to measure impacts at individual, institutional, provisional, national or international levels. Many impact frameworks follow logic model trajectories that imply linear progression through the categories of impact, incorporating some feedback loops (Greenhalgh et al. 2016). However, as the process of translation is characterised by non-linear links between research and outcomes, nuanced narratives incorporating examination of the nature of impacts and implementation contexts are necessary in impact evaluation (Greenhalgh 2016). Indeed, the idea of a linear knowledge pipeline is widely critiqued as being overly mechanistic and "limited in its application to complex social systems such as healthcare" (Braithwaite et al. 2018, p. 1).

Related to both knowledge translation and impact is the concept of “innovation”, which in the health field refers to:

> *“new or improved health policies, systems, products and technologies, and services and delivery methods that improve people’s health and wellbeing” (WHO 2020).*

As such, health innovation is defined by the outputs and outcomes stemming from research efforts, and is broadly conceptualised as a value add in health systems in terms of “improved efficiency, effectiveness, quality, sustainability, safety and/or affordability” (WHO 2020). Nonetheless, definitions of the concept vary, with critiques including that it is predominantly viewed in an atomistic and linear way (Wijngaarden et al. 2016).

The “diffusion of innovations” into policy and practice is a multidisciplinary field of inquiry that, like the field of knowledge translation, aims to speed up the adoption of a new idea, practice or object within a social system (Rogers 2003). Exploring diffusion of innovations within healthcare, Greenhalgh et al. (2005) identify a set of key attributes of innovations that influence the adoption rates of new models, processes or technologies, which include relative advantage, trialability, risk and complexity. The authors note that these attributes produce an outcome only as part of the interaction among the innovation, intended adopter(s) and context of implementation (Greenhalgh et al. 2005). At an organisational level, key determinants of organisational innovativeness include larger size and decentralised decision-making structures (structural determinants); and absorptive capacity for new knowledge and receptive context for change (non-structural determinants) (Greenhalgh et al. 2005). A wide range of external influences, such as political directives and formal inter-organisational networks, also determine an organisation’s decision to adopt an innovation (Greenhalgh et al. 2005). The concept of innovation features widely in policy in both Australia and the UK across a broad range of sectors including health (Department of Prime Minister and Cabinet 2015; UK Research and Innovation 2020).

“Learning health systems” integrate ideas about knowledge translation, impact and innovation within the health field. Learning health systems aim to align processes within and/or across organisations to “ensure greater quality, safety and innovation in healthcare” through generating and implementing evidence as part of the health care delivery process (Menear et al. 2019, p. 2). Learning health systems are themselves considered an innovative approach to improving healthcare (Deans et al. 2018). Policymakers in both Australia and the UK are increasingly employing ideas about translation, impact, innovation and learning health system in health and research policy, which all feature strongly in the establishment rationales of AHSCs, AHRTCs and CIRHs (Milat and Li 2017; Dickinson and Ledger 2018). Accordingly, and drawing from an institutional theory framework introduced below, ideas about translation, impact and innovation are conceptualised in this study as being part of the normative pillar of AHCs. In the case study AHCs, the study first explores the ways in which translation, impact and innovation feature in AHC aspirations, and then examines how these concepts are used by core stakeholders to shape activity relevant to population health.

3.3 Inter-organisational collaboration

AHCs of their various kinds aim to put organisational structure around knowledge translation and impact ideas, with collaboration between academic and health service organisations perceived as an effective means of “closing the gap between knowing and doing” (Rycroft-Malone et al. 2016, p. 2). Knowledge translation and innovation in healthcare also involves partnerships with industry, or profit-making enterprises, to drive economic impacts from research through, for example, translation of research into commercial products (Dickinson and Ledger 2018). The inclusion of industry as a partner in translation follows the “triple helix” concept of university-industry-government relations which developed in the 1990s to emphasise the role of universities in societal innovation (Dickinson and Ledger 2018, p. 203).

Collaborative arrangements between health services and universities can operate at individual researcher as well as organisational levels (Bucknall 2012). Network arrangements between organisations, involving attributes such as risk sharing and pooling of complementary skills, are important factors affecting the innovation performance of organisations (Pittaway et al. 2004). However, inter-organisational collaboration is widely recognised as being highly complex and risky, with high failure rates reported (Gulati et al. 2012). Gulati et al. (2012) explore two aspects of inter-organisational collaboration that determine the success or otherwise of collaborative endeavour: cooperation and coordination. Cooperation is about aligning incentives and sustaining commitments between partnering organisations:

> *“We define inter-organizational cooperation as joint pursuit of agreed-on goal(s) in a manner corresponding to a shared understanding about contributions and payoffs” (Gulati et al. 2012, p. 3).*

In parallel, coordination among partners is about actions taken within the partnership to coordinate work effectively, building on structures, institutions and relationships that “enable partners to work together across boundaries”:

> *“We define coordination as the deliberate and orderly alignment or adjustment of partners’ actions to achieve jointly determined goals” (Gulati et al, 2012, p. 7).*

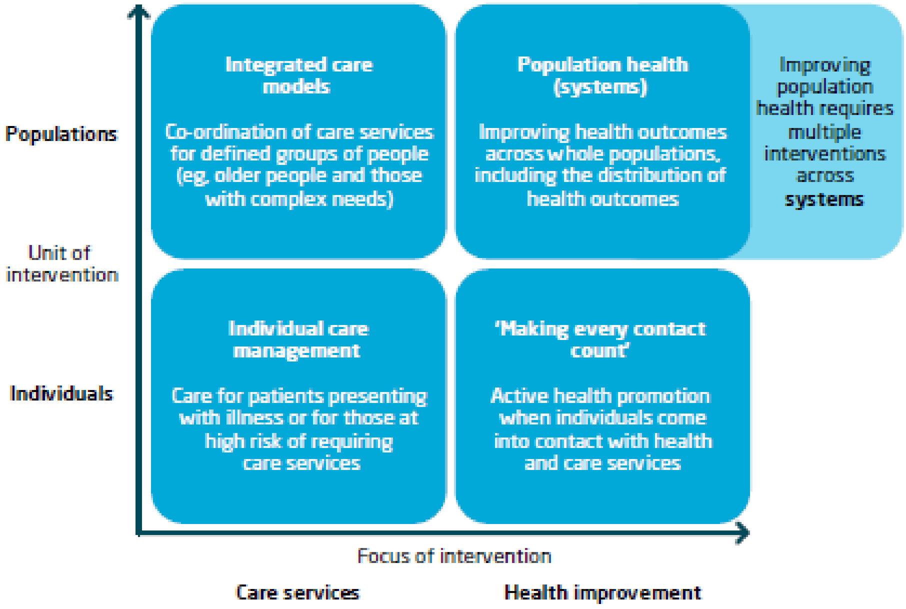
In simple terms, Gulati et al (2012, p. 7) describe a distinction between shared goals (cooperation) as compared to “the nuts and bolts of organisation and administration” (coordination). Less attention is often placed on the “nuts and bolts” aspects, which require competent actors to address the critical questions about “who will do what by when and how” that can make or break collaborative efforts despite the best intentions (Gulati et al. 2012, p. 7).

Inter-organisational collaboration and networks in health care employ a wide range of governance structures that combine multiple independent health care organisations; none of which are comparatively better at enhancing network effectiveness (Willem and Gemmel 2013). The characteristics of networks in healthcare are known to vary widely (Dickinson and Ledger 2018). How such inter-institutional arrangements influence knowledge translation within the health sector is a relatively new field of scholarly enquiry (Dickinson and Ledger 2018). A literature search conducted to answer the question, “why and how does organisational collaboration between researchers and practitioners enable implementation of evidence within a health service context” found little direct evidence to link collaboration directly to knowledge mobilisation (Rycroft-Malone 2016, p. 2). Ideas about inter-organisational collaboration are incorporated in the conceptual framework as constituting the machinery influencing the *alignment* (or otherwise) of three institutional pillars (introduced below) towards population health ends. In the case study AHCs, the study explores the nature of the governance infrastructure established to support the development and enactment of shared goals and processes shaping the alignment of actions needed for population health improvement.

3.4 Policymaking for population health

Population health was identified in the literature review (**Chapter 2**) as a central concept relating to the societal role and contributions of AHCs. A hallmark of population health is its attention to the multiple social determinants of health that combine to influence health outcomes, and which unattended often produce health outcomes inequities (Kindig and Stoddart 2003). Health policies that focus on population health are therefore broader than individual care management, integrated care across services and patient-centred health promotion, all of which are “downstream”. These various policy foci constitute typologies developed by Alderwick et al. (2015, p. 8) to differentiate the emphasis within population health on “promoting health and reducing health inequalities across whole populations” (**Figure 4**). The *society* element of the conceptual framework incorporates these population health and equitable health system features and principles.

Figure 4: The focus of population health systems (Alderwick et al. 2015, p. 8)



Policy-making for population health involves attention to resource allocation decisions that link patterns of health determinants (independent variables) with health outcomes and distribution (dependant variables); Kindig and Stoddart (2003) conceptualise these decisions as implicit within the definition of population health, suggesting that the notion of "policy-making for population health" is tautological. However, separating policy-making processes from the population health variables may be valuable in bringing to the fore political realities and institutional structures that influence policy formulation and implementation (Beland and Katapally 2018). These realities and structures include: the separation of responsibilities for health care and other determinants into different organisations and government departments; and the tendency for patients to be the primary unit of intervention (Alderwick et al. 2015). Awareness, and explicit examination, of structural and political factors is needed to effectively address the social determinants of health and the distribution of health outcomes across broader populations (Alderwick et al. 2015).

Policymaking for population health therefore necessitates cross-sectoral decision-making and action and requires "policy change through critical collaborations across relevant sectors, as well as partnerships between stakeholders in academia, government (across sectors), health and healthcare" (Beland and Katapally 2018, p. 369). There are many examples of the challenges inherent in such work; in Australia, for example, the dominance of medical perspectives and cost-containment interests have marginalised social perspectives on health, including social determinants of health perspectives, in primary health care policy (Baum et al. 2020). In considering the collaborative structures and processes adopted in AHCs in Australia and the UK, it is important to note a distinction in both countries between publicly-funded health care organisations that deliver health care services (among the typical partners of AHCs), and government departments that develop health care policy – both could be construed as “government” but only the latter have a mandate to engage in public policymaking. These tensions and challenges involved in policymaking for population health are not directly reflected in the conceptual framework but provide an indication of the sorts of tensions that this study might reveal in its exploration of the population health role of AHCs.

3.5 Accountability and power

As explained in **Chapter 1**, AHCs in Australia and England are “designated” organisational entities, meaning that they are formally accredited by governments through a competitive application and assessment process under a centralised designation scheme. This means that designated AHCs, or entities aspiring to achieve designation, are to some degree accountable to the designation processes established to legitimise their existence. Accountability is widely recognised as a pillar of good corporate governance and is defined as:

> *“a condition in which individuals who exercise power are constrained by external means and by internal norms” (Chandler and Plano; cited in Baumann 2014, p 122).*

According to Brinkerhoff (2003), the purpose of accountability in public life is threefold: i) to control misuse and abuse of public resources and authority; ii) to provide assurance that resources and authority are used according to legal, professional and societal standards and values; and iii) to support improved service delivery and management through feedback and learning. Following from this are three general categories of accountability: financial accountability (e.g. laws, rules regulations, and procedural compliance); performance accountability (e.g. performance targets, services, outputs and results); and political or democratic accountability (sometimes also referred to by others as social accountability), which emphasises public trust, the relationship between and obligations of state to citizen, and citizen expectations (Brinkerhoff 2003). Social accountability is a concept used by Smitherman et al. (2019) to refer to the perception that AHCs should re-orient their tripartite mission towards improving population health. Accountability can be vertical, horizontal, or diagonal; with each referring to different relationships between citizens, elected representatives and aspects of state institutions (Fox et al. 2015). Answerability between sets of actors to justify actions, and enforceability in the form of sanctions for failure to engage in appropriate action, are key accountability processes (Molyneaux 2012).

Accountability at an organisational level emphasises organisations’ achievements in relation to certain goals or objectives and, for health care organisations, is a key element in improving governance and management (Denis 2014). Accountability challenges for organisations, and health care organisations specifically, include defining a clear mandate through specific goals and objectives, design of incentive systems to support (upwards and downwards) accountability relationships, and establishing mechanisms to account for healthcare resources (Denis 2014). A study by Ovseiko et al.

(2014) exploring the accountability of AHSCs and AHSNs in England to the traditional AHC tripartite mission (service delivery, education and research) found that incentive systems operated in silos determined by different government departments for each of the three mission areas. These silos inhibited the accountability of AHSCs and AHSNs to the tripartite mission as a whole. Accountability therefore emerges as a key consideration in relation to the role of AHCs, with financial accountability broadly aligning with the regulative pillar within Scott's (2014) institutional theory framework. Accordingly, the conceptual framework draws on the concept of accountability primarily in the regulative pillar to enable examination of the rules and structures that sanction the population health-related activities of actors within the case study AHCs.

Theories about power are closely linked to accountability constructs and offer analytical value in health systems research as well as in exploring inter-organisational collaboration. Health systems, of which AHCs are a part, are influenced by power dynamics built on relationships and interactions between social actors (Sriram et al. 2018). A framework often used to analyse power within real-world settings is the power cube (Gaventa 2006) which proposes three dimensions of power, each with three: levels (local, national and global); spaces (closed, invited, and claimed); and forms (visible, hidden and invisible). Visible forms of power refer to formal decision-making arenas of institutions; hidden forms of power reflect vested interests that can limit participation of actors in decision making processes; and invisible forms of power refer to the dominance of particular ideologies and values that are normalised and unquestioned (Gaventa 2006). Theorists have also developed typologies of the sources of power, with commonly explored categories including position, political influence, connection, knowledge, expertise, money and resources/infrastructure, and physical power/threat of violence (Pantazidou 2012). Erasmus and Gilson (2008) emphasise less obvious exercises of power that influence policy implementation processes, involving actors drawing on sources such as professional roles, knowledge, personal charisma, and links to networks and alliances. Erasmus and Gilson also highlight how the possession and exercise of these sources of power is "relational and context-dependent" rather than fixed (2008 p. 364). Along with accountability concepts, power is thus a central consideration when examining how formal rules and informal networks and relationships shape the way that actors within AHCs frame and operationalise organisational goals.

3.6 Institutional theory

Institutional theory offers concepts and frameworks pertinent to the study of AHCs as organisational forms, and thus facilitates consideration of the previous concepts within a single conceptual framework. Within organisational studies, institutional theory is a "prominent perspective in contemporary organisational research" that originated in the 1950s and 60s (David et al. 2019). Early work in the field emphasised the connections between the goals of organisations and the functioning of broader society (David et al. 2019). Organisational sociologists in the 1970s additionally highlighted the central role of culture and cognition in institutional analysis, including the role of taken-for-granted rules in shaping the structure of organisations (Thornton and Ocasio 2008). The theoretical construct of *institutional logics* emerged as an element of institutional theory in the 1970s and accelerated in popularity from the early 1990s (Thornton and Ocasio 2008). Institutional logics provide a series of organising principles for action in society, building on cultural rules and cognitive structures that are largely unquestioned in daily life (David et al. 2019; Thornton and Ocasio 2008). As the study of institutions focuses on a range of different social structures including organisations, sub-organisational elements such as written policies, and inter-organisational structures, institutional theory is used by contemporary scholars to explain how various organisational structures are adopted, spread and change (David et al. 2019).

Institutional theorists contend that different sectors of society (e.g. capitalist markets, the bureaucratic state, families, democracy, religion) have a central logic that guides organisational principles and identities of actors, with these logics often coming in conflict with each other (Thornton and Ocasio 2008). Such conflicts, or "contradictions", shape the nature of political tensions while also providing "cultural resources" for transforming elements of society (Thornton et al. 2008). Contradicting logics have also been explored at the intra-organisational level, including a range of approaches that might be taken to try to either: integrate logics through mechanisms such as incentive systems or performance metrics; or segregate logics into different organisational elements under an umbrella of mutual understanding and collaboration (David et al. 2019). A study by Reay and Hinings (2009) of competing institutional logics within the health system in Alberta, Canada (the logics of *business-like health care* and *medical professionalism*) found that the tensions could be managed through approaches to collaboration that supported the separate identities of the collaborators.

Attempting to integrate diverse schools of thought in institutional theory in the mid-1990s, Scott (2014) proposes that institutions are built from three central building blocks, or pillars, that provide "the elastic fibres that guide behaviour and resist change" (p. 57) within institutions; these building blocks are made from regulative, normative and cultural-cognitive elements. The pillars represent a framework for answering questions about why individuals and organisations comply with rules and prescriptions:

> *"Is it because they are rewarded for doing so, because they believe that they are morally obligated to do so, or because they are following their conception of what reasonable others would do in the situation?" (2014, p. x).*

Scott (2014, p. 56) ultimately uses the pillars to define "institutions":

> *"Institutions comprise regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life".*

The regulative pillar is comprised of explicit rules, policies and regulations that influence behaviour through surveillance and sanctions (rewards and punishments), with the dominant logic emphasising rational choice (Scott 2014). The normative pillar encompasses expectations and standards about how things should be done towards valued ends, highlighting actors' roles and relations with others as forming a moral framework for behaviour (Scott 2014). The logic of appropriateness underpins the normative pillar, with personal relationships and identities shaping behaviour (Scott 2010).

Finally, the cultural-cognitive pillar is referred to as the bedrock of the other two pillars, because both culture, as socially constructed symbolic interactions; and cognitive processes, as templates for framing individual decisions, create conceptions about the "way the world is" (Scott 2010, p 7). Cultural-cognitive forces arise through interaction as actors respond to and construct social reality (Scott 2014). The three pillars form a continuum "from the conscious to the unconscious, from the legally enforced to the taken for granted" (Hoffman 1997; quoted in Scott 2014, p. 59). According to Scott (2014), the legitimacy of institutions, in other words their basis for social existence, is strengthened by alignment of the pillars; conversely, when the pillars are not aligned, institutions can become de-stabilised, resulting in institutional change.

Processes of institutional change have become a major focus of organisational studies scholars since the 1980s (Scott 2010). Studies about how systems change over time reveal the central role played by individual leaders and "visionaries" in driving change, but also how a wide variety of sources of institutional disruption and divergence, such as strategic responses by individual organisations to institutional pressures, threaten institutional coherence (Scott 2010, p. 12). Burnett et al. (2016) use institutional theory to explore how hospital leaders in Europe are responding to growing pressures to deliver better health care with limited resources, finding that to maintain quality of care, hospital leaders needed specific skills in translating external pressures and requirements into implementation plans. Javanparast et al. (2018) also used an institutional theory framework to analyse primary health care organisations in Australia, finding that the way that regulative, normative and cultural-cognitive factors aligned within the organisations drove a dominant focus on clinical services over health promotion and social determinants of health. These and other studies highlight the policy and academic value of examining institutional theory in real life situations.

As relatively new organisational forms within health systems in Australia and England, AHCs can be examined using institutional theory to identify how interactions between regulative, normative and cultural-cognitive forces within AHCs shape their roles in society. As such, these three pillars form the basis of the conceptual framework used in this study to enable exploration of the observable/measurable elements of AHCs (e.g., their structures, aims and activities), the "taken for granted" elements below the surface (e.g., cultural and relational aspects), and the ways in which these elements interact to shape a population health role in the AHCs selected for analysis. In the conceptual framework for the study, the three pillars create a scaffold for the ideas and concepts introduced above (translation, innovation and impact; inter-organisational collaboration; policymaking for population health; and accountability and power); of these, power may be less traditionally consistent with the pillars framework.

Some have argued that analyses of power are often lacking in discussions about institutional theory; for example, Clegg (2010) argues that institutional theorists tend to prefer to discuss norms rather than power, and that more consideration needs to be given in future studies to the role of the state in perpetuating institutionalised myths that inform the structure of society. Although noting that an analysis of power could be conducted in different ways, including across all institutional pillars used in the framework, this study focusses on how actors in the AHCs draw on various sources of power in ways that might be hidden or invisible. Arguably, hidden or invisible forms of power manifest strongly in the cultural-cognitive pillar because they shape the dominance or otherwise of certain beliefs and assumptions. “Hegemonic” power, for example, operates by shaping particular viewpoints and making specific social and cultural discourses seem “normal, invisible and thus unquestioned” (Sriram et al. 2018, p. 614). Scott (2004) has also argued that cultural-cognitive modes of influence can be important sources of power; used, for example, to shape indicators against which others (e.g., nation-states) can define “progress”.

In addition to power dynamics, concepts relating to organisational culture can also be explored within the cultural-cognitive pillar. Sackmann’s widely used analogy of an iceberg (1991) depicts different components of culture: visible behavioural aspects and artefacts (the tip of the iceberg) and underlying tacit cognitions and beliefs on which the visible elements are shaped (below the surface). Seeking to understand the elements below the surface can be challenging but is critical in explorations of organisational culture (Sackmann 1991) and in power analyses (Erasmus and Gilson 2008). As also alluded to by Scott (2014; above), embedded notions about “the normal way of doing things” in organisational culture is itself a source of power (Erasmus and Gilson 2008, p. 364). In contrast to norms, which are about patterns for action, culture “constitutes a body of definitions, premises, statements, postulates, presumptions, propositions, and perceptions” that shape social reality (Schneider, 1976; quoted in Scott, 2014, p. 77). By considering both organisational cultures and power dynamics within the cultural-cognitive pillar, the study draws attention to ways in which normative and regulative elements in the AHCs interact with hidden or invisible dynamics between AHCs actors and underlying tacit cognitions and beliefs to shape the population health role of the case study AHCs.

3.7 Conceptual framework

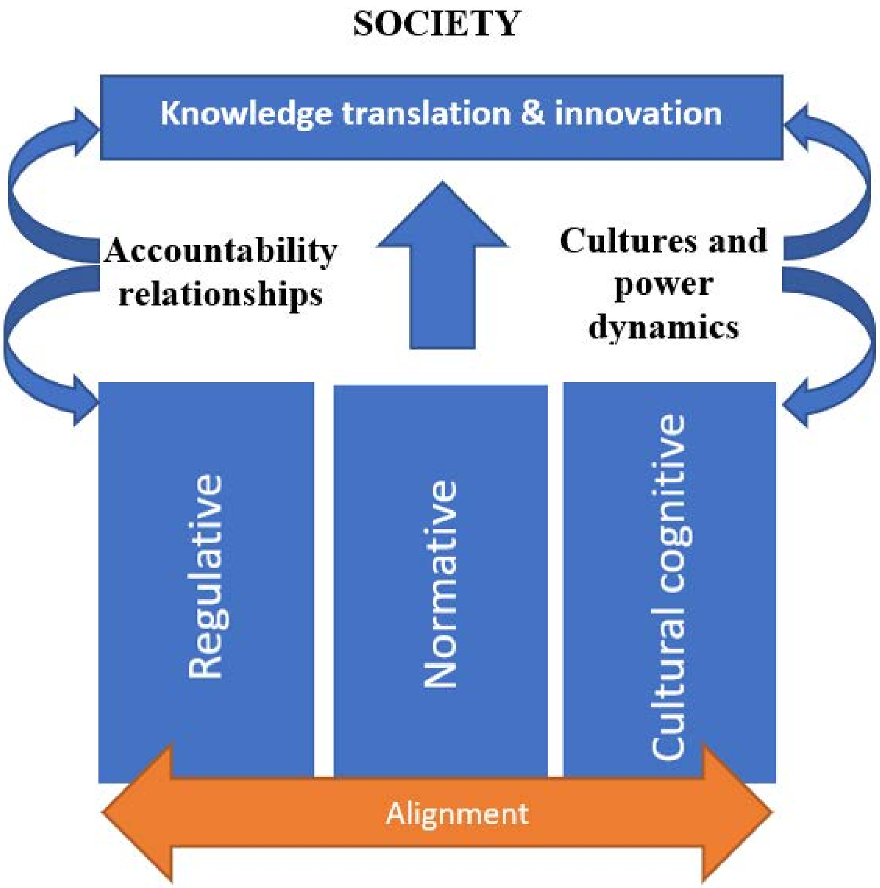
The conceptual framework at **Figure 5** shows AHCs existing within society as entities constituted and legitimised by aligned institutional pillars. The knowledge translation, impact and innovation agendas of AHCs, as reported in the literature on AHCs including in policy reports relating to their establishment in Australia and England, are shown as expressions of the normative pillar. Accountability relationships, and cultures and power dynamics, are shown as forces operating to mediate the alignment of the regulative and cultural cognitive pillars, respectively, with normative goals.

In the presentation of results of the study, the findings relating to the normative pillar are described first because they encapsulate the values and norms underpinning the role and work of the AHCs, thus providing a useful starting point to understand how these were supported or challenged by regulative and cultural-cognitive forces in the AHC. Within the in-case chapters, the deductive themes used in the analysis of data within the normative pillar – *aspirations* and *activity and impacts* – enable exploration of the goals of the AHCs, and valued endpoints of effort, from the perspective of the core AHC stakeholders. In the absence of an agreed set of performance indicators in the AHCs at the time of data collection, the CAHS research impact framework (2009), introduced earlier, was used to explore the *activity and impacts* of the AHCs. The CAHS framework was selected for this purpose because of the focus in the case study AHCs on knowledge translation, impact and innovation. In addition, the use of logic models in case study research is an established analytic technique to help to explain the ultimate intended outcome of a program (Yin 2014), which is a key normative aspect of the case study AHCs. According to the CAHS model (2009):

- the *advancing knowledge* impact category includes measures of research quality, activity, outreach and structure;
- the *building capacity* impact category incorporates indicators on enabling factors for research (and research translation) such as personnel, funding, infrastructure and less tangible factors such as receptor or absorptive capacity;
- the *informing decision-making* impact category incorporates indicators representing pathways from research to health and other social outcomes, and include health-related, research, industry, and general public, decision-making;
- the *health impacts* category includes indicators on health status, determinants of health, and health system changes, and include quality of life as a component of improved health; and
- the *broader socio-economic impacts* category separates economic and social impacts into activity, commercialisation, wellbeing, socio-economic benefits and health benefit per health care dollar.

In the regulative pillar, the concept of accountability is used to explore both *accountability at an AHC level*, and *alignment of organisational accountabilities* among the partnering organisations in the AHC, with a focus on how these alignments (or misalignments) interact to shape their societal contributions. In the cultural-cognitive pillar, *organisational culture* in the AHC and *power dynamics* between key actors are explored drawing on the concepts of underlying tacit cognitions and beliefs (Sackmann 1991) and sources of power (Pantazidou 2012; Erasmus and Gilson 2008). Overall, the three institutional pillars (normative, regulative and cultural-cognitive) are conceptualised as "forces" acting to shape the population health role of the AHCs; which is an approach adopted by Javanparest et al. (2018) in an analysis of how primary health care organisations in Australia engage in population health planning. Population health, in the conceptual framework used in this study, is reflected in the "society" part of the framework in which the AHCs are embedded. Ideas about inter-organisational collaboration are incorporated in the conceptual framework as constituting the machinery influencing the *alignment* (or otherwise) of three institutional pillars towards population health ends.

Figure 5: Conceptual framework informing analysis of AHCs in the study



3.8 Chapter summary

This chapter presents the conceptual framework developed for the study. The development of the framework drew from several theories, concepts and ideas were identified as being particularly relevant to the aim of the study to explore the population health role of AHCs: knowledge translation, impact and innovation; inter-organisational collaboration; policymaking for population health; accountability and power; and institutional theory. Depicting AHCs as institutional forms that are constituted and legitimised by aligned institutional pillars, the conceptual framework enables examination of how the forces within each of the pillars interact to shape the contributions of AHCs to broader society.

4. Methodology

4.1 Epistemological approach

This research project is situated within the field of health policy and systems research (HPSR). HPSR is multidisciplinary – blending economics, sociology, anthropology, political science, public health and epidemiology. HPSR seeks to:

> *"understand and improve how societies organise themselves in achieving collective health goals, and how different actors interact in the policy and implementation processes to contribute to policy outcomes" (Alliance for Health Policy and Systems Research; quoted in Gilson 2012, p. 21).*

HPSR is contrasted with other fields by its problem-driven orientation, with research processes and methods in HPSR typically directed by policy-relevant issues and challenges rather than pre-prescribed methods (Gilson 2012). As the phenomena studied in HPSR are complex, theory and conceptual frameworks play an important role in HPSR study designs by helping to make sense of the data (Gilson 2012).

Within the HPSR field, the project adopts a realist ontology by accepting the existence of a social reality beyond that which can be empirically known (Fletcher 2017; Haigh et al. 2019). Critical realism, which adopts a realist ontology and relativist epistemology (Maxwell 2011), contrasts with positivist and relativist (or constructivist) approaches to research that either equate ontology with epistemology (i.e. limiting reality to empirical knowledge) or limit reality to that which is constructed through the way that actors interpret their experience (Fletcher 2017; Gilson 2012). For critical realists, events occur regardless of whether actors experience or interpret them, and these events are determined by underlying causal mechanisms (Fletcher 2017). As such, from a critical realist perspective, cause and effect relationships within society are mediated by a range of mechanisms linked to both actors and contexts (Haigh et al. 2019). Epistemologically, then, critical realism sees knowledge about the world as transitive; that is, any theory that may be developed about the world may be extended, modified or rejected over time (Haigh et al. 2019). This approach to knowledge generation involves treating all explanations of social reality as fallible to enable competing explanations of phenomena to be explored as part of the sense-making process (Fletcher 2017).

Accordingly, realist-informed research typically aims to enable greater understanding of the multi-level relationships that underpin social reality and is often theory-driven (Fletcher 2016; Haigh et al. 2019). Ultimately, Haigh et al. (2019) argue that critical realist research designs should not be rigid but "practically adequate" – that is, suitable for the purpose of the project (p. 4). In HPSR, Gilson (2012) posits that a critical realist approach embraces the notion of complex causality, involving examination of non-linear relationships between interventions/policies and effects. For Gilson, critical realism is particularly useful for investigating system-level factors and forces that shape health problems and health system performance (2012). One realist-informed methodological approach is realist evaluation (Haigh et al. 2019). Realist (or realistic) evaluation research seeks to explore causal relationships by asking *what works, for whom, and in what circumstances*? (Pawson and Tilley 1997). Realist evaluation research typically aims to identify patterns of contexts, mechanisms and outcomes relating to social events, which involves identifying generative mechanisms, i.e., social mechanisms that give rise to causal regularities (Dalkin et al. 2015). While this study does not adopt a realist evaluation approach, it explores and expresses linkages identified between contexts and outcomes by generating several "if…then" statements as mid-range theories (Pearson et al. 2015); how these statements were developed in the study is explained further in the data analysis sub-section below. As such, the study borrows from critical realism to frame the overall approach to knowledge generation but does not seek to enact a classical realist-informed study design, such as realist evaluation.

4.2 Research design

As this research seeks to find out what is happening, assess phenomena in a new light and generate new insights and ideas, its purpose is characteristic of exploratory research (Gilson 2012). To enable exploration of the population health goals and activity of AHCs in two countries (Australia and England), a multiple case study design (Yin 2014) is adopted. Case studies enable investigation of contemporary phenomena in depth within their real-world contexts and are especially useful when the boundaries between phenomena and contexts are unclear (Yin 2014). In Australia and England, AHCs mostly adopt collaborative governance structures, which means that they are constituted by several separate organisations linked together in different ways, making the boundaries between AHC entities and their health system contexts unclear; supporting the adoption of a case study approach. The case study design used in the study adopts a social science (rather than clinical) case study approach, as espoused by Yin (2014); noting also that Yin's approach to case study research supports realist ontological orientations and exploratory approaches (Yin 2014).

Case study research involves analysis of the case itself, the context of the case, and the "interaction between the case and the context and the ways in which they influence one another" (Turner et al 2016. p. 94). Case studies are often used to explore processes involved in major systems change, with multiple-case study designs allowing comparison of these processes between different cases and settings (Turner et al. 2016). "Bounding the case" is an important part of case study research, ensuring clarity in the scope of data collection and in what constitutes the phenomenon of interest as compared with data external to the case (which is referred to as the case context) (Yin 2014, p. 33).

Multiple-case study designs, wherein more than one case study is selected for investigation concurrently, have the advantage of allowing comparisons to be made with reference to a common theoretical interest (Yin 2014). There are substantial analytical benefits to multiple-case study designs over single case study designs owing to the ability of multiple-case studies to employ a carefully defined replication logic and comparison across several cases, enabling analytic generalisability (Yin 2014). In this study, the multiple-case study design involved in-depth analysis within each case to explore unique elements including AHC aspirations, activities and contextual features, cross-case analysis to identify similarities and differences, and development of analytic propositions to inform future study.

Case studies can involve both qualitative and quantitative processes of data collection and analysis (Yin 2014). Qualitative methods were determined to be best suited to the current study aim because they enable interpretation of phenomena in their real-world settings (Creswell and Poth 2018) and also facilitate case study research where “how” and “why” questions are being asked about contemporary sets of events over which the researcher has little control (Yin 2014, p. 14). Because the researcher is an important part of the research process in qualitative research, engaging in reflexivity enhances the rigour of the research by making explicit the background of the researcher as it relates to the topic of investigation and approach to the study (Creswell and Poth 2018). Various strategies to enact reflexivity were employed through the course of this project (see **Appendix A**).

4.3 Case study selection

Selection of the AHC case studies in the project followed an online literature search to identify a list of entities that self-identify as an AHC or similar, and that also had a documented focus on population health as conceptualised within the study at the time of searching. A most-similar/most-different method (Przeworski and Teurne 1970) was used to select four AHCs from within two health system contexts (Australia and England). This method of case selection has been previously adopted to enable comparison of four cases studies in two different government jurisdictions within the US, enabling comparison both within and between jurisdictions for anticipatable reasons (Provan and Milward 1995). The decision to embark on cross-country comparison in the current project (rather than comparing cases within one country) was made to enable comparison of the goals, activities and other features of AHCs in different health system contexts. The intention of the researcher was to offer the opportunity for policymakers and other researchers to obtain empirically derived insights into AHCs in both countries through both within and cross -country analysis and comparison, thereby extending the potential utility of the findings to a broader audience.

In the current study, Australia and England were selected as the country contexts as both have nominal universal health systems, with AHCs representing relatively new organisational forms (established within approximately the last decade) that employ collaborative governance arrangements among public sector organisations. Although AHCs in the US have been established for longer and are the focus of a (comparatively) large body of literature (French et al. 2014), England was selected as a more appropriate comparator with Australia because of the relative recency (within the recent decade) of formal, government-driven AHC establishment processes in both jurisdictions and their multi-organisational governance structures (linked by collaborative governance infrastructure). This structure is contrasted with the fully integrated models that predominate in the US, where ownership of the teaching hospital or healthcare system by the academic enterprise is more common. Moreover, the “designation” (government accreditation) processes adopted in Australia were informed by those developed several years earlier in England. The case selection approach adopted in the study (most similar/most different) enabled comparison of findings both within and between the countries to identify similarities and differences in both the cases and case contexts.

Final selection of AHC cases from within the two countries involved assessment of the capacity of the different sites to offer insights with reference to the study aim and questions, as well as pragmatic considerations including time and financial constraints and the researcher’s capacity to gain access to key contacts within the organisations. The cases selected were the: Tropical Australian Academic Health Centre (TAAHC), and the South Australia Academic Health Science and Translation Centre (SA Centre), in Australia; and the Oxford Academic Health Science Centre (OxAHSC), and Health Innovation Manchester (HinM), in England.

The case selection process aimed to facilitate analysis of contrasting results between the cases for anticipatable reasons, enabling “theoretical replication” (Yin 2014, p. 57). Characteristics of interest in the selection process of the AHCs included the geographic and demographic contexts of the cases (urban or rural, wealthy or disadvantaged catchment populations), their governance characteristics, and access to funding. As the focus of the study is on the population health role of AHCs, an attempt was made within each country to select cases that demonstrated characteristics of interest relevant to population health: in Australia, one rural AHC and one urban AHC were selected (noting longstanding health disparities between urban and rural populations in the country); and in England, one AHC selected was in an area of much higher relative population health disadvantage compared with the other AHC. The four case studies selected in the study and main reasons for their selection are shown in **Table 9** (note that a more detailed comparator table between the cases is presented in **Chapter 9**). Pragmatic factors such as capacity of the researcher to gain access to senior individuals in the AHC was also a consideration in case selection.

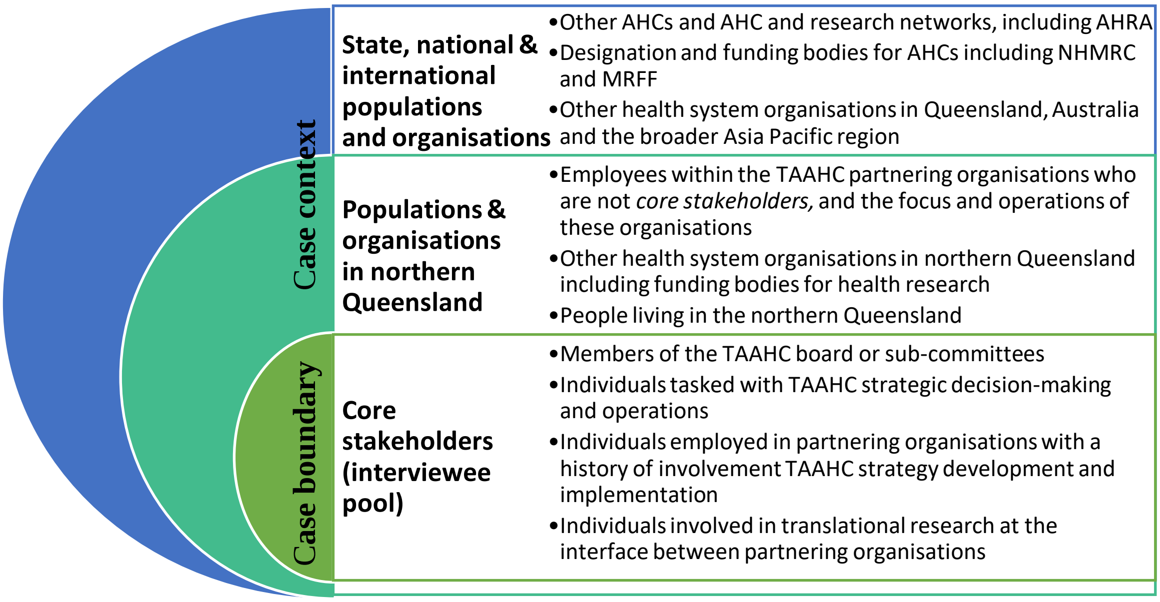
Table 9: The four case studies selected in Australia and England, UK

	Case 1: Tropical Australian Academic Health Centre (TAAHC)	**Case 2: South Australia Academic Health Science and Translation Centre (SA Centre)**	**Case 3: Oxford Academic Health Science Centre (OxAHSC)**	**Case 4: Health Innovation Manchester (HInM)**
Country	Australia	Australia	England (UK)	England (UK)
Government designation	Applying for designation as a Centre for Innovation in Regional Health at the time of data collection (subsequently designated in 2020)	Designated as a state-wide Advanced Health Research and Translation Centre in 2014	Designated as an Academic Health Science Centre in 2014	Incorporates a designated Academic Health Science Centre (designated in 2008) and an Academic Health Science Network (established in 2015)
Characteristics relevant to population health	Rural, regional, remote location and orientation (northern Queensland)	Urban orientation, with state-wide remit (South Australia)	Located in an area of relative population health advantage (Oxfordshire)	Located in an area of relative population health disadvantage (Greater Manchester)

The specific boundaries of the selected cases are shown in **Figures 6, 7, 8 and 9** below. As a general approach, the case boundaries included the governance infrastructure established as part of the AHC entity and aspirations and activity branded under the AHC name. In each case, the case boundary was also constituted by the activity of, and relationships and interactions between, people employed within the AHC or member organisations who were in positions to drive, shape and implement the AHC direction, structures and activities. These individuals were conceptualised in each case study as "core stakeholders". The activities, relationships and interactions of other employees of the member organisations, and the focus and operations of these organisations, were part of the case context. The case context also included population and organisational stakeholders at regional, state, national and international levels. Despite their respective differences, this project uses the term "AHC" to describe all four case studies.

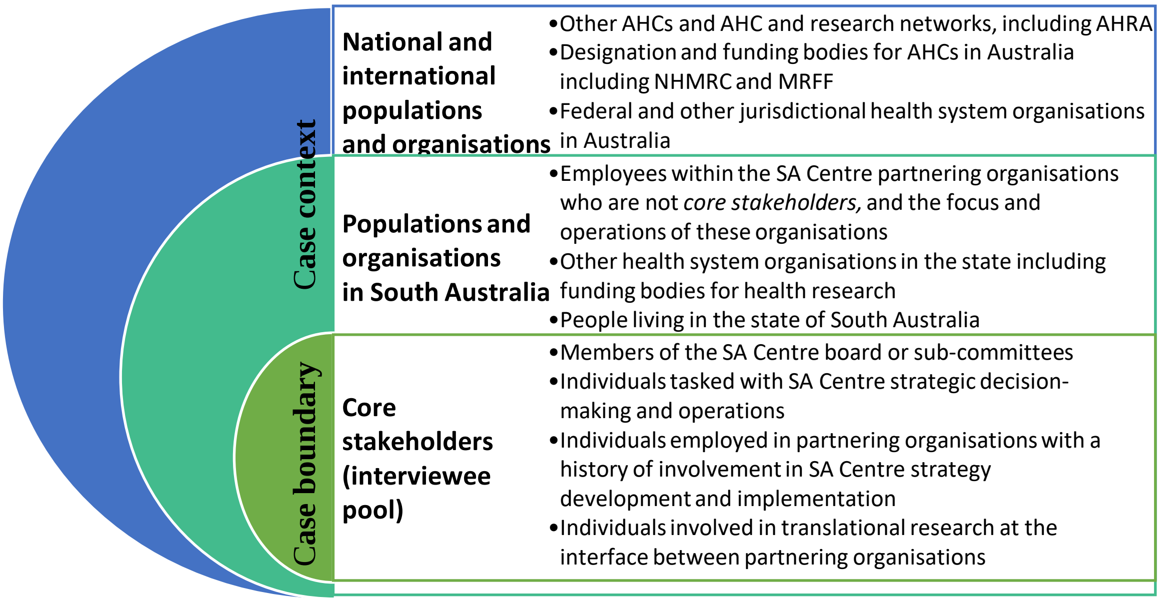
The case boundary of TAAHC included the TAAHC Board and sub-committees established as part of the TAAHC entity, and aspirations and activity branded as TAAHC. As TAAHC did not employ any staff directly at the time of data collection, the case boundary was constituted by the activity of, and relationships and interactions between, people employed within the TAAHC member organisations who were involved in the TAAHC strategy and/or operations in various ways.

Figure 6: TAAHC stakeholders within case boundary and case context



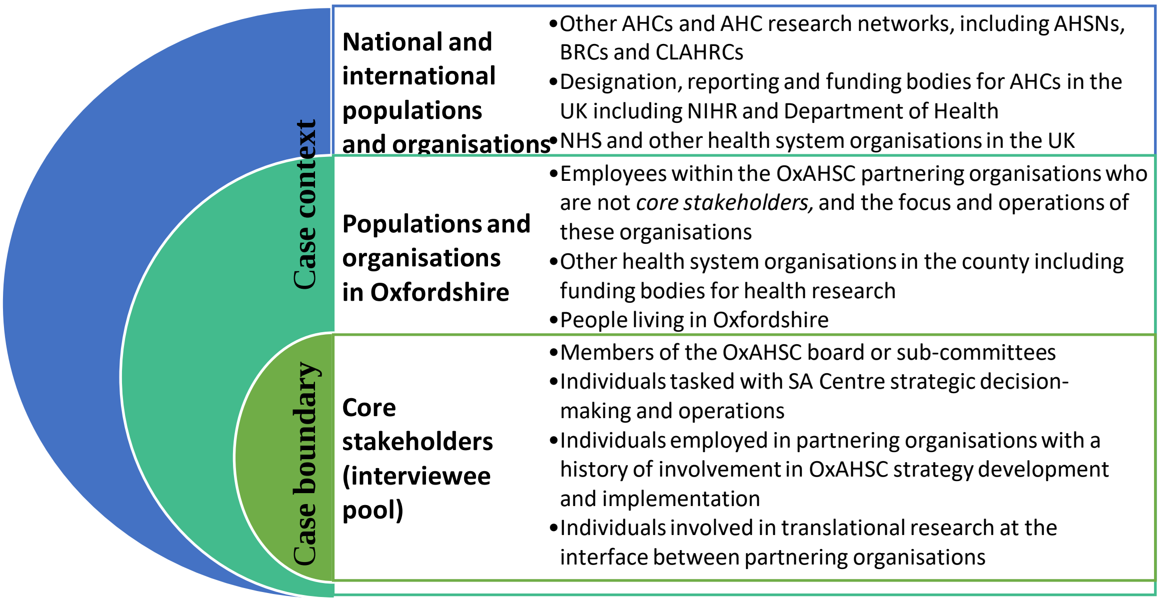
The SA Centre case boundary includes the SA Centre Board and sub-committees, and the activity of, and relationships and interactions between, people employed within the SA Centre partnering organisations who are involved in the SA Centre strategy and/or operations in various ways.

Figure 7: SA Centre stakeholders within the case boundary and case context



The OxAHSC case boundary includes the OxAHSC Board and sub-committees, and the activity of, and relationships and interactions between, people employed within the OxAHSC partnering organisations who are involved in the OxAHSC strategy and/or operations in various ways.

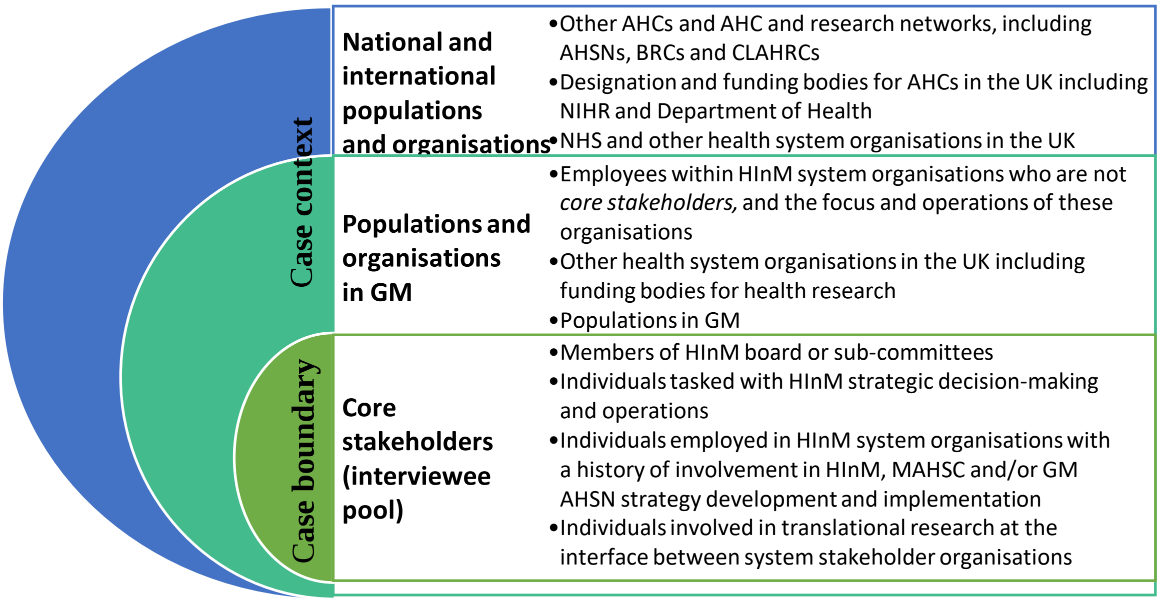
Figure 8: OxAHSC stakeholders within the case boundary and case context



National and international populations and organisations	•Other AHCs and AHC research networks, including AHSNs, BRCs and CLAHRCs •Designation, reporting and funding bodies for AHCs in the UK including NIHR and Department of Health •NHS and other health system organisations in the UK
Populations and organisations in Oxfordshire	•Employees within the OxAHSC partnering organisations who are not *core stakeholders,* and the focus and operations of these organisations •Other health system organisations in the county including funding bodies for health research •People living in Oxfordshire
Core stakeholders (interviewee pool)	•Members of the OxAHSC board or sub-committees •Individuals tasked with SA Centre strategic decision-making and operations •Individuals employed in partnering organisations with a history of involvement in OxAHSC strategy development and implementation •Individuals involved in translational research at the interface between partnering organisations

The HInM case boundary includes the HInM Board and sub-committees, including the governance infrastructure of the Manchester Academic Health Science Centre (MAHSC) and the Greater Manchester Academic Health Science Network (GM AHSN). The case boundary also includes the activity of, and relationships and interactions between, people employed within the HInM system stakeholder organisations who were involved in HInM strategy and/or operations.

Figure 9: HInM stakeholders within the case boundary and case context



4.4 Data collection

Three data collection methods were used in the project to enable data triangulation: interviews, observation, and document analysis. Interviews and observation are among the most common data collection methods in qualitative research (Creswell and Poth 2018). Interviews enable knowledge to be constructed through the interaction between the interviewer and interviewee and enable the researcher to understand the social world from the point of view of the selected subject (Creswell and Poth 2018). Observation enables deliberate noting of the phenomenon under study in a field setting and the use of field notes to record observations salient to the research questions of the study (Creswell and Poth 2018). Documentation was also sought and analysed, with both observation and documentation data used to triangulate emerging findings from interviews as the primary data collection method. These methods were selected to enable examination of the phenomenon of AHCs in their real-world settings; specifically, to seek an understanding of how core AHC stakeholders interpret the role their AHCs, and how the goals of the AHCs are articulated and being enacted in the AHCs. **Table 10** provides a summary of the data sources in each case study, with further detail provided within the in-case chapters.

Selection of data sources within each case involved both purposive and theoretical sampling techniques. Purposive sampling is important for ensuring that a wide range of perspectives are presented, and that one viewpoint does not dominate (Gilson 2012). This approach was used to identify data sources based on publicly available information on characteristics and structures of the AHC cases. Theoretical sampling enables flexibility in the number of data sources based on what is required for concept development (Corbin and Strauss 2015) and was used in the study to collect data based on emerging concepts in the AHCs. The data collection procedures were replicated across the four case studies to maximise comparability of findings and to facilitate generation of cross-case themes. Data collection protocols were developed for each case (the protocol for Case Study 1 is provided as an example at Appendix B) which included: background information about the case; ethical and site-specific approval details; location and access considerations; a data collection plan; data management considerations; and a guide for the case study report.

Interviews

Selection of interviewees within the AHCs aimed to achieve representation of different perspectives from within the identified core stakeholder group (defined above). Interviewees were selected with reference to achieving:

- Different levels of seniority and job type (including board members, executives, researchers, clinicians);
- Representation from the separate partnering organisations, with an aim of avoiding "clustering" of types of professionals interviewed at any one organisation (e.g. interviewing the Board Chair and CEO of the same organisation);
- To the extent possible, an equivalent gender representation in the composition of interviewees.

Generally, approximately 20 individuals were initially approached for interview within each case study, with at least five additional potential participants approached following the commencement of data collection. The recruitment process for selected individuals involved initial contact by email outlining the objectives of the study and requesting a time and location for an interview, and liaison with relevant staff to diarise appointments where agreed. A phone call, or single follow-up email was issued if no response to the initial email was received. Recruitment processes took between two-to-four weeks, which allowed for replies to initial and follow-up emails. The interview guide (**Appendix C**) was developed with reference to the study's research questions and relevant concepts in the literature, and was piloted with a health service executive familiar with TAAHC (the first case study in the project), which resulted in some minor refinements being made to the final guide. This question guide was used in all four case studies with very minor modifications made to contextualise the questions for each case. Role types of the interviewees included executive director of the AHC, board member of a partnering health service, and researchers and clinicians employed in the partnering organisations. Where interviewees held multiple roles across the different organisations (for example, held roles as a university academic and a health service board member simultaneously), they were allocated to the role type that best reflected their interaction with the AHC initiative.

Once interviewees were recruited, a meeting room at a convenient location was booked and interviews undertaken for a maximum time of one hour. To ensure participants were well informed, a participant information sheet and consent form were provided in advance of the interviews which were briefly discussed (**Appendix D** shows the participant information sheet and consent form used in the Australian case studies – the same documents were used in England but with the contextual details changed). All participants consented to their involvement in the study and were not compensated for their participation. Interviews were recorded electronically in the majority of cases or in handwritten notes and were transcribed either by the researcher or an external transcription service. All interview data was de-identified prior to transcription and commencement of analysis.

During the interviews, interviewees were asked if they would be amenable to follow up contact by email to clarify any points raised or to seek additional information and, if so, were sent summaries of the data to provide them with an opportunity to review and comment on emerging findings. This process of "member checking" (Gilson 2012) involved seeking comments and feedback within a two-week period and subsequent incorporation of feedback into the final case reports. Any comments and feedback received through this process were collated along with researcher reflections into a written memo, which was incorporated into the analysis of interview data.

Table 10: Summary of data sources in each case study

	TAAHC	**SA Centre**	**OxAHSC**	**HInM**
Interviews	**24 interviewees**	**20 interviewees**	**16 interviewees**	**25 interviewees**
Executives, directors, managers and project officers of AHC	0	4	3	8
Health system executives/board members	13	8	1	6
University and research institute executives	5	4	2	2
Clinical academics	4	1	1	5
Non-clinical academics	2	3	9	4
Observation memos (number of memos)	**5**	**3**	**4**	**6**
Documentation (number of documents)	**8**	**13**	**8**	**14**

Within TAAHC, 15 health system and university executives, researchers and clinicians from within the "core stakeholder" pool were approached initially for interview, one of whom declined to be interviewed due to competing work commitments. A further nine potential interviewees were identified during data collection and all consented to be interviewed, resulting in a total of 24 interviewees in the TAAHC case. Apart from three phone interviews, all interviews were undertaken in person; mostly within office locations within clinical or university facilities, but also within less formal settings, in multiple northern Queensland cities and towns (Cairns, Mackay, Mount Isa and Townsville). The average duration of interviews was approximately 35 minutes, with the longest interview being 75 minutes, and the shortest 10 minutes. In each of the TAAHC, OxAHSC and HInM case studies, one interviewee was interviewed on two separate occasions due to the first interview being cut short prematurely, and two interviewees from the same organisation opted to undertake the interview together for efficiency. All but three interviews in TAAHC were recorded and transcribed; for those that were not recorded at the interviewees' request, the researcher took handwritten notes during the interview. 11 interviewees responded to the researcher's request for comments on summaries of the data.

Just over half of the TAAHC interviewees (13 interviewees) were health system executives occupying roles such as chief executive, board chair or other board member, or executive director within their health service; five were executives working within the university; four were clinical academics; and two were non-clinical academics. Most interviewees had direct involvement in the TAAHC initiative either as members of the TAAHC governing board or through decision-making about TAAHC within their own organisations. Those who did not have this direct involvement were able to reflect on TAAHC as individuals involved in translational research, and most of these individuals also had a history of involvement in TAAHC strategy development and implementation. Due to the focus of TAAHC board members at the time of data collection on establishing a company structure as a prelude to further activity, there was no central core of individuals dedicated to TAAHC strategic decision-making and operations at executive, director or senior project/management levels, with interviewees involved in these tasks interacting with TAAHC only in a limited part-time and in-kind capacity and simultaneously representing their employing organisations in relation to TAAHC. For this reason, no interviewees were allocated to the "executives, directors, managers and project officers" interviewee category in this case study.

In the SA Centre, 14 core stakeholders were initially approached for interview, seven of whom declined to be interviewed due to competing work commitments. A further 13 potential interviewees were identified during data collection and all consented to be interviewed, resulting in a total of 20 interviewees in the SA Centre case, all of which all were undertaken one-on-one. Apart from four phone interviews, interviews were undertaken in person, mostly within office locations within clinical or university facilities, but also within less formal settings within the SAHMRI building, and in other corporate and public settings in Adelaide. The average duration of interviews was approximately 25 minutes, with the longest interview being 40 minutes, and the shortest 12 minutes. All but four interviews were digitally recorded and transcribed verbatim; for those that were not recorded at the interviewees' request or due to the nature of the interview setting (e.g. a noisy café), the researcher took handwritten notes during the interview. Five interviewees responded to the researcher's request for comments on summaries of the data.

The largest proportion of interviewees (eight interviewees) in the SA Centre were health system executives and leaders occupying roles such as chief executive, executive director or board member in their health service or advocacy organisation; four were executives within the university or research institute partners; one was a clinical academic; and three were non-clinical academics. A further four interviewees occupied central roles within the SA Centre as executives, directors, senior managers or project officers: these interviewees were employed within an SA Centre partnering organisation and their substantive roles were clearly linked to the operations of the SA Centre.

In OxAHSC, initial contact with potential interviewees was made by an executive-level staff member within OxAHSC who agreed to support the project and facilitate contact with potential interviewees. This individual sent an introductory email to a list of people who had been identified by the researcher as being involved with the OxAHSC initiative either directly or indirectly as senior-level employees of the partnering organisations. The key roles and incumbents were identified from web searches and with input from a member of the research advisory team who was based in Oxford. In both the OsAHSC and HInM case studies, a one-page information flyer was developed by the researcher for distribution in the initial email (**Appendix E**), which included information about ethical approvals for the project from two separate ethics committees in Australia. Email recipients were asked to respond directly to the researcher if they were interested in participating in the study. If the email recipients did not respond within two weeks of the initial email, the researcher sent a follow-up email directly to the recipient to remind them of the study and the opportunity to be involved as an interviewee. Initial contact was made with 24 potential interviewees in March 2018, 10 of whom did not respond to the initial or follow-up emails. A further two potential interviewees were identified during the course of data collection and both consented to be interviewed, resulting in a total of 16 interviewees in the OxAHSC case.

Apart from one phone interview, all interviews in OxAHSC were undertaken in person, mostly within offices located within health service or university facilities, but also within less formal settings such as cafes close to the interviewees' offices. The average duration of interviews was approximately 36 minutes, with the longest interview being 67 minutes, and the shortest 13 minutes. All but five interviews were digitally recorded and transcribed verbatim; for those that were not recorded at the interviewees' request, the researcher took handwritten notes during the interview. Eight interviewees responded to the researcher's request for comments on summaries of the data.

The largest proportion of interviewees (nine interviewees) in OxAHSC were non-clinical academics holding research roles within one of the partnering universities; two were partnering university executives; and three held central roles within OxAHSC as executives, directors, senior managers or project officers who were employed within a partnering organisation and whose substantive roles were clearly linked to the operations of OxAHSC. Only two interviewees held clinical academic or health system executive roles, with individuals in these roles over-represented among those who did not respond to the initial request for interview.

Within the HInM case study, initial contact was made with potential interviewees by an executive-level staff member within HInM who agreed to support the project and facilitate contact with potential interviewees. This individual sent an introductory email to a list of people who had been identified by the researcher as being involved with the HInM initiative either directly or indirectly as senior-level employees of HInM and/or system stakeholder organisations. The key roles and incumbents were identified from web searches and with input from the executive-level staff member within HInM. Initial contact was made with 15 potential interviewees in March 2018, four of whom did not respond to the initial or follow-up emails. A further 14 potential interviewees were identified during the course of data collection and all consented to be interviewed, resulting in a total of 25 interviewees in the HInM case.

Eight interviewees in HInM held roles that were primarily focussed on establishment, decision-making and/or operations of HInM at leadership, director, executive or senior management levels; six were involved in HInM through their roles as health system executives; five were clinical academics; four were non-clinical academics; and two were university executives. All but three interviews in HInM (two phone interviews and one Skype interview) were undertaken in person, mostly within office locations within clinical or university facilities, but also within less formal settings such as cafes close to the interviewees' offices. The average duration of interviews was approximately 32 minutes, with the longest interview being 75 minutes, and the shortest 10 minutes. All but three interviews were recorded and transcribed by the researcher; for those that were not recorded at the interviewees' request, the researcher took handwritten notes during the interview. 13 interviewees responded to the researcher's request for comments on summaries of the data.

Observation

Direct, non-participant observation (Gilson 2012) was undertaken by the researcher for a period of at least two weeks at each case study site (or major hubs thereof) involving immersion in office-based settings constituting AHC operating environments. Observation also involved the researcher's attendance as an observer at meetings, workshops and other conversations and events, where these addressed issues relevant to the AHC such as strategic planning, operationalising the vision and mission, dissemination of research findings, and stakeholder consultation. Approval from the AHC Chair/other responsible officer was sought prior to this attendance.

Researcher memos were developed to record key reflections and emerging themes arising from the observations. Based on factors identified in the literature review as enhancing/inhibiting a health equity focus and capacity of AHCs, a particular focus in this observation was on the nature and structures of communications processes, and on the culture and dynamics that influence collaboration between the partner organisations. Observations were also made of co-location of member organisations or distance between them, executive operating environments of the AHC and member organisations, and organisational goals. Although the memos took the form of free-flowing narratives, an observation template (**Appendix F**) was used to help prompt notetaking on the key focus areas described above and with reference to four of Spradley's (1980) nine dimensions of observation: space (physical places), actors (the people involved), activity (a set of acts that people do), and goals (the things people are trying to accomplish). The observation memos were drawn on in an integrative way during data analysis and were used to interpret the interview and documentation data with reference to real-world experiences. As such, interview and documentation data (rather than excerpts from observation memos) predominate as the illustrative examples used in the presentation of results below.

In TAAHC, the researcher physically attended each of the TAAHC member facilities, equating to two- to-three days in each of the four main executive office locations of the TAAHC member organisations (Cairns, Mackay, Mount Isa and Townsville), Researcher reflections on these observations were captured in five written memos. Attendance as an observer at formal meetings of the TAAHC governing board was requested of the TAAHC Chair, but at the time of data collection very few meetings were taking place and the request was declined.

In the SA Centre, the researcher physically attended SA Centre offices in Adelaide over two weeks, resulting in three written memos. The researcher also attended a formal meeting with SA Centre project leads at which the researcher was invited to present on emerging findings from the other case studies in the project. The meeting involved participation of the researcher in discussions about the function and roles of the SA Centre and other AHCs in Australia and overseas. Notes from this meeting were incorporated into one of the written memos.

In OxAHSC, the researcher was physically present within several OxAHSC partnering organisations' office locations at various times over a ten-day period. Researcher reflections on these observations were captured in four written memos. The researcher also attended a research meeting within one of the partnering organisations and a health systems seminar as an invited observer. Notes from these events were incorporated into two of the written memos.

In HInM, the researcher physically attended the HInM head office at various times over a ten-day period, and also attended separate office locations of the various interviewees within partnering organisations.. The researcher also attended the inaugural meeting of a new committee established within HInM as an invited observer. Researcher reflections in the meeting and on other observations were captured in six written memos.

Documentation

Documentation was used to corroborate and augment evidence from other sources, and to identify areas for further inquiry where the documentary evidence was contradictory (Yin 2014). Policy documents, including strategic and governance documentation, major reports, grant submissions, meeting minutes, procedural documentation and communications material relating to the AHCs were accessed and analysed for each case. Documentation was sourced initially from internet searching (for publicly available documents) with additional sources, such as meeting minutes and grant proposals, identified and accessed from core stakeholders during the interview phase. Approval was sought from the AHC Chair or an executive member of the AHC to access documents that were not in the public domain.

4.5 Data analysis

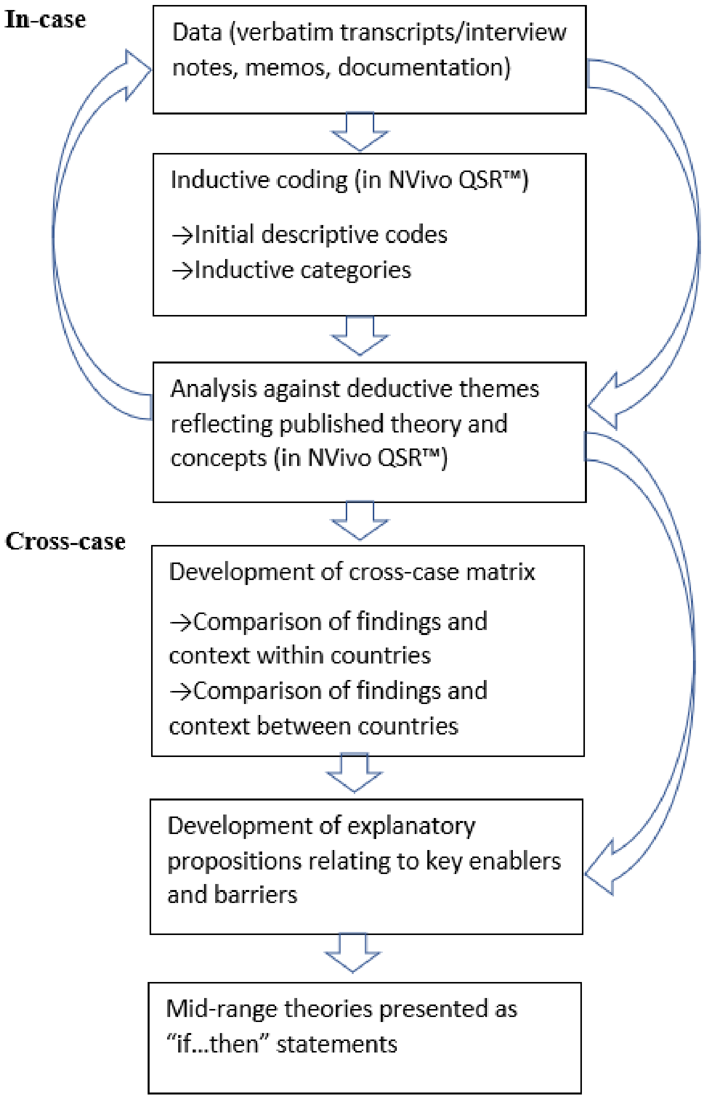
Transcripts and memos from interviews and observation from each case were read and coded inductively into descriptive codes and categories using NVivo QSR™ [Version 12 Plus]. This process, conducted separately and sequentially for each case, involved the development of codes to stand for interpreted meaning of data (Corbin and Strauss 2015). Within each case, categories incorporating the inductive codes were initially aggregated into deductive themes corresponding to the overarching research questions of the study. The inductive categories were later re-visited and re-grouped against different deductive themes reflecting published theory and concepts (described in **Chapter 3**). This process of re-describing empirical data using theoretical concepts, thereby raising the level of theoretical engagement beyond empirical description, is a feature of critical realist research and is known as *abduction* (Fletcher 2016). Document analysis was also conducted using NVivo with content from documents used to triangulate the findings emergent from interviews and observation.

Preliminary summaries of the data and emerging analysis were developed for initial review by members of the research advisory team, fulfilling the goals of peer debriefing and support (Gilson 2012). Analysis also involved a process of negative case analysis (Gilson 2012) whereby evidence was deliberately sought that contradicted both initial assumptions and explanations arising from the data, to enable refinement of these assumptions and explanations in response to the evidence. Relevant ideas and theory from within the three broad theoretical fields (health systems research, institutional theory and knowledge mobilisation) were drawn on to develop a conceptual framework subsequently used in data analysis (**Chapter 3**). This framework enabled examination of regulative, normative, and cultural-cognitive forces (Scott 2014) that shaped a population health role in the case study AHCs. Within each of the three institutional pillars, deductive themes reflecting relevant published concepts, guided by the conceptual framework developed for the study, were used to analyse and organise the inductive categories. The themes in each pillar were the same for each case which facilitated comparison of findings across the cases.

Once the in-case analyses were completed, cross-case analysis was undertaken to examine key patterns across all four case studies. The comparative process commenced with the creation of a matrix to display the findings from each of the cases, representing an established cross-case analysis technique (Yin 2014). Cases were first compared within each country, then compared across countries. First, key characteristics of the case contexts were compared, then comparison was undertaken of the in-case findings within each of the institutional pillars. In addition to appropriate use of theory, explicit selection of comparator countries and rigorous research methods which are discussed elsewhere in this chapter, quality criteria for research involving cross-country comparison typically include rigour in comparative design and attention to complexity (Cacace et al. 2013). These criteria were addressed in this study through the most similar/most different case selection process (described earlier) and by explicit attention to key contextual elements relevant to the cases, including: health system characteristics, demographics including population health needs, and AHC establishment histories (involving, for example, data collection not only about the cases themselves but also about relevant national and sub-national policies that led to their formation and eventual government designation).

Comparison of the in-case findings across all cases enabled the researcher to draw cross-case conclusions with reference to the study's overarching research questions. An iterative explanation building approach was employed which involved identifying explanatory propositions in the cases and comparing these between the cases (Yin 2014). Memo writing and diagramming were used to document emerging interpretations of the data and the research questions of the study were revisited in the context of these emerging interpretations (Yin 2014). This process, commencing with descriptions of findings within the institutional pillars in each case, then progressing to identification of key cross-cutting enablers of, and barriers to, enactment of a population health role in the case study AHCs, culminated in the development of inductive propositions that describe key patterns in the findings across the cases. These inductive propositions, in turn, informed the development of mid-range theories drawing from the case-based evidence about the population health role of AHCs. Mid-range theories are working hypotheses that are intended to evolve through ongoing research towards a more unified theory that explains observed social patterns (Pawson and Tilley 1997). Development of the mid-range (or "programme") theories in the current study involved identification of testable propositions in the form of "if…then" statements (Pearson et al. 2015). The "if…then" statements, which articulate hypothesised relationships between aspects of key enablers and barriers identified in the study, constitute an important building block for future research in the field. Accordingly, and as the current project is exploratory, the mid-range theories are presented as a starting point for future enquiry and testing rather than as full-fledged (unified) theories or blueprints for policymakers. **Figure 10** shows the progression of data analysis culminating in the mid-range theories presented.

Figure 10: Progression of data analysis within and across the four cases



4.6 Ethics and governance

The project was designed to comply with current best practice in research ethics including adherence to the *NHMRC National Statement of the Ethical Conduct of Research*, as well as to relevant Australian State and Federal legislation and JCU policies and procedures.

Human research ethics approval was first received from the Townsville Hospital and Health Service Human Research Ethics Committee (THHS HREC; reference number HREC/17/QTHS/81; 12 July 2017) and from the Aboriginal Health Research Ethics Committee (AHREC) within the Aboriginal Health Council of South Australia for the SA Centre component of the study (AHREC Protocol #: 04-18-754; 1 March 2018). Reciprocal acknowledgement of THHS HREC approval was received from the JCU Human Research Ethics Committee (JCU HREC) in September 2017. For the TAAHC case, site specific approvals (or SSA-exempt approvals) were also received from the Cairns and Hinterland, Mackay, North West, Torres and Cape and Townsville Hospital and Health Services between July and September 2017 (**Table 11**). Student Collaboration Agreements were also executed between James Cook University and each of these organisations during this period. Site specific approval was also granted from SAHMRI (SSA reference SSA57/2018 on 26 April 2018) to enable data collection to take place within the SAHMRI facilities.

For the UK case studies, research ethics and governance approval certification from the THHS HREC, JCU HREC, AHREC and governance officers were provided to AHC executive staff prior to commencement of data collection. No additional ethics or governance approvals were required in these locations.

Table 11: Site specific approvals received for the TAAHC case study

Name of site & SSA Reference Number	Commencement date at site
Cairns and Hinterland HHS SSA/17/QCH/106	1.2.18
Mackay HHS SSA/17/QMH/18	17.11.17
North West HHS (SSA exempt approval)	N/A
Torres and Cape HHS SSA/17/FNQ/010	5.3.18
Townsville HHS SSA/17/QTHS/85	1.2.18

4.7 Processes to enhance quality and rigour

To enhance the quality and rigour of the study, the “four tests” used to establish the quality of empirical social research were addressed in the study (Yin 2014, p. 45). Construct validity is about identifying correct operational measures for the concepts being studied, external validity is about maximising analytic generalisability beyond the immediate study, and reliability is about demonstrating that the procedures of the study can be repeated with the same findings and conclusions (Yin 2014). Although the fourth test, internal validity, seeks to establish a causal relationship between variables and is generally not applicable to descriptive or exploratory studies (Yin 2014), principles supporting internal validity are relevant in this study because of its interest in examining and comparing causal assumptions in the AHCs about interventions/policies and their effects. The study design also adopted the following processes for ensuring rigour in case study and qualitative data collection and analysis outlined by Gilson (2012): prolonged engagement, use of theory, case selection, sampling, multiple methods for case studies, triangulation, negative case analysis, peer debriefing, respondent validation and development of an audit trail. **Table 12** shows how these processes to enhance quality and rigour were operationalised in the study.

Table 12: Processes used in the study to enhance quality and rigour

Process	How operationalised in the study
Construct validity (Yin 2014) Respondent validation/ member checking (Gilson 2012)	• Clear definitions provided of the concepts being studied. • The study draws from multiple sources of evidence. • The findings follow a chain of evidence as reported in the in-case and cross-case chapters. • The study engages in respondent validation (member-checking), with summaries of data, and transcripts where requested, sent to all interviewees for checking and comment. Feedback was incorporated into the final analysis.
Internal validity (Yin 2014)	• The study used logic models and explanation building in the analytic phase to explore causal assumptions.
External validity (Yin 2014) Use of theory (Gilson 2012) Purposive case sampling (Gilson 2012)	• Replication logic used in the design of the multiple case study enabling analytic generalisability of the findings. • A conceptual framework derived from previous work used in analysis. • A most-similar/most-different method employed to select two AHCs from two separate health system contexts, facilitating examination of enablers and barriers within and between countries.
Reliability (Yin 2014) Audit trail (Gilson 2012)	• Case-specific protocols developed prior to data collection. • Data collection procedures replicated across the case studies. • All source materials uploaded to case-specific files and analysis software to facilitate their collective inclusion in analysis. • A record of activities including methods of data collection and analysis for each case developed and reported.
Prolonged engagement (Gilson 2012)	• The researcher presented in person for at least two weeks in each case study site (or major hubs thereof), involving immersion in office-based settings constituting case study operating environments.
Sampling (in-case) (Gilson 2012)	• Purposive and theoretical sampling used to collect data within cases to gather views from a wide range of perspectives from within a “core stakeholder” group.
Multiple methods and triangulation (Gilson 2012)	• Multiple data collection methods – interviews, observation and document analysis –used within cases to enable data triangulation. • Multiple data sources used within cases to enable corroboration of findings across sources. • In-case reports prepared prior to cross-case analysis to enable comparison of similarities and differences.
Negative case analysis (Gilson 2012)	• The conceptual framework used in in-case analyses enabled identification of expectations/assumptions as well as contradicting evidence.

	- Divergent perspectives among stakeholders explored by examining shared/divergent understandings of key concepts. - Explanations actively sought in the data for divergent findings across cases.
Peer debriefing and support (Gilson 2012)	- Regular interaction with advisers undertaken throughout the project, especially during the data collection phase and in early drafting, facilitating critical reflection informing continuing data collection and analysis. - Preliminary in-case and cross-case analyses reviewed by advisers.

4.8. Chapter summary

This chapter describes the methodology of the study, commencing with an explanation of the epistemological approach adopted in the study and research design. The study adopts a multiple-case study research design, with two cases selected in Australia and two in England to enact a “most similar/most different” approach to case selection. The study design provides for the comparison of selected cases both within and between countries, enabling the development of cross-case conclusions with reference to the study’s overarching research questions. The chapter describes three data collection methods used in the study to enable data triangulation: interviews, observation, and document analysis; and the processes used to analyse the data. The chapter presents the ethics and governance approvals received for the project and concludes with a summary of the processes used in the study to enhance the quality and rigour of the research.

5. Case Study 1: Tropical Australian Academic Health Centre

"The people of northern Australia and the tropics deserve innovative health solutions and systems tailored to the distinctive health care issues they face" (AITHM 2018, p. 7).

5.1 Introduction

This chapter presents the findings of a case study of the Tropical Australian Academic Health Centre (TAAHC), located in regional, rural and remote northern Queensland. The case study aims to explore the role of TAAHC in improving population health, by examining how population health is characterised and described within TAAHC, how population health goals are operationalised by TAAHC, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces that interacted to shape a population health role in TAAHC.

The chapter first describes the study setting and context, including geography, demographics, health system features and characteristics, and the establishment history and structure of TAAHC. Results are then presented using the three institutional pillars framework (Scott 2014), commencing with normative elements. Within each pillar, data are analysed and presented against six deductive themes: *aspirations* and *activities and impacts* (normative); *accountability at a TAAHC level* and *alignment of organisational accountabilities* (regulative); and *organisational cultures* and *power dynamics* (cultural-cognitive).

In the normative pillar, population health goals, centred on improving health for northern Queensland populations through translational research and multi-organisational collaboration, were clear among TAAHC aspirations. Although TAAHC was still in the process of establishment at the time of data collection, it had developed research and translation themes that included population health priorities.

Several barriers, however, were identified in the other pillars that were misaligned with these priorities, which had the potential to inhibit the operationalisation of population health goals in TAAHC. First, in the regulative pillar, there were few incentives for the member organisations to engage in research applied to practice or policy (whether population health -related or not). This aligned with cultural-cognitive forces that prioritised investigator-led research (rather than research translation) in the university partner and resisted research development within the health service organisations in TAAHC.

Second, despite work being undertaken in TAAHC to create and strengthen a regulative framework to underpin the collaboration, the initiative did not seek to understand or challenge power dynamics in its health system context. Because it reproduced rather than challenged these dynamics, TAAHC was inhibited in its ability to overcome organisational silos to address longstanding health and research system deficiencies in its health system context.

Third, most organisational partners in TAAHC were health service delivery organisations, which responded to accountabilities to patient care rather than population health. The case study findings suggest an opportunity for cross-sectoral engagement to be enacted in TAAHC at either board or project level to expand the focus of translation work beyond improving patient care.

Compounding these barriers was an absence of clear performance indicators and evaluation frameworks in TAAHC. Such instruments may strengthen the normative forces underpinning the population health role of TAAHC, suggesting that there is an opportunity for evaluation processes to be developed that enable systematic identification of the barriers to enactment of locally determined priorities and goals.

Findings from the case study, focussing on the aims and establishment experience of TAAHC, were published within a peer-reviewed journal (the details of which are at **Appendix I**). The publication represents a distinct piece of work intended to contribute an empirical analysis of an AHC to the Australian literature on AHCs and is separate to the forthcoming chapter.

5.2 Study setting and context

Geography and demographics

TAAHC was established in northern Queensland (**Figure 11**) across a vast geography of around 850,000 square kilometres. The region's population of approximately 750,000 people is largely clustered within the regional cities of Cairns, Townsville and Mackay, but a large proportion live in small towns and communities located in areas classified as rural and remote (NQPHN 2016; WQPHN 2017). Around 40 percent of Queensland's Aboriginal and Torres Strait Islander populations (around 74,000 people) live in the northern Queensland region, with the proportion of people identifying as being of Aboriginal and/or Torres Strait Islander origin ranging from seven percent in Townsville to 82 percent in the Torres Strait region (ABS 2016).

Life expectancy in the rural and remote areas of northern Queensland is lower than in the regional population centres and in Queensland as a whole, with these areas experiencing substantially higher rates of premature and avoidable mortality and potentially preventable hospitalisations (NQPHN 2016; WQPHN 2017). Improving the health of rural, remote and Aboriginal and Torres Strait Islander populations living in the region is a major priority of the region's health care as well as academic organisations (NQPHN 2016; WQPHN 2017). Northern Queensland's proximity to South East Asia and the West Pacific also contributes to a focus in health research on tropical infectious diseases and multi-morbidities (AITHM 2016).

Figure 11: Northern Queensland above the Tropic of Capricorn, showing Hospital and Health Service boundaries within the state of Queensland, Australia

Figure notes: The shaded Hospital and Health Services above the Tropic of Capricorn in the state of Queensland represent the geographic boundary of the TAAHC initiative and the definition of "northern Queensland" in this case study. Figure adapted from Queensland Health (2020) with permission.

Health system features and characteristics

Health services in northern Queensland are delivered by a wide range of government, private, non-government organisation, and community-controlled providers. These include Hospital and Health Services (HHSs), Aboriginal community-controlled health services, private health care providers and pharmacies, and outreach services (Edelman et al. 2020a). Telehealth models of care are an important component of rural and remote service delivery (Edelman et al. 2020a). James Cook University's focus on training a fit-for-purpose health workforce contributes to workforce capacity in the region (Larkins et al. 2016). Reflecting the region's distributed geography and population, as well as proximity to the Asia Pacific, northern Queensland health care, education, training and research organisations have a strong track record in rural and remote health workforce development, health system innovation, medical retrievals, disaster response, tropical health, and chronic disease prevention and management (Edelman et al. 2020a).

Various governance arrangements exist to support collaboration and shared decision-making between the organisations across the region, including cross-organisational representation on governing boards and committees, shared clinical/academic appointments, and memoranda of understanding relating to collaboration in clinical training of health professional students and joint precinct management. Research capacity within the health services varies, with some organisations having longer histories of research development than others (Edelman et al. 2020b).

Establishment and structure of TAAHC

The founding partners of TAAHC comprise five Hospital and Health Services (HHSs), the northern Queensland Primary Health Network and James Cook University, which includes the Australian Institute of Tropical Health and Medicine. **Figure 11** shows the jurisdictional areas of the five member HHSs above the Tropic of Capricorn, which collectively represent the geographic boundary of the TAAHC initiative and the definition of "northern Queensland" in this case study. TAAHC's stated purpose is:

> *"To improve the health of the northern Queensland population and grow prosperity in the tropical region through an alliance that enhances collective capability in health care, health and medical research, and workforce development" (TAAHC 2020).*

A memorandum of understanding was signed by the partnering organisations in 2016 to indicate shared commitment to establish TAAHC. In 2017, a process of formalising collaboration between the partners commenced through creating a company limited by guarantee governed by a constitution and Members' Agreement. At the time of data collection, a Steering Committee (referred to in this case study as a "board") comprising representatives from each member organisation was meeting periodically either in person or by virtual meeting platform, and several sub-committees had also been convened for specific activities. James Cook University also provided in-kind "back office" support including administration of a small pool of resources to support establishment activity, comprising negotiated financial contributions from each of the TAAHC member organisations. At the time of data collection, TAAHC was still in an establishment phase and was deeply engaged in governance structuring and planning about its role and intent, but had not yet commenced operationalising its aspirations.

5.3 Case Study 1 methods

The TAAHC case study involved data collection between October 2017 and March 2018 from three sources: semi-structured interviews with core stakeholders; direct observation of AHC activity within the AHC settings over multiple days (recorded in research memos); and documentation, including both published and unpublished grey literature. A total of 25 interviews were conducted involving 24 interviewees with a roughly equal gender balance (see **Table 13**) and representing all TAAHC member organisations. The study design and data collection and analysis methods were replicated across all four cases studies and are described in detail in **Chapter 4**.

Table 13: Data collection methods and interviewee characteristics in the TAAHC case study

INTERVIEWS (*n* = 24: female = 10; male = 14)	
Average duration: 35 minutes (range: 10 to 75 min). Method: 21 in person; 3 phone. Digital recordings: 21 digitally recorded; 3 recorded in handwritten notes.	
Role type and number of interviewees	***Role description and relationship to the TAAHC initiative***
Executives, directors, managers and project officers of AHC (EM) *(n = 0)*	Central core of individuals tasked with TAAHC strategic decision-making and operations at executive, director or senior project/management levels.
Health system executives/board members (HSE) (*n* = 13)	Individuals holding executive or board -level roles within partnering health care and/or health system advocacy organisations, who are involved in TAAHC strategic decision-making, including via membership of the TAAHC board and/or sub-committees.
University and research institute executives (UE) (*n* = 5)	Individuals holding executive-level roles within member universities or research institutes, who are involved in TAAHC strategic decision-making, including via membership of the TAAHC board and/or sub-committees.
Clinical academics (CA) (non-executive level) (*n* = 4)	Individuals occupying clinical roles within member organisations while also leading or participating in clinical research activity linked to TAAHC.
Non-clinical academics (NCA) (non-executive level) (*n* = 2)	Non-clinicians employed in member organisations who are involved in research activity linked to TAAHC.
OBSERVATION MEMOS (*n* = 5)	
Features and activities observed included: co-location or distance between executive offices of TAAHC member organisations; nature and mode of interactions between the partnering organisations; executive operating environments; and visible organisational goals.	
DOCUMENTATION (*n* = 8)	
• TAAHC Review Report, 2017; • TAAHC Steering Committee meeting minutes, December 2015; • TAAHC Steering Committee meeting minutes, May 2016; • TAAHC NHMRC CIRH submission and cover letter, 2016; • TAAHC Business Case, 2017; • TAAHC Research Development Strategy, 2017; • TAAHC presentation, 2016; • TAAHC Memorandum of Understanding (MOU), 2016.	

5.4 Case Study 1 results

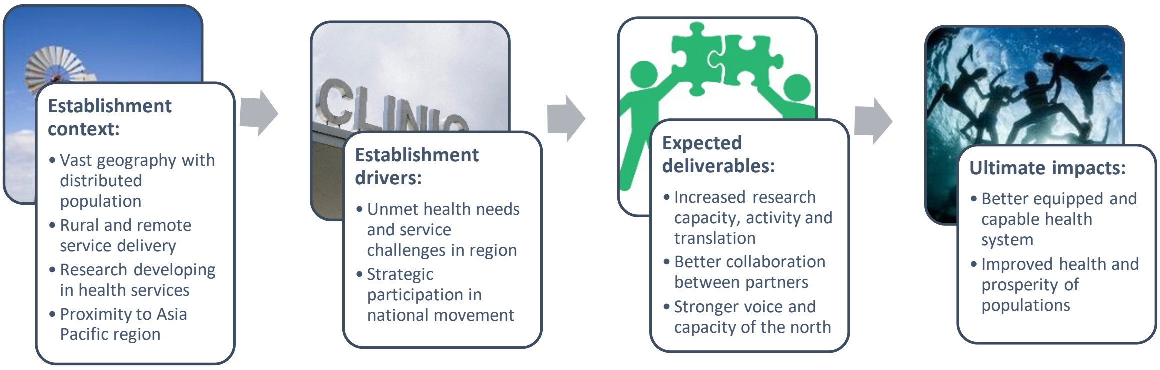
The results are supported by verbatim quotes from interviews, memos and documentation. Each interview quotation is identified using an acronym relating to profession type (health system executive/board member="HSE"; university executive="UE"; clinical academic="CA"; non-clinical academic="NCA") and a number corresponding to their random order in a list of interviewees in each professional grouping. The list of documents referenced in the chapter are in **Table 12**.

Normative forces

Normative forces are about valued ends of effort and the legitimate means to these ends, and as such *aspirations* (shared understandings about what TAAHC should do), and *activities and impacts* (how TAAHC should do them and valued ends of effort), are the themes in this section enabling exploration of normative forces shaping a population health role in TAAHC.

Aspirations. TAAHC is normatively constructed on a shared understanding that research, and better collaboration between the partnering organisations, improves population health. **Figure 12** summarises the defining establishment drivers and expected deliverables and impacts of TAAHC within its health system context, which are explored below.

Figure 12: TAAHC establishment context and drivers, and expected deliverables and impacts (author's graphic)



Interviewees in TAAHC clearly linked its emergence with its geographic and demographic context. Population health and service delivery challenges such as managing high rates of chronic disease and infectious disease outbreaks and incursion risks, as well as management challenges such as meeting growing demand for health services with finite budgets, were among the challenges and priorities that occupied the focus of TAAHC member organisations.

> *"Northern Queensland experiences distinctive health and clinical care challenges. These challenges include a higher burden of non-communicable diseases, including diabetes and cardiovascular disease, mounting effective public health responses to tropical, exotic and infectious diseases, including tuberculosis and vector-borne diseases, disparities in access to health care and health outcomes, and the provision of health care over a large geographic area entailing a multidimensional practice environment requiring 'generalist' skills and training" (TAAHC CIRH submission 2016; TAAHC Business Case 2017).*

> *"We need to work much more efficiently that we have. There are many old and inadequate systems, processes. We could work a lot better with the people we have, with the resources we*

> *have, because we've been doing the same thing for a very long time. Or a series of similar things that aren't maintained for very long" (HSE6).*

> *"Health inequalities definitely is one of the major issues facing us. In fact, the Health of Queenslanders – the report that came out in 2016 – actually identified a huge age gap between the life expectancy of people with Aboriginal and Torres Strait Islander background" (CA2).*

All interviewees described these contextual elements either as drivers of TAAHC's establishment or at least as key contextual conditions influencing its development and aspirations for impact. In the minds of interviewees, TAAHC was one way that longstanding health disparities and health system challenges could be addressed across northern Queensland, demonstrating that population health improvement across the region was a valued end of effort.

> *"We have, in this part of the world, a long history of worse [health] outcomes. And in my view, the key thing about an academic health centre is to try and reverse that, and in other words to try and make sure that people in our region are not penalised by our geography in terms of their, in terms of the health service they get" (UE2).*

> *"That's our key driver, that's why we're doing it [establishing TAAHC] – it's about equity, and improving health outcomes" (HSE8).*

In terms of delivering on this broad intent, TAAHC was framed by interviewees and in documentation as a strategy to better coordinate and augment existing strengths of the partners, and built on the partners' capabilities in research, service delivery and health professional education.

> *"TAAHC member organisations have a long history of service delivery, workforce training and innovation aimed at improving health and workforce capacity across a large region with unique health challenges" (TAAHC Business Case 2017).*

> *"We're not looking to create this [research capabilities] – it's here. We are looking to harness it and leverage. Because we have a lot of world-leading researchers here and world-class researchers that we've not had good visibility of" (HSE5).*

Enhancing "collective capability" in the three areas of "tropical health and medical research, health care and workforce development" (TAAHC Business Case 2017) was a stated goal of TAAHC. The central focus of this collective effort was on health need and health service priorities. Research was framed as the key mechanism for health and health systems improvement in the northern Queensland region. The facilitation of health and medical research was described by interviewees and in documentation as the main focus of TAAHC, with research widely viewed as a necessary capability to develop within the region's health system.

> *"The Objective of the Parties is to commit, in principle, to the establishment of the TAAHC ("the Objective"), recognising the potential for TAAHC to improve health for northern Queensland populations by growing health and medical research capacity and enhancing its alignment with health service delivery and patient needs" (TAAHC MOU).*

> *"We have some of the worst health outcomes, and the poorest health equity in Australia. And we've made the steps with our workforce, and we've made the steps with our training, the next step is to mobilise these people in terms of the most informed and evidence-based clinical practice decisions. And that's gonna come from research" (HSE5).*

TAAHC had developed four "research and translation themes" which reflected both existing areas of strength and future aspiration linked to population and health system priorities (CIRH submission 2016):

- Service delivery to rural, remote and Aboriginal and Torres Strait Islander populations;
- Innovative health workforce models suited to regional needs;
- Chronic diseases with a high regional prevalence; and
- Infectious diseases and biosecurity.

The words "impact", "translation", "applied" and "embedded" were used in documentation and by interviewees to describe the type and nature of research that stakeholders saw as needed and as potentially driven by TAAHC. The intent of these types of research, as described by interviewees and in documentation, was predominantly on improving health service delivery by engaging in processes to improve the routine use of evidence in clinical care.

> *"TAAHC is [about] having [a] critical mass to be able to do research that has impact that is able to make a difference" (UE2).*

> *"Research translation is terribly important because it's not just getting a paper published, it's also engaging with those who need to know of the research, so it's the health service managers, policy people, senior executive, political – you know, whoever needs to know, is engaged early all the way along. And if there is a systematic approach to that, then there is the way – it's 'TAAHC's way' – this is the way we do stuff in research translation, we do it to best practice and best practice looks like this" (UE3).*

> *"The objectives of TAAHC are to: stimulate, support and facilitate research and an underpinning research culture embedded within clinical environments" (TAAHC Research Development Strategy 2016).*

> *"It is important to promote embeddedness of [research capacity] in the health system" (NCA2).*

Interviewees generally expressed a preference for TAAHC's research agenda to be responsive to patient and population health needs. While some thought the focus of this effort should be on patients, others referred more broadly to populations, defined by one interviewee as research addressing "the lived experience of the communities of north Queensland" (HSE6). These preferences were contrasted by interviewees with types of research that were more removed from patient and population priorities (such as "blue sky biomedical" research (CA3) or "laboratory quantitative" research (HSE6)). These latter types of research were described by some as being functionally disconnected from real social problems and health system issues, and should therefore not be the focus of TAAHC's research efforts.

> *"It [TAAHC] is about making sure that your research is of value and creates social value. I mean, why would you do it if you don't create social value? It seems pointless to me […] if you ask, most would say 'I want research to be of value, and to create outcomes'[…] although research in the Australian system has […] sort of fallen away towards the slightly self-absorbed and blue sky sort of ivory tower stuff – that's a function of the funding model, it's a result of getting policy wrong" (UE4).*

> *"One of the misconceptions is that we need more research to solve the health problems – I mean if we simply applied what was known – about how to deal with the problems, you wouldn't need a bunch of professors and micro/DNA laboratories to do that. And so there's a kind of overselling going on that we need – what's the word – 'biomolecular' research to deal with things that, which from a public health point of view, are about sanitation and hygiene […] It needs more translation and less of this blue sky biomedical kind of stuff in my view" (CA3).*

These aspirations about the nature of research in TAAHC were linked by some interviewees to national movements in research funding and activity that emphasised the need for better linkages between research and real-world needs and challenges. In this way, the strongly expressed views about the expected focus of TAAHC's research efforts by some interviewees reflected national debates about what types of research should be funded by government bodies. Some reflected on how these national debates played into the establishment rationale of TAAHC, and AHCs in Australia more generally.

> *"I think the stimulus [to establish AHCs] was actually […] the worldwide movement away from just doing research for research sake […] and particularly in Australia I think the announcement of the Medical Research Future Fund had made people sit up and think 'in fact research needs to be focussed on translation'. And so, in the last few years, this word 'translational research' came into the vocabulary, and it makes absolute sense" (UE5).*

> *"I think the push [to establish AHCs] predominantly came from universities rather than from the health system […] and I think that's coincided with a more general view that Australia – which has always played really well in the basic research space – needs to be a better player in the translational research space. And I think the academic health centre debate is actually a part – and a very key part actually – of that broader debate of the nature of our research output" (UE2).*

Further revealing stakeholders' expectations about the types of research that should be the focus of TAAHC, some interviewees and documentation defined the target beneficiaries of TAAHC's research as people living in northern Queensland, while others, mostly health service interviewees, more narrowly saw *patients* in northern Queensland as the intended beneficiaries.

> *"TAAHC aims to improve the health of the* ***northern Queensland population*** *and prosperity in the tropical region" (author's emphasis; MOU 2016).*

> *"If you had to have a one liner – what are we doing this whole thing for? Unless we specifically improve* ***patient care****, but of course underneath that comes increased research, comes evidence-based medicine, there's advantages for collaboration in education, but to me it all – if you drew a circle, you've got* ***patient care*** *in the middle of it" (author's emphasis; HSE3).*

"Tropical" populations, referring to people living in northern Australia and the Asia Pacific region, were also mentioned, though more in relation to opportunities to develop commercial and strategic advantage through TAAHC (rather than health improvement through research). Interviewees who described this aspect of TAAHC drew attention to TAAHC's unique location in the tropics, near neighbouring countries to the north, as an opportunity to build strategic networks and relationships across country borders.

> *"We'll be quite unique in that we're an academic health centre that will be based in the tropical world. And I think that's where the real opportunities will come – not only for improving health in our current footprint, but there will be opportunities as the organisation develops to create partnerships with other esteemed research institutions not only in Australia but also the Asia Pacific rim" (HSE10).*

> *"If we're able – notwithstanding legitimate things about accreditation and practicing across jurisdiction and workforce and stuff – but being able to reach out into Asia and the Pacific with travel medicine, with medical tourism, with surgical procedures, with disaster medicine, with infectious disease control, with programmatic, with health systems – it's just a tremendous, a tremendous soft power benefit to Australia – it's a commercial benefit to*

> *Australia and to the region, it's a great – it's about human development you know. And TAAHC can do that" (UE4).*

Nonetheless, the dominant focus in TAAHC was on northern Queensland, where all of the TAAHC partners were wholly located (apart from James Cook University, which has a campus in Singapore (observation memo, 12 October 2017)). There was widespread consensus that collaboration across the northern Queensland region between the multiple health system organisations that were partners in TAAHC was essential to underpin efforts to improve the value and impact of research for northern Queensland patients and populations. One of the perceived benefits of this collaborative approach was that it enabled pooling of resources and capabilities, enabling the partnering organisations to work together in doing research at a larger scale.

> *"We [the individual partners in TAAHC] haven't got the capacity to do everything – neither [do the other partners] – but how I see TAAHC functioning [is], you've obviously got a governance layer, and there'll obviously need to be focal outcomes at each area, with everyone having a sort of slant on what they do. But if you have an exemplar project […] if it's successful then wouldn't you roll that out across TAAHC as a demographic area? And see underpinning that is all the research" (HSE3).*

> *"Given that northern Queensland is quite small in population, I think the idea [in establishing TAAHC] was for a collaborative group of all the health services and JCU […] to pull together their resources, because individually we're not big enough to do an academic health centre" (HSE1).*

Another perceived benefit of inter-organisational collaboration between the partnering organisation in TAAHC was to combine and coordinate expertise and ways of thinking to produce outputs that none of the partners could deliver alone. Siloed ways of working, involving the separate TAAHC organisations strategising and working separately or competitively, were generally seen as detrimental to delivering the best health services and outcomes for the northern Queensland population. TAAHC was described by several interviewees as the way to coordinate the different organisations strategically and operationally.

> *"At some point, as a collective, we have to identify 'the whole is greater than the sum of the parts'. And Cairns doing, Townsville doing, research is not harnessing the potential that exists in the Mackay, North West and the Torres, because the research happens to those communities but is not driven by those providers. So there needs to be a shift where there is a strategy that embraces north Queensland as a research opportunity, and there's a cohesion amongst all of the players and all of the sectors, that develops a coherent research strategy" (HSE5).*

> *"TAAHC is a systems approach that brings together disparate models and ways of thinking about it [health care…] the overriding thing is that you synthesise something greater by bringing all these different bits together" (UE4).*

> *"I see TAAHC as being an umbrella organisation that pulls together the capacity and capability in [each of the individual organisations] and provides a kind of overarching strategic direction for where we'd go […] I think that the whole of Queensland is experiencing issues with very similar conditions – so the more that we can have a coordinated approach to it and we can actually do larger scale projects looking at how effective are the interventions that we're actually using or implementing – would have much more of an impact than any one organisation can individually" (CA2).*

The inclusion of both service delivery and academic organisations as partners in TAAHC was central to these collaboration aspirations, because combining them meant overcoming perceived silos that inhibited translational research. While the academic partners in TAAHC brought research and research training expertise and capacity, the health service partners were the locations at which the research would be applied ("translated") into clinical practice.

> *"[By] partnering an academic institution with service delivery institutions you have the ability to […] translate into practice, and obviously to have a perfect environment for research as well – for clinical trials and research – so it's a symbiotic relationship really, it's a win-win on both sides in terms of this. And ultimately the game is to the population" (HSE8).*

> *"The problem with universities is they're not so closely engaged in a clinical setting, and the problem with hospitals is they want to do research but they don't have the academic links to provide the quality of research. So what we end up with is potentially unethically investing in a lot of research that isn't well designed, that engages patients in research [but] that provides outcomes that aren't that valuable" (CA4).*

> *"Universities haven't traditionally seen [research translation] as their core business, and the HHSs or health system hasn't necessarily seen research as its core business, so something has to fill the gap" (HSE12).*

> *"In the Australian system, the only way that a university can be engaged in clinical research is with a clinical provider as a partner. And for us in this part of the world, that means being involved with, at the very least, the public health system in the form of the potential [TAAHC] partners as players" (UE2).*

Similarly, bringing together several organisations across the northern Queensland region was seen by some to address a longstanding need for a northern-Queensland-wide or "zonal" perspective (UE1) in health service planning to improve integration and coordination between primary and secondary care, especially in rural and remote locations. Referencing a small remote town 1200 kilometres inland as compared to a larger regional coastal city with a teaching hospital, one interviewee described TAAHC as helping the partners to think about:

> *"How a person in Cloncurry or on a [remote] station can have an equivalent outcome should they get a stroke, as someone in Townsville" (UE1).*

To illustrate the possibilities of collaborative working between organisations in TAAHC, the TAAHC Review Report suggested that TAAHC oversee activity to "coordinate approaches to building and disseminating evidence-based practice across the TAAHC region" in areas such as disaster response and public health planning (2017). The Review Report also suggested that:

> *"TAAHC should address tricky issues that the HHSs can't resolve on their own, and the individual organisations within TAAHC have a duty not to duplicate" (2017).*

Another benefit of the collaborative approach, described mostly by health service employees, was to enhance the collective competitiveness of the partnering organisations in accessing government and other funding sources for research, and to increase their status and reputation in Queensland, the nation and internationally.

> *"Now the value of TAAHC to me, and why we have remained loyal and supportive of the concept, is that the wide geographic footprint gives us the opportunity to have a much broader focus and ultimately gives us the opportunity to draw in many other funding sources to undertake the job the hand" (HSE4).*

> *"I think possibly we can't compete very easily in northern Queensland with kind of major metropolitan centres who attract a lot of big funding because of the kind of research expertise they've got there and the kind of track records. And if we can pull experts together across the whole of northern Queensland and provide access to patients across that whole area we'd stand a lot better chance of getting funding" (CA2).*

> *"Here's where TAAHC can help, because everything is Brisbane-centric, and the likes of the Metro South and North [HHSs located in southern Queensland] – they're big players and they're vying for a piece of the [funding] pie too […] I see the purpose of TAAHC being able to […] get the 'north' out there and to get the research activity and our uniqueness out there" (HSE13).*

Interviewees and documents also emphasised TAAHC's marketability as "rural", "remote" and "tropical" (CA2; TAAHC CIRH submission 2016); differentiators from other urban parts of Australia with longer histories of access to research resources. One interviewee described these attributes as a "unique selling point" to enable TAAHC to compete with southern institutions for research funding (HSE9). By drawing attention to the unique features of the northern Queensland region, TAAHC was seen to have the potential to improve the visibility and appeal of the individual TAAHC member organisations; improving, for example, their capacity to attract and retain talented staff. One interviewee described the potential for TAAHC to help prospective employees to differentiate the health service partners from “just another hospital that delivers patient care” (HSE13). This was particularly important for the health services that were accustomed to high rates of staff turnover.

> *“In our workforce planning what we’re finding more and more is that attracting and retaining good staff – good clinicians – if we have an active research effort, that is a very strong argument for us retaining our staff” (HSE4).*
>
> *“In order to attract […] clinical experts up here, we need to be able to offer them really robust research support and a good track record in research” (CA2).*
>
> *“Now a rate-limiting step in getting professional staff to move here and live here is the usual stuff in rural and remote areas, but the main thing that TAAHC wants to address is the lack of professional and academic support around the work that is done up here. And I think that’s a critical role for the TAAHC in improving the professional support for people, in order to make their jobs more interesting, reducing professional isolation and get people more involved in reflecting practice I suppose, and improving the quality of services and outcome” (CA1).*

This perceived capacity of TAAHC to assist in the attraction and retention of staff was a strong motivator among the health service stakeholders to be involved in TAAHC, given the long history in the region of high turnover of both clinical and executive staff.

> *“When your workforce is turning over at 17 per cent a year that makes it difficult – so really it’s difficult to get people” (HSE8).*

In summary, the aspirations of TAAHC strongly emphasise an intent among stakeholders for TAAHC to have a population health role, targeting northern Queensland patients and populations. TAAHC was expected to operationalise this aim through research oriented towards translation and impact within the health service organisational partners, and through collaboration between the partnering organisations People living in the broader tropics, including the Asia Pacific region, were also an expected focus of TAAHC in relation to broader socio-economic and strategic aims, although the dominant focus of TAAHC was on health, and healthcare, improvement within the northern Queensland region in which the TAAHC partners were based.

Activities and impacts. Planned activities, along with reported impacts attributed to TAAHC, represented a shared perception of legitimate means to valued ends, showing how TAAHC stakeholders sought to frame and operationalise its goals. In addition, some interviewees described their expectations of the types of indicators that could be used to measure the “success” of TAAHC, which also reflected norms and values of core stakeholders. These expectations were important normative forces in TAAHC because the initiative had not developed any specific key performance indicators. As shown in **Table 14**, activities and impacts spanned all CAHS (2009) impact categories. The examples in the table are summarised as impact indicator types in the final column.

Table 14: Activities, impacts and definitions of "success" in TAAHC

Impact Category (CAHS, 2009)	Examples of "what success looks like" in TAAHC	Examples of impacts attributed to TAAHC and activities	Types of impact indicators suggested
1. Advancing knowledge	"Grant income" (CA2) "Contribution to the body of knowledge by publication" (HSE11) Excellence in Research for Australia league table rankings for the university partner (UE1)	*No specific activities or impacts attributed to TAAHC.*	Grants, publications and academic rankings
2. Building capacity	"Increased enrolments in higher education" (UE1) Increased clinician recruitment (HSE11) Numbers of clinician researchers trained in postgraduate research supervision (CA2) Inclusion of other organisations within the TAAHC collaboration (HSE9) Clinicians' sense of being supported to do research (HSE8) "Workplace satisfaction" levels (HSE8) Recognition at different levels that research has "value" in health care (UE2) Brand recognition of the TAAHC entity: "when it rolls off peoples' tongue" (UE3) "A robust governance process [with] the partners all working on a collaborative vision" (HSE1) "Visibility of genuine partnership […] between the health service and the other health service providers in the region" (HSE8) "All the players in the north singing the same tune, on the same page" (HSE13)	Establishment of TAAHC governance infrastructure to provide a framework for research enabling and other activity to commence within TAAHC (TAAHC Business Case 2017) Application for designation as NHMRC CIRH (TAAHC Business Case 2017) Development of research strategy documents within some HHSs as encouraged by TAAHC (HSE8) "Research-enabling" projects designed to encourage and streamline increasing research effort across the participating organisations (TAAHC Business Case 2017) "So like what has it [TAAHC] done? I think, well I guess for a start, having all the players in the north singing the same tune, on the same page" (HSE13).	Enhanced staff and student recruitment and retention Greater research capabilities of staff Nature and extent of collaboration between partnering organisations Enhanced reputation of the partnering organisations

3. Informing decision-making	“Measuring translation of research into actual service provision” (CA4) “I think one of the whole objectives of the TAAHC is to be able to tell the HHSs at the end of the day whether all their activity appears to have had an impact on the people” (CA1) “It’s about knowing that we’ve made a difference and improved things” (HSE8) Evidence-informed “policies and procedures” in the health system (HSE6) “[Success is the number of] projects that have been successfully completed and gone on to the implementation stage” (CA1)	Representative composition of board – health service partners dominate governance of TAAHC (TAAHC Business Case 2017)	Locally led research informing practice and policy Evaluative and implementation research addressing to local health and service issues Active linkages between research efforts and practice and policy change
4. Health impacts	“I think we should also be looking at population health as an ‘overall’ in the areas that we’re targeting as a priority” (CA2) “I think it [the research agenda is about] improving patient outcomes” (HSE1). Work to establish research themes in areas aligning with population health need and service priorities (TAAHC Research Development Strategy 2016)	*No specific activities or impacts attributed to TAAHC.*	Better health for patients and populations
5. Broader socio-economic impacts	“I would expect that you get at least a two-fold return on the investment, measured, quantifiable in real terms, and that can be in terms of productivity or efficiency dividends, and that might relate to improved models of clinical care or ways of practice or delivery mechanisms or ways of doing business” (HSE12) Goals of TAAHC include “developing new industries in life sciences innovation” (TAAHC MOU 2016) and driving “investment in knowledge-based industries” (TAAHC Business Case 2017) “Prosperity in the tropical region” (TAAHC MOU 2016)	*No specific activities or impacts attributed to TAAHC.*	Development of new life sciences industries Quantifiable productivity and efficiency returns to health services Strategic collaboration with international organisations

The examples of planned activity and impact in **Table 14** reflect a clear emphasis in TAAHC on *building capacity* and *informing decision-making* impact categories, indicating strong consensus around TAAHC goals relating to inter-organisational collaboration, embedding research capacity in health services, and translational research. In relation to *capacity building*, health service interviewees, in particular, strongly emphasised indicators relating to the extent and quality of collaboration between the partners, as well as workforce and reputational benefits of TAAHC.

> *"I can't stress enough how important it is to have an environment where researchers and clinicians can work closely together. That in itself is improving outcomes" (HSE4).*

> *"[Success in TAAHC would be] that it has a robust governance process and that the partners are all working on a collaborative vision" (HSE1).*

> *"[Success in TAAHC would be] that the staff that work for us see themselves as equal to any other service provider in Australia […] So from our staff point of view, it is a place that is equal in terms of service delivery, education, research, to any other place – not only in Australia, but the world. And in some instances, as a world leader" (HSE5).*

Some health service interviewees also reflected that the work done thus far in establishing TAAHC had already spurred activity within their organisations to develop and foster research and strengthen relationships with James Cook University (both examples of *capacity building* impacts). For example, some HHSs had created new research strategy documents and had embarked on efforts to quantify and characterise the extent and nature of existing research effort.

> *"The fact that [TAAHC is] there, the fact that we know it's there, and the fact that I personally see it as very important and I've established very strong relationships with [the university] as our partner, and that despite the fact that we're still on a journey with TAAHC, we're doing a lot locally and its definitely making a difference – we've got research going on, popping up everywhere – I'm just so thrilled and I didn't think that could happen as quickly as it has […] Without TAAHC, without that drive that we've got and the recognition of where we're going in terms of the vision and direction – I don't think we'd be able to do that. So we're already seeing the benefits of it" (HSE8).*

In relation to *informing decision-making*, several interviewees reflected on the possibility of developing metrics to measure pathways from research to health services improvement and health outcomes.

> *"[We need] longitudinal measures of improvement in health outcome […to be] directly attributable back to research that were generated by or translated by the influence of TAAHC. So you're seeing a difference. And that difference can be attributed to the strategy development of TAAHC" (HSE5).*

> *“At a basic level, [success in TAAHC could be measured in terms of] the number of projects that have been successfully completed and gone on to the implementation stage” (CA1).*
>
> *“There are opportunities for research to look at primary health care [in our region], including evidence-based models of care and interaction between primary health care and acute care [...] Research should have impact on the whole of the system” (HSE2).*

The composition of the TAAHC board, involving representatives from the partnering organisations, was one example of activity that aimed to ensure that health service end users drove TAAHC’s research agenda, which fell into the *informing decision-making* impact category.

Health and *broader socio-economic* impacts were discussed less directly by interviewees when talking about measures of success, potentially because improving health outcomes and prosperity, as stated long-term goals of TAAHC, were implied and broadly assumed to follow service-related imperatives. Nonetheless, some interviewees discussed the potential to track these indicators directly, although there was a sense that measuring and attributing these types of impacts to the research and collaboration mechanisms of TAAHC would involve its own challenges.

> *“I think we should also be looking at population health as an ‘overall’ in the areas that we’re targeting as a priority. So doing some more epidemiological studies, looking at what kind of an impact it has had” (CA2)*
>
> *“At the end of the line, we have to see some improvement in population health outcomes – and you know we can all be very busy all day, but if in the end we don’t make a difference, then that’s a little bit discouraging. And I think one of the whole objectives of the TAAHC is to be able to tell the HHSs at the end of the day whether all their activity appears to have had an impact on the people” (CA1).*
>
> *“I’d say that success means that the person in Camooweal [a remote inland town] is getting a better deal than they are now; however you measure that! And that’s a research question on its own” (UE2).*

In summary, TAAHC stakeholders were predominantly focussed on TAAHC’s potential to have impact in the *building capacity* and *informing decision-making* categories, in terms of strengthening research capacity in the health services, supporting collaboration and coordination between partners and facilitating translation of research into practice. These activities underscored the intent of stakeholders in TAAHC to improve health services and address population health priorities and needs in northern Queensland using health service-focussed collaboration and translational research as key, linked, mechanisms.

Regulative forces

Regulative forces are about rule-setting, monitoring and sanctioning process which are attempts to control and shape behaviour. Regulative forces shaping a population health role in TAAHC are reflected in the themes of *accountability at a TAAHC level* and *alignment of organisational accountabilities*. These themes enable examination of regulative forces firstly at the whole-of-TAAHC level, and secondly at the level of the member organisations in TAAHC.

Accountability at a TAAHC level. While the TAAHC partners had established more or less formal relationships among themselves previously, TAAHC was broadly understood to be the first initiative that brought all these parties together in a structured way around a research agenda.

> *"People wear many hats, so you know there's different relationships with those hats, and so this is a relationship that's new around an academic health centre, even though there are existing relationships, but they're in a different context" (HSE10).*

> *"[TAAHC offers] a more formalised structure, [… rather than just being] geographically co-located and proximate neighbours with a common interest, it [TAAHC] requires members to agree to obligations and responsibilities, it describes how we will be formed and the functions it will deliver, and then it through its governance starts to look deeper into the operational efficiency of a collective organisation in terms of research strategy development, and research ethical approvals, and the systems and processes that support good research" (HSE5).*

Although a governance infrastructure had been established to enable this collaboration, very few regulative mechanisms had been established to enforce compliance to normative goals. The TAAHC MOU, for example, indicated no legal basis to the relationship between the partners in TAAHC.

> *"This MOU may form the basis for the preparation of formal contracts between the Parties, however the Parties do not intend on entering into any legal relationships unless and until such formal contracts are executed. Nothing contained in this MOU shall be construed as constituting a joint venture, partnership or formal business or agency arrangement of any kind between the Parties" (2016).*

However, at the time of data collection, board members were in the final stages of strengthening mechanisms of compliance in TAAHC by negotiating a Constitution and Members' Agreement to form a company.

> *"A key priority for the ongoing operation of TAAHC is the establishment of the TAAHC Company Limited by Guarantee and an executive structure. This will also include finalisation*

> *of key documents to guide the ongoing activities of TAAHC, such as Strategic, Operational and Research Plans" (TAAHC Business Case 2017).*

The Constitution was expected to require ongoing financial contributions from TAAHC member organisations to support activity in service to the purpose and objectives of TAAHC (TAAHC Business Case 2017). The establishment of the TAAHC company was described as necessary to more clearly articulate the role of TAAHC and obligations of the organisational partners across such a vast ("distributed") geography, as well as to formalise the collaboration.

> *"The success of the TAAHC will be what the Members' Agreement is about. My experience from other organisations, where they've failed, is because there hasn't been a clear understanding and articulation of what the roles of the company, and what the expectations are of its members. So the key to that distributed model will be in that […] I think once we get the Members Agreement, and then from there the relationships will evolve, and there'll be different sorts of relationships to what we know now" (HSE10).*

> *"TAAHC partners are seeking to transform the partnership into a Company Limited by Guarantee […This] will assure [JCU's] relationship with regional Hospital and Health Services, support our clinical placement needs and translational research capability into the future, ensure priority access to new funding sources and provide a strong platform for the development of new strategic initiatives" (TAAHC Business Case 2017).*

In parallel, the second NHMRC designation round for Centres for Innovation for Regional Health (CIRH)[1] was due to be announced in 2018 and the TAAHC members intended to apply for a second time, having been shortlisted but ultimately failing to achieve designation in the first 2016 round (TAAHC Review Report 2017). Successful designation was expected to involve adhering to certain requirements to maintain the standards expected of CIRHs. TAAHC stakeholders also expected government funding to follow successful designation (TAAHC Business Case 2017).

In summary, efforts were underway in TAAHC at the time of data collection to establish a company structure to more clearly articulate the roles and expectations of partnering organisations through the Members' Agreement. New reporting requirements and funding obligations at a TAAHC level were also likely to accompany future successful designation as an NHMRC CIRH. At the time of

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[1] "Designation" by the NHMRC in Australia as an "Advanced Health Research and Translation Centre" or "Centre for Innovation in Regional Health" follows a competitive application process designed to recognise clusters of excellence in research, education and health service delivery (see **Chapter 1**).

data collection, the governance infrastructure of TAAHC did not create regulative mechanisms to enforce compliance of partnering organisations to shared goals.

Alignment of organisational accountabilities. The creation of the TAAHC company did not affect the partnering organisations' independent executive authority over their own goals and existing accountability relationships with funders. As such, the partnering organisations in TAAHC continued to respond to their own individual regulative obligations, including separate funding and performance agreements specifying the roles and responsibilities of each organisation. Key performance indicators and budgets, for example, were noted to strongly determine the focus of the HHS partners in TAAHC.

> *"The priority areas I think for the HHSs are driven by the audit standards that are used […] As soon as it becomes a priority for Queensland Health they [the region's health services] are automatically expected to perform in those areas. So I think the most important thing for everybody is quality of service delivery, safety of patient care, meeting KPIs and staying within budget. Those are the key things that would really drive – would keep the chief executive awake at night" (CA2).*

These pre-existing lines of accountability meant that each of the partners required endorsement from funders and other governance bodies (such as the Queensland Government in the case of HHSs) to participate in TAAHC, which the partners had pursued with some success.

> *"So far, the State Government has been supportive of us coming together, of us setting up a new company – that does require the support of the government. They haven't backed away from it, that's obviously an issue" (HSE4).*

The separate accountability relationships also set boundaries to the capacity of individual organisations to contribute to the overall TAAHC vision, despite improving population health and wellbeing featuring clearly among their own organisational goals (observation memo, 12 October 2017). For example, some health service interviewees reflected that their organisations' contractual obligations, and the way that funding for services was allocated, were misaligned with population health priorities. This meant that the organisational partners in TAAHC had very limited capacity to fund initiatives that fell outside of their contractual and funding obligations – and the initiatives that were historically under-represented within these obligations were population-oriented public health, primary care and prevention services.

> *"Primary health care is really becoming more and more important […but] we're not funded to do most of the primary health care service delivery [...] Under the Service Agreement [with the State Government], we can only do what we're funded to do, because if we fund more it's got to be from our own funds, and there's a limit to how much we can [fund that way]" (HSE4).*

> *"At the moment the Commonwealth funding goes to general practice and to the Aboriginal health services – we [the HHSs] get funded by the state [i.e. the Queensland Government], and we can tap into Commonwealth funding where we're the only health care provider – but as I say, the funding is difficult, because if we had one funder, we could work with that one funder to decide how we're going to work together [across organisations…]. We will continue to do what we've got to do, but it's made so much harder by the fact that we have these different buckets of money that we can only spend on certain things" (HSE8).*

> *"[One challenge] is the way the hospitals are funded. Because they get funded – activity-funded, and in hospital terms that means admissions. So how do you convince an organisation that's getting paid per admission that they need to reduce admissions by improving the health of the population? […] It [activity-based funding] is actually a counter-incentive to improving the health of the population" (CA4).*

> *"Public health is about illness prevention and health promotion. And they're two areas that I think we sadly lack [in northern Queensland] – we've got such a significant burden of disease" (HSE11).*

One interviewee also reflected that the population health aspirations of TAAHC were limited by the omission of Aboriginal, and Torres Strait Islander, organisations in the TAAHC governance infrastructure, although including these organisations as partners was a future TAAHC objective.

> *"I mean, it [TAAHC] doesn't quite represent Aboriginal community-controlled health services, so I think that's a missing part – and it [TAAHC] is trying to find out who the right representative body would be for that" (HSE13).*

Accordingly, because the predominantly secondary and tertiary care-focussed HHSs largely constituted TAAHC's membership base and representative board composition, the capacity of TAAHC to focus attention and effort on population health -related activities such as prevention initiatives and action to address the social determinants of health was limited. Some interviewees felt that TAAHC would not be able to enact its population health goals unless the individual partners of TAAHC responded to regulative requirements to do so.

> *"The reality of it is, we're here sitting with health and we know that we probably can affect around 40 percent of this that can be affected in terms of the health provision that we provide, but the rest of it is all around: do they have a job, are there any other kids in school, how many families are living in the house, and do they have access to water? And those things are far more difficult for us to address, but we must address them, because if don't address them, we're not going to improve. So, I think that's a bit about – we've got to go the next step and get a multi-agency approach in terms of addressing the social determinants of health because we're not going to do it otherwise. And so I think that's our biggest challenge" (HSE9).*

> *"I harbour doubts about – how to put this – I think there's a lot of overpromising going on, you know that the academic centre's going to solve all of these problems and Indigenous health is going to get better and we're going to eliminate diseases […] you know the sheer scale of the problems" (CA4).*

One interviewee, however, countered that TAAHC should adopt a "practical" health services approach rather than a perceived "public health" approach that tried to factor in the social determinants of health, which the interviewee thought would be counterproductive. This contrasting comment indicated that core TAAHC stakeholders had different ideas about how its population health goals should be operationalised.

> *"Public health still has this mindset – you know it cannot just go 'let's fix something and use that to fix something else', it's 'we've gotta do everything'[…] So at what point do you say, 'we're actually going to play the game and we're going to try and make change within what we can achieve' […] I see that [TAAHC], not as a public health initiative, but as a practical, outcome initiative. So [what would be of most value would be] if people who are actually running things – which most public health people don't – try to find better ways of doing stuff, try to put some evidence base behind some solutions for some outcomes" (UE5).*

The pre-existing regulative accountabilities within the TAAHC partners also challenged its translational research aspirations. For example, service-focussed performance indicators (e.g. inpatient length of stay and emergency wait times) in the HHSs, and requirements to meet tight policy deadlines in the NQPHN, often conflicted with research goals and processes which tended to require much longer timeframes.

> *"Currently, health system KPIs are structured around waiting lists – how are AHCs reflected in these? [The system] needs incentives for the academic side" (UE1).*
>
> *"[One challenge with] the academic world is that it's academic, true academia […] it can't help me. Because I've got to deal with today's money, by 30 June. And then some of the [research] that's done might be close [to what we need] but it might not be quite right either" (HSE7).*

Related, although research was strongly incentivised within the university partner, regulative forces tended to result in certain types of research attracting bigger grants and prestige, which were not necessarily the types of research that addressed local health, and health service, needs and priorities. For example, a clinical academic based in a health service expressed a concern that research in universities tended to be driven by what gets funded rather than health or health service needs and priorities.

> *“I don’t think we necessarily have confidence that a closer association with the university is going to fix [the health issues of importance in the interviewee’s health service…] because they tend to focus on things that are sexy and generate funding for research […] there are some topics that are very easy to get funding for” (CA4).*

Other university-based interviewees similarly critiqued research paradigms and incentive structures in universities that rewarded types of research that offered little direct benefit to populations and communities.

> *“[Some researchers] would like to do good and don’t have that much of an opportunity because we’re plugged into a little hole that’s sort of an industry that is self-regarding […] while it remains a self-regarding industry it will apply itself to ever more arcane stuff, with the equivalent of angels dancing on the head of the pin” (UE4).*

> *“It’s probably necessary to keep finding new solutions and new treatments and things like that. I think it’s very much a very Western kind of approach to research, and I’d really – I don’t know if this is said enough – but I really do think that, well I’m more involved with community-based processes, and I think that there’s a lot more that needs to be done in that respect […] I think there needs to be much more research into community specific issues and […] community participation in what health is, and what needs to happen, and linking in much more with service delivery” (NCA1).*

Tensions were thus identified between population health and translational research goals on the one hand; and incentive structures that downplayed research in the health services, and health services and systems research in the universities, on the other hand. These tensions indicated a misalignment between normative and regulative forces in TAAHC around a population health role.

In summary, the partnering organisations in TAAHC continued to respond to their own individual regulative obligations, including separate funding and performance agreements specifying the roles and responsibilities of each organisation. A challenge arising from this was that the member organisations responded to different accountability relationships that were not well aligned with population health or translational research aspirations. Accordingly, the dominance of health service delivery organisations as members of TAAHC and on its representative board tended to restrict the focus and operational capacity of TAAHC to health service delivery for patients accessing care. This limited the ability of TAAHC to address issues of prevention that involved other sectors. Views differed among stakeholders about whether addressing the social determinants of health and focussing efforts on prevention was the best way for TAAHC to meet its population health goals – indicating that there were different views about how its goals should be enacted in the absence of clear operational performance indicators.

Cultural-cognitive forces

Cultural-cognitive forces shaping a population health role in TAAHC are reflected in the themes of *organisational culture* and *power dynamics*.

Organisational culture. The type of culture seen to be needed to drive forward normative goals in TAAHC differed from the dominant cultures within the TAAHC member organisations. Health services improvement through research was described by one interviewee to require a certain type of "innovative" and "entrepreneurial" culture, applied at the "clinical coalface":

> *"I firmly believe that if your health service providers are not embedded in a culture of innovation, their health service provision will be not as good as it should be […] it's about quality, quality of the workforce, and you just can't get away from the fact that science and medicine is scientifically based, you can't just sit there and be a passive consumer and expect – it doesn't work that way. The best way to consume and utilise and to leverage is to be engaged. Because it's a mindset […] it's an innovation mindset and it's an empowerment mindset about evidence, to infuse" (UE4).*

However, the TAAHC health service stakeholders tended to think and operate in a different way. There was a widespread view among health service executives and clinicians that research, being a fairly new focus within some of the HHSs, was not yet valued or properly supported within these organisations. As a consequence, staff at all levels within the health services tended not to think strategically or critically about practice issues or were impeded from doing so by workload structures.

> *"We've got over not having the right amount of staff. We've got over that. We should be becoming more curious. Now that we've got the right amount of staff and all the rosters are filled, are we challenging peoples' minds? […] Our clinic's fully staffed [but] are you asking educated questions? Are you challenging it? Why don't they do it? Because they believe they are out there [in a remote area], and the system knows best" (HSE5).*

> *"The culture in Queensland Health is very anti-research – that's still there in some areas, that's still quite evident and strong. It's the professional silos I suppose, and I guess the privilege that's attached to some of those – and it goes right down to the medical subspecialties, but also between the professions, and I think that's still a big problem and it's very old fashioned and it's still evident here. I think the health service itself needs to move on culturally to a much more integrated patient-focussed model. And we're certainly not there yet" (CA4).*

> *"Dealing with day to day stuff: that just takes up all of your thinking all of your time – you're not even able to get your head out of the sand and think what that could mean potentially for the north" (HSE13).*

To some extent, this "uncritical" way of thinking and working within the HHSs was perpetuated by the regulative forces operating within the health service organisations, which emphasised financial considerations and Queensland Government -determined (in negotiation with the HHSs) service performance metrics (observation memo, 12 October 2017). This, in turn, informed governance arrangements such as a foregrounding of business management, legal and clinical expertise on boards and in executive roles, rather than research capabilities. Accordingly, regulative forces in the HHSs created frames of meaning that centred around meeting safety, quality and efficiency targets; rather than frames in which staff routinely questioned usual practice and policy through research.

> *"This goes to the [issue of] culture – so health service provision [is about] get as much bang for your buck as possible; here's your buck, here's your patients, you've gotta do this, you've gotta do this, you've gotta do this. What's this research thing? It's a luxury" (UE4).*
>
> *"These days Hospitals and Health Services are run by laypeople, or incidentally they had a health background. But I think in many ways the technical or scientific advice is sidelined in favour of what is expedient politically or financially" (CA3).*

For the health service executives and managers who were accustomed to this emphasis on narrow service metrics and efficiency, the value proposition of TAAHC, in terms of deciding whether to invest in it or not, was therefore difficult to define. This was because the rationale used to establish TAAHC emphasised much broader and less familiar opportunities centred around how to improve health systems, and population health, through research.

> *"It's hard to get started [in establishing TAAHC]. It's kind of a nebulous concept. With a large investment – with unsure outcomes. So it can be a difficult thing to sell when people have got limited resources […]. So it really needs champions, or else it really won't go anywhere […] I think people are not sure what – you know it [TAAHC] is not [promising] tangible outcomes in a short period of time, and that's making people concerned about investing in it" (HSE1).*
>
> *"To be honest out of all of the things I need to focus on, it's [TAAHC] not even in the top 100" (HSE7).*

In the smaller HHSs in TAAHC that were located in rural and remote areas, an additional cultural aspect that challenged the establishment rationale of TAAHC was unfamiliarity with the concept of research, accompanied by some suspicion. As explained by an interviewee with a history of working with rural and remote HHS staff, research was historically less visible in the rural and remote areas of northern Queensland where fewer people held university degrees or interacted with academics, and this contributed to uncertainty about how research, and academia more generally, could be of value.

> *"We've still got a significant portion of the workforce who have had minimum contact with academics, and so "academic" is a bit of a dirty word, and we've got to translate it. So at the policy level and at the national planning level it [TAAHC] is fantastic, because everyone recognises it and understands it. And it's got high profile. But at the grassroots? Different story. And so we've got to turn it into something that is meaningful" (UE3).*

In parallel, the usual ways of working within universities, similarly reinforced by regulative forces, were at odds with the sort of cultures thought to be needed for translational research.. For example, a health system executive with research experience described an overemphasis in universities on university investigator -led science and thinking, where the focus was on positivist research designs, rather than on research that responded to real health service issues.

> *"The momentum is continually towards laboratory quantitative research that's easy to design. I mean I can sit down here and design a quantitative bit of research in 10 minutes – I mean I'm exaggerating, but it's very much easier to think through a laboratory quantitative body of research or study where you can say that this is my hypothesis and this is how I know whether it's proved or not – whereas the translation research is much more difficult and it's new really […] you have to have a research mindset in service of a service delivery mindset" (HSE6).*

One manifestation of these differences was TAAHC's protracted establishment period, during which researchers and university stakeholders were trying to convince the health service stakeholders in TAAHC that it was worth investing in (observation memo, 26 September 2017). At the time of data collection, establishment activity had slowed: after having monthly meetings in the preceding year, only one meeting of the TAAHC board had been held within a period of over five months (observation memo, 26 September 2017). During this time, the focus of board members was on negotiating the terms of the TAAHC Constitution and Members' Agreement to establish the TAAHC company. One university executive described this protracted focus on governance structures as necessary to achieve the support of the health service stakeholders, because it made TAAHC more tangible:

> *"Until [we get] the governance and the structure in place, it [TAAHC] is a kind of optional extra for everyone. And I'm not sure that the governance, fixing the governance thing, is a panacea for that, but I think that there's no doubt that without it [the governance structures] it's too soft. So I mean we do have to do that, but it's a complete pain in the neck and it gets in the way of doing the interesting stuff I have to tell you" (UE2).*

However, by focussing intently on governance structuring, attention was diverted away from other activities that had the potential to help clarify the value of TAAHC to health service stakeholders. Although generally thought of by TAAHC stakeholders (especially health system executives) as a necessary establishment step, the foregrounding of governance structuring compounded a sense of uncertainty among some health system executives about what the initiative was meant to be about.

> *"It does concern me that at the moment we're just talking about TAAHC as a theoretical concept with some broad areas of vague ideas that these might be of relevance and interest without much more than that, and we seem to be a little bit stuck on setting ourselves up and how it would work rather than the actuality of what it might do" (HSE9).*

The desire for tangible progress to be made and apparent frustration among stakeholders at the delays in delivering on the research translation agenda was also recognised in the TAAHC Review Report (2017). The initiation of the TAAHC Review itself responded to concerns within the TAAHC Board about the pace of progress in establishing TAAHC (observation memo, 26 September 2017). These challenges in the establishment phase of TAAHC reflected tensions and misunderstandings arising from bringing together, around a broad and largely unfamiliar goal, individuals from within organisations that had different histories, cultures and ways of working.

In summary, the usual ways of working within the health service partners in TAAHC were aligned with regulative forces foregrounding health service safety, quality, and efficiency. Accordingly, routine use of research to question practice was not yet part of health service organisational culture, with research tending to be even less understood in the rural and remote services. In parallel, there was some sense that research responding to local practice and policy issues was not fully embraced in the research culture within the university. These cultures were misaligned with TAAHC's normative aspirations relating to improving population health through translational research embedded within the health services. The challenge of aligning the different histories, cultures and ways of working manifested in a widespread lack of understanding among health service stakeholders about the value of TAAHC, in turn contributing to its protracted establishment.

Power dynamics. Although collaboration between the different organisational members of TAAHC was not new, building a foundation of trusting relationships had been a major challenge in the establishment of TAAHC and took time. This challenge was a function of the hidden or invisible power dynamics operating between the organisations, which pre-dated TAAHC but which had come to the fore in discussions about TAAHC governance, investment and agenda-setting. The TAAHC Review Report, which had been commissioned by the board to identify and articulate some of these challenges, as well as a way to address them, attributed these power dynamics to local politics and "parochialism":

> *"The parochial attitudes and traditional rivalries that are historical and well-known in northern Queensland continue to play a role in slowing the progress towards establishing TAAHC. In general, this was manifest as a low level of trust between the TAAHC member organisations" (2017).*

There was a sense among interviewees that the extent of these relationship-building challenges was not fully anticipated at the commencement of establishing TAAHC.

> *"The relationships were at various levels of maturity, and there was an assumption that everybody would just get on board with it because it was such a good idea" (HSE5).*
>
> *"Although the health system players are in many ways very used to working collaboratively on some things, this [TAAHC] has got to be one of the things that they've gotta work collaboratively on, [yet] they're still worried about [being] competitive and being taking advantage of" (UE2).*

The causes of this lack of trust were multifaceted, but one of the more obvious factors in TAAHC related to perceptions of relative disadvantage due to geography and population size. Generally, Townsville, Cairns and Mackay, as the bigger centres in the northern Queensland region, were seen by the smaller partners (Torres and Cape, and North West, HHSs) to hold the positions of power in TAAHC owing to their greater financial resources and political influence within the Queensland Government. Further, the people in the larger locations tended to be more involved in its establishment and operations because of their physical presence in networked environments.

> *"It's always the same where urban centres and tertiary centres take more of the oxygen, sunshine whatever you want to say – more of the attention – and smaller places like a remote [place are] less obvious" (NCA1).*
>
> *"I'd say probably at the moment, because we're not in the thick of it, in the doing stage, [people in our smaller HHS] probably feel like a bit of a distant cousin right now. I'm sure if I was in Townsville right now I'd probably feel very different […] and whilst I'm absolutely 100 percent behind it [TAAHC] – because you're not close to it, you come in when there is 'a need to know' or some information comes through" (HSE8).*

Despite TAAHC being described as a "virtual" and "distributed" initiative across the northern Queensland region (HSE10), some stakeholders saw Townsville as being the true base for TAAHC because "the conversations that you need to have are there" (HSE7). Co-location of JCU's major health precinct with the Townsville University Hospital was a major feature of inter-organisational relationships in Townsville, and this, together with the fact that the TAAHC Chair and supporting staff resided in Townsville, was likely to have contributed to these perceptions (observation memo, 12 October 2017). Another challenge was a concern among health service stakeholders that JCU, as the only university partner in TAAHC, was seeking money from the health services, and this contributed to the slow pace of establishment.

> *"I think [the TAAHC message] got hijacked by a notion that it was a JCU money-grab. And some of the cynicism was, you know, the big bold universities trying to take the money off the health services" (HSE5).*

These concerns were reflected in the challenges experienced in negotiating partnering organisations' financial contributions to TAAHC, with discussions about the establishment and recurrent costs of TAAHC being a major focus in board meetings.

> *"Well we all get on very well, but when it comes to who's got money to spend then we're all in different financial situations. So I think everybody agrees with the principle and the concept of TAAHC being a good thing, but some are more able to make a contribution then others. And there's a bit of a, you know, 'if you can't pay, you can't play'" (HSE10).*

To address some of the concerns about financing, a "tiered" approach to subscriptions from the partners had been adopted in TAAHC, wherein contributions were a function of both organisational size and willingness to contribute at a higher level (UE1). Some organisations in TAAHC, despite having relatively smaller recurrent budgets, had opted for higher contribution levels to signal greater commitment to the initiative and potentially establish greater political influence within TAAHC, but the overall intent was that different contribution levels would not have regulative effects.

> *"It would be expected that use of contribution tiers for subscriptions to a TAAHC office would not influence members' standing and/or voting capacity within the partnership" (TAAHC Review Report 2017).*

There were also concerns expressed by smaller and non-HHS organisations that the developing research agenda could be dominated by certain partners in TAAHC due to their organisational size and majority representation of the HHSs in the TAAHC governance infrastructure.

> *"A hospital like this one [Townsville Hospital] does dominate the agenda – you know it sucks up the resources and time spent on discussions. But you know, in saying that, there are conscious efforts to think outside of here" (HSE13).*
>
> *"My only concern is - are we going to get sufficient ability to influence the agenda?" (HSE8).*
>
> *"[The different organisational parties to TAAHC] have different research perspectives. There would be benefits [of multiple parties being involved] but a risk that HHSs would overrun the agenda, in terms of signing off [funding applications] and the governance around this" (HSE2).*

Because of TAAHC's distributed model across a case region wherein no one organisation or location was explicitly identified as being the TAAHC headquarters (observation memo, 12 October 2017), the majority of meetings by necessity were held by video- or tele-conference to save on travel costs and time (TAAHC Review Report, 2017). Although some face-to-face meetings of the board had been held in the past, the reliance on virtual communication using web-based meeting platforms that were sometimes unreliable (TAAHC Steering Committee minutes 2016) compounded the challenges of relationship-building between the partners.

Frequent turnover of executive-level personnel in the health service organisations also compounded the challenges involved in building relationships and sustaining the collaboration, because it meant that the hard work done in building trust and replacing competitive relationships with collaborative ones was lost each time someone left.

> *"Part of our difficulty is the changing personnel in the health system. So basically its troublesome and difficult when you've finally got somebody to the point where they're a major champion and supporter and then they move on, and you've gotta start all over again. But I think that's just one of the realities that you have to live with. Until a structure is there and seriously embedded in the operations of the clinical partners, it's going to be pushing uphill all the way" (UE2).*
>
> *"There's changes of leadership in [HHS] Chief Executives and board chairs and so […] can the momentum continue when different people come in and out?" (HSE1).*
>
> *"Even within an industry renowned for the high number of organisational restructures and high senior staff turnover there has been a very significant turnover within the leadership positions of the TAAHC HHS community during the last three years. Among the HHS representatives on the Steering Committee, only one person has remained in the same role from the time the group was first convened in September 2015. This was noted to be a key impediment to any strategic planning and was highlighted by several members as one of the possible causes for the slow progress in the journey towards establishing TAAHC" (TAAHC Review Report 2017).*

Nonetheless, there was widespread agreement that overcoming such impediments was necessary to achieving success within TAAHC, with the normative aspirations generally seen as an adequate binding force to maintain stakeholders' willingness to continue to engage with the TAAHC and persist in developing productive relationships between the partners. As demonstrated earlier, however, the normative forces in TAAHC were often difficult for stakeholders to understand, making the task of replacing competitive relationships with collaborative ones through TAAHC even more challenging for members of the board.

> *"It will always come down to preparedness of all parties to play together, and to understand that there needs to be a level of reciprocity in the relationship and mutual benefit. If the TAAHC can't work that out, then I don't think anything will happen" (HSE5).*

The goal of NHMRC CIRH designation also motivated the partners to persist with strengthening relationships, particularly as TAAHC's first designation attempt failed because stronger collaboration mechanisms between the partners were needed (observation memo, 12 October 2017).

In summary, because TAAHC was intended to be a “virtual” and “distributed” initiative across northern Queensland, there were constant, hidden sensitivities about which of the TAAHC organisations were having more influence than others, by virtue of their location, size or political influence. As such, power dynamics between the partners of TAAHC reflected differential material, political and network sources of power between the partners which contributed to a lack of trust and led to the emphasis (described earlier) on establishing stronger regulative mechanisms to underpin the initiative. These power-related challenges in relationship building between the partners were compounded by the reliance in TAAHC on web-based meeting platforms across vast distances (which made building trust between key individuals more difficult), and the frequent turnover of executive level staff in the health service organisations which meant that remaining board members needed to re-start the trust-building process with each newcomer.

5.5 Chapter summary

This chapter presents the findings of a case study of the Tropical Australian Academic Health Centre (TAAHC), located in regional, rural and remote northern Queensland, Australia. The chapter aims to explore the role of TAAHC in improving population health, by examining how population health is characterised and described within TAAHC, how population health goals are operationalised by TAAHC, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces that interacted to shape a population health role in TAAHC.

Population health goals, centred on improving health for northern Queensland populations through translational research and multi-organisational collaboration, were clear among TAAHC aspirations. This strong sense of overarching purpose was coupled with widespread acceptance among stakeholders of the idea that translational research, as driven through TAAHC, could help the collaborating organisations better respond to the health needs of the northern Queensland population. Indeed, the context of health outcomes disparities in the northern Queensland region, which include poorer health outcomes among Aboriginal and Torres Strait Islander populations and among those living outside of the larger regional centres (NQPHN 2016; WQPHN 2017), was one of the key motivators for TAAHC’s establishment. Although TAAHC was still in the process of establishment at the time of data collection and had not yet fully operationalised its aspirations, it had developed research and translation themes that included population health priorities.

Several barriers, however, were identified that were likely to inhibit the operationalisation of population health goals in TAAHC. First, there were few regulative incentives for the member organisations to engage in research applied to practice or policy, which were reflected in cultures in the partners that devalued translational research and that resisted research becoming embedded within health services. Research was a fairly new endeavour within many of the health services, and incentive systems and corresponding organisational cultures tended to foreground health service safety, quality, and efficiency. Accordingly, routine use of research to question practice was not yet part of health service organisational culture, with research tending to be even less understood in the rural and remote services. In parallel, there was some sense that research responding to local practice and policy issues was not fully embraced in the research culture within the university. The sheer persistence of the TAAHC board in establishing TAAHC despite misaligned normative, regulative and cultural-cognitive elements, and despite frequent turnover of executive staff in the health service partners, attested to their commitment to the TAAHC vision and capacity to think outside of organisational silos. However, the misalignments continued to reinforce the status quo regardless of the will and determination of the board members – meaning that the task of establishing TAAHC was proving to be slow and deeply challenging. Misaligned incentives are a recognised challenge to translational objectives nationally, and were in fact part of the AHC establishment rationale in Australia (McKeon 2013). TAAHC's experience suggests that bringing different organisations together around a common vision, without also seeking to effect regulative and cultural-cognitive alignment with that vision, may not a sustainable foundation for an AHC.

Second, despite work being undertaken in TAAHC to create and strengthen a regulative framework to underpin the collaboration, the initiative did not seek to understand, let alone challenge, power dynamics in its health system context. Power dynamics between the partners, including between the larger, tertiary health care organisations and the smaller, rural and remote organisations, challenged collaborative working across organisational boundaries and involved power imbalances based on material resources, networked relationships and political influence. By largely reproducing these broader power dynamics (rather than challenging or explicitly mapping and factoring them in to governance arrangements), TAAHC's capacity to overcome organisational silos and address longstanding health and research system deficiencies in its broader context, such as health service fragmentation and the dominance of biomedical models of care and orientations of research, was hampered. A process of critical self-reflection incorporating analysis of power dynamics may be needed in TAAHC to develop a strategy to address systemic barriers to population health improvement.

Third, most organisational partners in TAAHC were health service delivery organisations, which were established to engage in patient care rather than comprehensively address the social determinants of health outside of health care. This organisational composition drove TAAHC's specific aims, and the expectations of most TAAHC stakeholders, towards service delivery -oriented priorities, and therefore represented a key barrier to its broad population health aspirations. While access to health care is an important determinant of health, the broader "conditions in which people are born, grow, live, work and age" largely underpin the distributions in the burden of illness within populations (WHO 2008, p. 1). To improve population health, cross-sectoral approaches are needed involving sectors of society outside of health (WHO 2008, p. 1). Sustained efforts are needed, for example, to both understand and improve social, cultural and environmental factors that are responsible for ongoing health inequities if Australia is to achieve Closing the Gap targets in Aboriginal and Torres Strait Islander health and wellbeing (Bond and Singh 2020). In future, such cross-sectoral engagement in TAAHC might be enacted at a board or a project level.

Finally, compounding these barriers was an absence of clear performance indicators and evaluation frameworks in TAAHC, signalling an opportunity for evaluation processes to be developed to enable systematic identification of the barriers to enactment of locally determined priorities and goals.

6. Case Study 2: South Australia Academic Health Science and Translation Centre

"We will actively support new and emerging health technologies, devices and other innovations. We will participate in activities with a view to minimising the time taken to translate research breakthroughs into everyday practice, giving people access to the best care as soon as it is proven to be safe and effective and better than existing approaches" - Dr Chris McGowan, Chief Executive, Department for Health and Wellbeing (Government of South Australia 2020a, p. 2).

6.1 Introduction

This chapter presents the findings of a case study of the South Australia Academic Health Science and Translation Centre (SA Centre – subsequently renamed Health Translation South Australia in 2019), located in South Australia.

The chapter explores the role of the SA Centre in improving population health, by examining how population health is characterised and described within the SA Centre, how population health goals are operationalised by the SA Centre, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces shaping a population health role in SA Centre.

The Chapter first describes the study setting and context, including geography, demographics, health system features and characteristics, and the establishment history and structure of the SA Centre. Results are then presented using the three institutional pillars framework (Scott, 2014), commencing with normative elements. Within each pillar, data are analysed and presented against six deductive themes: *aspirations* and *activities and impacts* (normative); *accountability at an SA Centre level* and *alignment of organisational accountabilities* (regulative); and *organisational cultures* and *power dynamics* (cultural-cognitive).

In the normative pillar, improving the health of the South Australian population, and especially the health of Aboriginal populations within the state, was a defining aspiration of the SA Centre. Operationalisation of SA Centre goals, including through priority-setting processes and projects funded and supported by the SA Centre, demonstrated a strong emphasis on effecting translation of research into practice and policy, and numerous examples of activity were apparent that had demonstrated success in improving patient care and health care policy.

Several barriers, however, were identified that inhibited the operationalisation of population health goals in the SA Centre. First, despite holding clear population health aspirations, the overall orientation of the work of the SA Centre was on improving health care practice and policy.. A disconnect was identified between the discrete project-based approach adopted by the SA Centre in operationalising its research translation goals, and (as yet unrealised) opportunities for the development of integrated programs of work oriented towards effecting broader health systems change.

Second, regulative elements, notably the way that the SA Centre was funded, and its reporting requirements and obligations to different government bodies and networks, diminished the SA Centre’s capacity to maintain a focus on precise, locally determined population health priorities.

Third, in the cultural-cognitive pillar, cultures within partnering organisations were somewhat misaligned with the population health, and health service improvement, goals of the SA Centre. This presented a barrier to the ability of the SA Centre to pursue health systems change and was compounded by different interpretations about what key operational terms (“translation”, “innovation”, and “research”) meant in practice. Moreover, the SA Centre reproduced existing power dynamics and relationships, which limited its capacity to deliver health system change and population health improvement.

6.2 Study setting and context

Geography and demographics

The SA Centre is established as a state-wide initiative across the state of South Australia (**Figure 13**). Just over 1.7 million people live in South Australia, across a vast land area of 983,482 square kilometres (ABS 2020) (representing seven percent of the Australian population and 13 percent of its landmass). The South Australian population is predominantly urban, with more than 1.3 million people living within the Greater Adelaide region (ABS 2017). Around 42,000 people, or 2.5 percent of the South Australian population, identify as Aboriginal (SA Health 2019).

Although health outcomes across the state are broadly in line with Australian averages in terms of life expectancy at birth, hospitalisation rates, pregnancy outcomes and cancer survival, rates of chronic conditions are increasing and some South Australians experience poorer health outcomes (Government of South Australia 2019). Aboriginal people and people living in rural and remote parts of the state experience higher rates of risk factors for chronic disease and poorer access to health services than people living in metropolitan areas (Government of South Australia 2019).

Figure 13: The boundary of the Country Primary Health Network in the state of South Australia (Commonwealth of Australia 2018a)

Figure notes: the entire state of South Australia denotes the geographic boundary of the SA Centre initiative. The map shows the state of South Australia by remoteness area (ASGS-RA Categories) and the boundary of the Country Primary Health Network (a member of the SA Centre), which incorporates all of the state apart from the Major City area of Adelaide.

Health system features and characteristics

Health care services in South Australia are planned and administered through South Australia Health (SA Health), two Primary Health Networks (PHNs), Aboriginal community-controlled health services and a range of non-government and private providers and representative bodies. SA Health is the portfolio of South Australian government services and agencies, including Local Health Networks which deliver public hospital, sub-acute and some primary health care services across the state (Government of South Australia 2020b). The PHNs are responsible for improving the coordination of care for patients and aligning health services with population health needs, predominantly delivered through planning, commissioning and practice support services (Commonwealth of Australia 2018b). The Aboriginal Health Council of South Australia (AHCSA), as the peak body representing Aboriginal community-controlled health and substance misuse services in South Australia, embodies a holistic perspective on health with strong ties to community (AHCSA 2018).

The South Australian Government expresses strong commitments to population health and has invested in processes to implement *Health in All Policies* approaches across government departments (Lawless et al. 2012). Investments included the establishment of a Health in All Policies program manager within the South Australian Department of Health and Ageing to coordinate resourcing and operation of Health in All Policies initiatives across government (Lawless et al. 2012). The university and research institute partners in the SA Centre also express strong commitments to research, education and training to improve population health and wellbeing.

Establishment and structure of the SA Centre

The establishment of the SA Centre built on a history of collaboration between the SA Centre partners through the South Australian Health and Medical Research Institute (SAHMRI), established in 2009 as an independent health and medical research institute comprising current representatives of the SA Centre organisations on its board (SAHMRI 2020). The SA Centre was successfully designated as an NHMRC Advanced Health Research and Translation Centre (AHRTC) in 2014 as a state-wide initiative.

Existing as a collaboration between multiple organisational partners, the members of the SA Centre comprise: state government health services in South Australia through SA Health, including five Local Health Networks; the two PHNs in South Australia; SAHMRI; the three South Australian universities (Flinders University, The University of Adelaide and University of South Australia); AHCSA; and the Health Consumer’s Alliance, which is the peak health consumer body in South Australia. These organisations all share a history of collaboration and commitment to research-informed practice and policy. At the time of data collection, the Cancer Council was also an SA Centre partner, but this was being re-negotiated. The stated vision of the SA Centre is:

> *“to continuously enhance the rate of translation of research into health care in order to create a self-improving and high-quality health system, which is also sustainable” (SA Centre Discussion Paper 2018, p. 1).*

At the time of data collection, an internal review had been carried out of SA Centre governance structures following an SA Centre Planning Day in late 2017, and, as a result of the review findings, some changes were being made to improve governance efficiency and suitability for purpose.

Prior to the changes, an Executive Leadership Group, comprising around 30 representatives from member organisations, oversaw both strategy and operations of the SA Centre, and five smaller sub-committees had been convened to reflect broad priority areas identified at the time of the SA Centre designation in 2015, such as commercialisation and workforce committees (SA Centre Discussion Paper (April) 2018).

To improve and streamline SA Centre activity, the new governance structure being implemented at the time of data collection was comprised of: a smaller, but still representative, Board of Partners; a skills-based Executive Advisory Group to provide advice and guidance relating to SA Centre activity and operations; a Stakeholder Forum incorporating a broad range of health system stakeholders beyond the core of SA Centre partners; and operations and project teams working to operationalise the goals of the Centre. Following conclusion of data collection, the name of the SA Centre was also changed to "Health Translation South Australia" in 2019. For the purpose of this analysis, however, the original "SA Centre" name is retained to reflect the initiative as it was at the time of data collection.

6.3 Case Study 2 methods

The SA Centre case study involved data collection between July and August 2018 from three sources: semi-structured interviews with core stakeholders; direct observation of SA Centre activity over multiple days (recorded in research memos); and documentation, including both published and unpublished grey literature. **Table 15** shows data collection methods including interviewee characteristics in the SA Centre Case study. A total of 20 interviews were conducted with a roughly equal gender balance among the interviewees, representing 10 of the 15 SA Centre member organisations (including representatives from AHCSA and the Cancer Council, and counting SA Health and the five individual Local Health Networks separately). The study design and data collection and analysis methods were replicated across all four cases studies and are described in detail in **Chapter 4**.

Table 15: Data collection methods and interviewee characteristics in the SA Centre case study

INTERVIEWS (*n* = 20; female = 11, male = 9)

Average duration: 25 minutes (range: 12 to 40 min). Method: 16 in person; 4 by phone. Digital recordings: 16 digitally recorded; 4 handwritten notes.

Role type and number of interviewees	***Role description and relationship to the SA Centre initiative***
Executives, directors, managers and project officers of AHC (EM) *(n = 4)*	Central core of individuals tasked with SA Centre strategic decision-making and operations at executive, director or senior project/management levels.
Health system executives (HSE) (*n = 8*)	Individuals holding executive-level roles within partnering health care and/or health system advocacy organisations, who are involved in SA Centre strategic decision-making, including via membership of the SA Centre board and/or sub-committees.
University and research institute executives (UE) (*n* = 4)	Individuals holding executive-level roles within member universities or research institutes, who are involved in SA Centre strategic decision-making, including via membership of the SA Centre board and/or sub-committees.
Clinical academics (CA) (non-executive level) (*n* = 1)	Individuals occupying clinical roles within member organisations while also leading or participating in clinical research activity linked to the SA Centre.
Non-clinical academics (NCA) (non-executive level) (*n* = 3)	Non-clinicians employed in member organisations who are involved in research activity linked to the SA Centre.

OBSERVATION MEMOS (*n* = 3)

Features and activities observed included: co-location or distance between executive offices of SA Centre member organisations; nature and mode of interactions between the partnering organisations; executive operating environments; and visible organisational goals. The researcher attended one group meeting with SA Centre projects leads.

DOCUMENTATION (*n* = 13)

- Report from the SA Centre Planning Day, 2017;
- SA Centre Discussion Paper: Future Directions for the Centre, February 2018;
- Discussion Document re the SA Translation Centres – Governance, Funding and Priority Setting Processes, April 2018;
- Discussion Document Prepared for the Sub-Group of the Executive Leadership Group – SA Translation Centre’s Governance, Funding and Priority Setting Processes, May 2018;
- Report: Future Directions – Governance, Financial Contributions and Priorities, July 2018;
- Health System & Service Reform in South Australia, Phase 1 – Insights from an Evaluative Case Study of Transforming Health (authored by the SA Centre), 2018;
- Call for Applications: Rapid Applied Research Translational for Health Impact Grant Scheme, 2018;
- Funding Application Form: Rapid Research Translation for Health Impact Grant, 2018;
- SA Centre Board of Partners Draft Terms of Reference, 2018;
- SA Centre Stakeholder Forum Draft Terms of Reference, 2018;
- SA Centre Statement of Commitment (for partnering organisations), 2018;
- Road Map for Action: South Australian Aboriginal Chronic Disease Consortium, 2017;
- SA Centre “Translation Opportunities” information sheets (MRFF projects), 2018.

6.4 Case Study 2 results

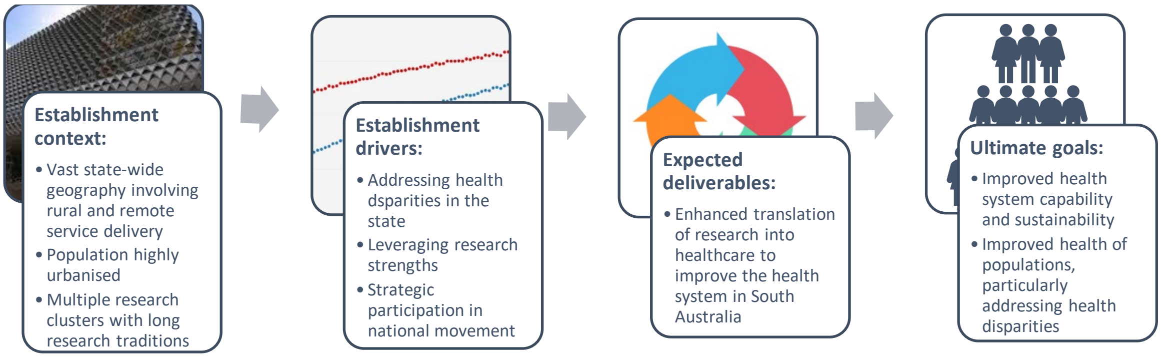
The results are supported by verbatim quotes from interviews, memos and documentation. Each interview quotation is identified using an acronym relating to professional role type (executives, directors, managers and project officers of the AHC="EM"; health system executive="HSE"; university or research institute executive="UE"; clinical academic="CA"; non-clinical academic="NCA") and a number corresponding to their random order in a list of interviewees in each professional grouping. Other demographic information (e.g. gender, age and length of time in the role) are omitted to maintain confidentiality of the participants. The documents referenced in the chapter are listed in **Table 14.**

Normative forces

The normative pillar is about valued ends of effort and the legitimate means to these ends, and as such *aspirations* (shared understandings about what the SA Centre should do), and *activities and impacts* (how the SA Centre should do things and valued ends of effort), are the themes in this section enabling exploration of normative forces shaping a population health role in SA Centre.

Aspirations. The SA Centre is normatively constructed on a shared understanding that translational research, and better collaboration between the partnering organisations, improves health systems and ultimately population health. **Figure 14** summarises the defining establishment drivers and expected deliverables and impacts of the SA Centre within its health system context, which are explored below.

Figure 14: SA Centre's establishment context and drivers, and expected deliverables and impacts (author's graphic)



The health system context in which the SA Centre is based, and in particular the health of the South Australian population, formed a major part of the identity of the SA Centre and its establishment rationale. Interviewees talked about persisting health system challenges, unmet health needs and opportunities to improve these in South Australia.

> *“Our population health concerns include diabetes, and co-morbidities as an emerging problem […] Our hospital problems are because of lack of systems of care in community, including pre-morbidity services and programs” (HSE5).*

> *“I think maternal and child heath often gets overlooked in a state where there's - well I guess it's not unusual, a big focus on adult services and an ageing population. But if we don't look after the young families that actually are the future, then that I think is a shortcoming. So I think that population group is vulnerable. I think there are a lot of vulnerable subgroups in that around equity, poverty, groups with special needs that need a special focus” (NCA2).*

Part of the value proposition of the SA Centre to organisational partners, as outlined in strategic documentation, was that it could provide a platform to address these challenges.

> *“Partners of the SA Academic Health Science and Translation Centre will have membership on the Board of Partners and will have significant opportunities to: Shape and influence the research translation agenda to impact on the health outcomes of South Australians; Apply their expertise and knowledge to solve health service issues to strengthen system and policy responses across South Australia […]” (SA Centre Discussion Paper (July) 2018).*

A set of research priorities had been established in the SA Centre to reflect major population health and health system needs in South Australia, and at the time of data collection these were: Aboriginal Health; Colorectal Cancer; Healthy Ageing; Cardiac Rehabilitation and Prevention; Mental Health; The First 1000 Days of Life; Stroke; and Diabetes.

> *“The SA Centre priorities ensure that its focus is grounded […] on health issues of greatest clinical concern such as Aboriginal Health, colorectal cancer and cardiac rehabilitation and prevention” (SA Centre Discussion Paper (February) 2018).*

These research priorities were in the process of being reviewed at the time of data collection. An individual involved in the review process described an intention that the priorities of the Centre going forwards should reflect a combination of population health needs as well as areas of existing research and service strengths.

> *“Over the next six months we will review our priorities as well. We might keep it all the same. But this new board are going to help reconstruct [the priorities…]. We will be looking at need, we are looking at need, so we – it’s got to be driven by population-based data. So that is one of the things that I am working on. A burden of disease summary which actually articulates what we should be focusing on in this Centre. We know we’ve got an ageing population. Is that really what we should be focusing on? We know we’ve got issues with rural and remote, we know we’ve got [other challenges]. So those sorts of things should be in the initial frame that we then take our – so basically it’s about need and then it’s about South Australian strengths” (EM3).*

Improving Aboriginal health, in particular, was strongly prioritised in the SA Centre and was set to remain central to its work. There was a widespread view that such health improvements could flow from improved health system functioning, as driven and supported by the SA Centre.

> *"We want to make sure a couple of things. We want to make sure that Aboriginal health is front and centre of any large-scale reform agendas that occur in Australia. We want to make sure that the health care system is delivering equitable outcomes to all people in need, depending on that need. We clearly have a focus on Aboriginal interests because they're the most disadvantaged in society, certainly from my view. So, we want to see more equitable outcomes for Aboriginal people" (UE4).*

In meeting these broad health system and population health aspirations, there was widespread agreement that "translational research", referring to the application of research knowledge to health care practice and policy, was the central, defining function of the SA Centre. "Translation" was in the title of the initiative and was also a key word in its NHMRC designation ("AHRTC"). Translational research was widely considered to be an essential tool to enable evidence-based practice in clinical settings.

> *"I think this is very much about saying well, we have evidence-based practices that we know about and what we are interested in doing is supporting the translation of these evidence-based practices into evidence-based therapies, into practice […] That might be in the community, it might be about hospital avoidance, it might be about chronic disease management, it might be about – there's lots of different practices" (CA1).*

In addition to enabling evidence-based practice in clinical settings, several interviewees described an expectation that translational research could also drive policy-level change to address "grand challenges" in the broader health system such as improving public health policy and the overall sustainability of the health system.

> *"I think the Translation Centre would be – I think it would be great if they could support whatever evidence or findings they produce to be more transparent and easier reading […] whether it's developing health status dashboards, models of care that could be easily implemented and transferrable across the different – I think that's what they would be doing it for: to inform best practice fast and easier, and to influence policy"(HSE1).*

> *"The Centre's aiming to help a number of things, it's helped to streamline the flow of initiatives right from bench, right through to policy and practice. So, it's translation at every level. The Centre is aimed at helping to get improved practice or inform practice and policy […] That involves every step from the population health things like screening and prevention through better diet and exercise and reducing smoking, right through to better treatment and so on. The aim is to fast track knowledge into policy and practice" (HSE3).*

> *"The SA Centre is effectively placed to accelerate translation in disease areas, drive education, innovation and evidence based practice in clinical care and to tackle the grand challenges in health to achieve a high-quality sustainable health system and improve patient health care" (SA Centre Discussion Paper (February) 2018).*

Two interviewees, both health system executives, described their sense that the broader social determinants of health should be a focus of the SA Centre, particularly in relation to improving Aboriginal health outcomes.

> *"I think it [the SA Centre] needs to incorporate all the social and economic determinants of health in its narrative. I don't think that all the bits of research or all the projects it works on need to be broader, but I would hope that it's - the lens that which it looks through things are very broad; not medico-centric. So that it has permission to think about the impact of housing, and education, and town planning, and environmental matters, and everything else in its mission. That's the translation stuff for me as well" (HSE7).*

> *"That's where I think the SA Centre can have an influence of actually really turning it [models of care] around and saying, okay, what's the possibility of keeping people on country, and what does the Federal Government need to kick in, in terms of capital to keep people on land? Because if we're really serious about closing the gap [in Indigenous health outcomes], I mean, if this is evidence-based, whether it's heart attack, diabetes-related, renal-related, which are probably the three main chronic diseases – you have also dental issues […] that cycle is still present in the population health context" (HSE4).*

Collaboration between the different partners in the SA Centre was widely understood to be the key mechanism to enable translational research and ultimately health systems and population health improvement. As such, effective multi-organisational collaboration was another key aspiration of the SA Centre. Improved collaboration between the organisations in the state's health system through the SA Centre was seen to have the potential to improve strategic alignment and efficiency in communication between the partners.

> *"The partnership side of it is absolutely fundamental. I think it really is a key component of it […]. It gets people talking and working together" (HSE3).*

> *"For me, I see – it [the SA Centre] has a coordinating role. I think it can be a figurehead for South Australia in terms of translational aspects […] I see them as a – bringing people together; bringing the universities together; bringing the health department together for the greater good […] I think they can be more of a community of practice and make – enabling people to work together strategically" (HSE7).*

> *"I mean, the SA Centre could engage [a] group and then you've got the whole captured audience in one day. You could spend one day with them as opposed to having a couple of*

> *hours of one CEO from one service in one of their groups et cetera et cetera, so that they actually understand the depth and volume of what the issues are demographically, and we haven't had that engagement [up to this point]" (HSE4).*

Combining both health service delivery and academic organisations together was widely viewed, including among the SA Centre leaders, as key to why such multi-organisational collaboration enabled translational research. Because it emphasised the health service partners as the key end-users of the research, this view indicated that the dominant orientation of the SA Centre's practice and policy aspirations was towards improving (clinical) health care delivery.

> *"So, as an example, does a hospital have any data analytics capacity? No. Does a hospital have any clinical trial capacity? Generally, no. So, in order for a hospital to improve its outcomes, it needs to be able to collect the right data, analyse the right data, run clinical trials, develop new IT systems. The idea is to link academia, and that's a pretty loose word, but link academia with health care delivery. Because if you try and do all of that in isolation in a university or MRI [medical research institute] you're also not going to get anywhere" (UE1).*

Another feature of the collaboration shaping SA Centre aspirations was its distinctive state-wide remit. This remit was described by some interviewees as a major strength compared with other AHCs in Australia because it involved bringing together a larger number of health service and academic organisational partners which collectively represented the key health service organisations across the entire state of South Australia. This was thought to be more possible in South Australia than in other Australian jurisdictions because its comparatively smaller size meant that state-wide research initiatives could be taken forward by a collaboration that was not too large (and therefore unwieldy).

> *"I think we still do have a lot of opportunities in that we are a small state and that's how we got everyone together. I think we have a lot of potential to do some good here" (HSE3).*
>
> *"The strength of the whole of state model is that South Australia is of a size that can actually achieve things. It's not like a New South Wales, or even Western Australia where you've got huge geographic issues and disparities. South Australia you can achieve things, because of a population size which is a good size to be able to do longitudinal studies. A good size from geography to be able to get things done" (HSE2).*

Although the values of SA Centre were strongly tied to its state-wide population and health systems focus, the hub of the initiative was in Adelaide, within a growing research translation and health sciences precinct involving new facilities in close proximity to each other, including informal networking spaces in the SAHMRI building on North Terrace where the SA Centre was headquartered (observation memo, August 2018). This precinct was referred to in documentation as "Adelaide BioMed City", and included SAHMRI, the new Royal Adelaide Hospital and all three South

Australian universities (SA Centre Discussion Paper, 2018). The precinct sat at the heart of the SA Centre effectively as its engine room for broader collaboration and translation activity across the state-wide initiative.

> *"We have a state-of-the-art brand-new Royal Adelaide Hospital. We're just about to build a Women's and Children's Hospital. We've got three brand new universities [i.e. new university infrastructure] being built. We've got SAHMRI that's been built. We have the opportunity to create a centre of excellence with all the stakeholders within 100 metres walking from each other. I would see that the Translation Centre, or the Academic Health Translation Centre, will help bring us all together to avoid duplication, to complement research and to speed up that research into practice" (HSE1).*

In summary, improving the health of the South Australian population, and especially the health of Aboriginal populations within the state, was a defining aspiration of the SA Centre. To stakeholders, population health goals required enactment of "translational research" (a term examined further later in the chapter) that led to changes in health service delivery and policy to improve the health system across the state. Collaboration between multiple organisational partners, especially academic and health service delivery organisations, was viewed as an essential enabler of this goal.

Activities and impacts. Activities, along with reported impacts attributed to the SA Centre, represented legitimate means to valued ends, showing how SA Centre stakeholders sought to frame and operationalise its goals. In addition, some interviewees described their expectations of the types of indicators that could be used to measure the "success" of the SA Centre, which also reflected norms and values of core stakeholders. As shown in **Table 16**, activities relating to impact in the SA Centre spanned all the CAHS (2009) impact categories, except for the *advancing knowledge* category. The examples in the table are summarised as impact indicator types in the final column.

To guide operationalisation of SA Centre goals, a framework of "projects, people and platforms" had been established which referred to the key domains of action in the SA Centre, and these were supplemented by a core of people responsible for "operations" (SA Centre Discussion Paper (July) 2018):

- *"Projects"* incorporated: "collaborative projects funded through external grants"; "projects funded by the Medical Research Future Fund through the SA Centre" and other "collaborative" and "commissioned" projects;
- *"People"* incorporated capacity-building work to train and develop staff in areas such as "knowledge translation"; and
- *"Platforms"* related to cross-cutting work to enable collaboration, research and translation as carried out in the projects, such as work to enable: "data access and analytics"; "commercialisation"; "consumer engagement; and "implementation,

evaluation and health economics”. As one interviewee explained, the platforms included “infrastructure that needs to underpin research” (HSE7).

Table 16: Activities, impacts and definitions of "success" in the SA Centre

Impact Category	Examples of "what success looks like"	Examples of activities and impacts	Types of impact indicators suggested
1. Advancing knowledge	*No specific advancing knowledge indicators identified at a whole of SA Centre level; although some linked to individual projects.*	*No specific activities or impacts attributed to the SA Centre.*	*None identified*
2. Building capacity	"That we've helped to support, train, develop, grow expertise in implementation science and translation within the health care system of South Australia, so that people who are clinicians who don't necessarily do research have a role, have an understanding, can do impactful translational research, if they so want to" (UE4). "Increased investment in translational research" (UE4). "I think we'll be successful when SA Health's talking the same language as the universities" (HSE1). "A robust and contemporary evidence and research qualified health system in South Australia" (HSE6).	Set of "projects" established within the SA Centre, each involving dedicated staff and project capacity, including (SA Centre Translation Opportunities 2018): - Indigenous Research Network and Capacity Building Project; - Beat Bowel Cancer; - Stakeholder Access to Real-time PROMS Data for Joint Replacement; - Reducing the Risk of Being Born too Soon; and - Stroke Data Linkage Project. "One of the things that we're doing with all the people in these projects is capacity building with them. We've got – just running sessions with them, talking about communication, going to make them all stand up at the showcase and talk about their projects, produce a poster" (EM3). "Being in a room has already enabled increased partnerships to happen" (HSE5).	Capacity of health workforce in methodologies relevant to research translation and implementation Investments in translational research Effective collaboration between organisational partners Linkage and accessibility of clinical data for research
3. Informing decision-making	"A much better system for integrating the carers with the clients and with themselves to achieve more holistic care" (HSE8). "A sustainable, high performing, research community in South Australia that is aligned with population health needs" (HSE7). "Impact pathways that have led to an outcome that can be described firstly in a case study and then	SA Centre approached by government departments to develop policy outputs – e.g. commissioned to: evaluate the South Australia health department's *Transforming Health* policy; and develop the "Aboriginal connection to country" component of the South Australian *Healthy Parts, Healthy People* policy (NCA1). The *South Australian Aboriginal Chronic Disease Consortium* governance infrastructure brings policy, health	Improvements to health services and care models Alignment of research capabilities with population health needs and

	backed up with metrics and publications and other things" (UE1). "Communication of all this amazing research, nationally […] and true collaboration" (EM4). "To actually drive service change in practice" (NCA3). "[Health systems] change that enables improvement in the delivery, quality, equity and outcomes of care" (UE4). "Practice and policy and clinical guidelines change as a result of what the research tells us" (NCA1). "Demonstrable case studies where some of the translational projects have directly led to improved practices or reductions in unnecessary clinical variation, or more efficient ways of delivering some services" (NCA1).	system, research community stakeholders around the table using a co-design approach to managing chronic disease in Aboriginal communities (UE4). The Consortium has developed a policy "Roadmap for Action" to deliver on strategic priorities for diabetes, cancer and stroke in South Australia (Chronic Disease Consortium 2018). Establishment of a *Stakeholder Forum* within the SA Centre governance infrastructure to "engage interested parties (individuals and organisational representatives), who are not financial partners, to enable contribution to strategic directions and priority setting" of the SA Centre (SA Centre Discussion Paper (May) 2018) Aboriginal health priorities strongly supported in the SA Centre (HSE1). Prioritisation processes involve broad stakeholders, health consumers and community (EM3).	health system priorities Impact "pathways" apparent in projects Evidence-informed changes to clinical practice guidelines and clinical outcome measures and targets Mechanisms to drive, influence and implement public policy
4. Health impacts	"The big picture success is that every South Australian person, regardless of their social demographics, has the best possible health outcomes" (HSE8). "Fundamentally impact is really about health of our community. That's why we're here" (UE4). "We can prove in 10 years' time we've had an influence on the Aboriginal health outcomes locally within South Australia" (HSE1).	*No specific activities or impacts attributed to the SA Centre.*	Improved health for all South Australians
5. Broader socio-economic impacts	"Consider how to position IP ownership for commercialisation" (SA Centre Discussion Paper (May) 2018).	"We've got this *StartUp61* which is […] an accelerator program […] around how you commercialise" (EM3). "There's commercial aspects to all the projects that we do" (EM3).	Commercialisation pathways and support

A wide range of activities and impacts were identified and reported in documentation and by other interviewees across the impact categories. Referencing the CAHS (2009) framework directly, one interviewee explained that when considered individually, some of the projects in the SA Centre touched on all impact categories.

> *"[The] Registry for Older South Australians [project], they are looking at advancing knowledge, they are looking at building capacity, informing decision making and hopefully some health impacts. They're probably even looking at this [broader socio-economic impacts] as well" (EM3).*

Activities and impacts at a whole of SA Centre level, however, were particularly evident in the *capacity building* and *informing decision-making* categories, reflecting aspirations and activity to establish the SA Centre governance infrastructure and its focus on translation of research into practice and policy. The *health* impact category was also a focus at an SA Centre level as an aspiration, reflecting the overall intent of the SA Centre to create better health through health system improvement in South Australia, although no activity or impacts were reported that mapped to this category.

Nonetheless, there was a very strong emphasis on being able to identify *pathways* from the production of knowledge through to measurable improvements in policy, practice and health, which stakeholders hoped would ideally (in future) be attributable to the work of the SA Centre.

> *"An absolute success would be having improved the health of the community in a tangible way. It might be very broadly across the whole of the community or it might be targeted populations, through having changed policy/practice" (HSE3).*
>
> *"I think that success is having an impact. How do you measure impact? Everyone loves that question. But really, it's what I call impact pathways. So pathways that have led to an outcome that can be described firstly in a case study and then backed up with metrics and publications and other things […] I don't think we should be doing anything where we can't see that impact" (UE1).*

These aspirations underscored the public policy angle of its impact agenda, which was most clearly apparent in the work of the South Australian Aboriginal Chronic Disease Consortium. The Consortium, as a component of the SA Centre, was leading work in three areas linked to identified priority health needs in the state's Aboriginal population (diabetes; cancer; and heart and stroke), and had developed a policy "Roadmap for Action" to implement knowledge into practice and policy.

> *"[The goal of the Consortium is] to drive, coordinate and sustain the implementation of the South Australian Aboriginal Heart and Stroke Plan 2017-2021, the South Australian Aboriginal Diabetes Strategy 2017-2021 and the South Australian Aboriginal Cancer Control Plan 2016-2021. The implementation will address priorities specific to each plan as well as*

> *priorities which span across the three plans" (SA Aboriginal Chronic Disease Consortium, 2017).*

> *"The Consortium's role is really to drive, influence, coordinate, advocate to have these three plans implemented […] I think the Diabetes Strategy has got 22 strategies, the Heart and Stroke Plan has got 22, the Cancer Plan's got 10 priority areas. It's like, okay, where do we start? So then we started a prioritisation process and from there we developed through our, all of the key experts in each of the fields of cancer, heart and stroke, and diabetes, as well as our community and our stakeholders and our partners – our partner or member organisations, we did a prioritisation process and developed our Road Map for Action" (NCA1).*

In addition, the SA Centre was being increasingly approached as a "go-to" organisation for stakeholder engagement and evaluative work to support government policy in South Australia, which included an evaluation of *Transforming Health* – a major policy initiative led by the South Australian Department of Health (SA Centre Evaluation, 2018; NCA1; EM1).

These policy-focussed activities mapped closely to an aspiration expressed in the SA Centre-led evaluation report of *Transforming Health*, where it was noted that AHRTCs like the SA Centre promised an era of more formative and science-based evaluations of government health policy.

> *"It must be stated in this document that there is a continued element of surprise (and frustration) that significant whole system transformation can be embarked upon without due attention being paid to the underlying data; the need for change; and the explicit implementation of evaluation frameworks. Hopefully, with the proliferation of Advanced Health Research and Translational Centres (AHRTCs) in Australia there will be a growing awareness of, and realisation that such investments need proper science and investment underpinning them" (SA Centre, 2018).*

There were, however, some contrasting views. One interviewee explained that because the SA Centre was still a fairly new initiative, it had few measurable outputs to date, beyond establishing a collaboration infrastructure (HSE7). This interviewee suggested that The SA Centre offered little more than a platform for strategic discussions between the separate partnering organisations.

> *"I think it's hard to see the runs on the board for the Centre at the moment. I couldn't name the outputs other than the fact I've been on committees […] Probably would be hard pushed to say at the moment they [the SA Centre] are anything other than a meeting of the minds; a communication channel; a conduit for us to have in these types of conversations on what are we about, what do we want to prioritise" (HSE7).*

Another interviewee saw the achievement of definitional and operational clarity around the concept of "translation" as being a necessary precursor to the types of activities described by others in the *informing decision-making* and *health* impact categories, particularly in light of apparent differences in interpretations of the term between stakeholders.

> *"Success for me would be, certainly in the Australian context, that there would be a high-level meeting of all of the translation centres to actually agree a definition of what 'translation science' looks like and actually acknowledge that for the different types of translation, because there are multiple points where translation happens" (UE3).*

Advancing knowledge indicators, such as publication counts and research grant income, were not a high priority for the SA Centre and were not mentioned as a potential indicator of success by any interviewees or reflected in documentation; these types of indicators were only useful insofar as they helped to tell a story about pathways to health and health systems impacts. *Broader socio-economic impacts* also received little attention, with the social determinants of health not strongly reflected in documentation or among suggested indicators of "success" by interviewees. Instead, the SA Centre's role in facilitating commercialisation pathways, as exemplified by the existence of "commercialisation" as a cross cutting SA Centre platform and the establishment under the SA Centre banner of the *Start-Up 62 Accelerator* program, was identified in this category.

In summary, activities and impacts of the SA Centre re-affirmed its dominant focus on translation, which was broadly envisaged as a process of facilitating pathways from the production of knowledge through to implementation in both clinical practice and health care -related public policy. Traditional academic metrics in the *advancing knowledge* category were less of a focus in the SA Centre than the other impact categories, particularly the *informing decision-making* category. Despite being a fairly new initiative, meaning that there had been little time in which to collect and report evidence of impact in the SA Centre, several examples were identified of instances where the SA Centre had driven policy change through collaboration and research.

Regulative forces

Regulative forces are about rule-setting, monitoring and sanctioning process which are attempts to control and shape behaviour. Regulative forces shaping a population health role in the SA Centre are reflected in the themes of *accountability at an SA Centre level* and *alignment of organisational accountabilities*. These themes enable examination of regulative forces firstly at the whole-of-SA Centre level, and secondly at the level of the member organisations in the SA Centre.

Accountability at an SA Centre level. At the time of data collection, there was no legal agreement underpinning the SA Centre collaboration but the partners had just agreed to move towards establishing an unincorporated joint venture.

> *"It was agreed at the Executive Leadership Group meeting on 14 May 2018 to proceed with the establishment of Unincorporated Joint Venture. This requires all partners to enter into a Memorandum of Understanding" (SA Centre Discussion Paper, July 2018).*

The SA Centre had also moved to adopt a requirement that "formal agreements" be made by member organisations to express "commitments to the Centre" such as in reporting and sharing data (SA Centre Discussion Paper (July) 2018).

> *"While it may be resource intensive to establish these [legal] agreements it will be an important development that will provide structure and accountability to the Centre and its relationship with it partners" (SA Centre Discussion Paper (July) 2018).*

As a collaboration between multiple partners rather than a single office or incorporated organisation, the SA Centre was self-described as "virtual" but administered (in terms of administration of SA Centre funds and employment of executive and project personnel) by SAHMRI (SA Aboriginal Chronic Disease Consortium 2017). At the time of data collection, the partners had invested considerable time in strengthening the governance infrastructure of the initiative, and it was felt by those involved in running the initiative that "without that [appropriate governance infrastructure] nothing else will happen" (EM4). These in-progress changes to the governance infrastructure of the SA Centre were broadly seen by stakeholders as a way to better enable resourcing as well as prioritisation processes within the SA Centre, to drive forward its aspirations.

> *"The new model they [the SA Centre] are going towards [is] the board members having a financial contribution to at least give some resource capability to the Centre, to allow resources to be dedicated. This group here, […] this Stakeholder Forum, will be massive, because it can have everybody and anybody in it. This one [the proposed Executive Advisory Group] has to try and decide between 'need' and 'want', and then decide 'need' rather than just 'want', to identify the priorities of where translation should sit. Having said that, there are a number of projects that have been identified [already], which will remain" (HSE2).*

The SA Centre received funding from several sources; one of which was from the partners themselves. One interviewee described resourcing from the partners as essential to make the SA Centre governance infrastructure effective, because without the appropriate level of financial commitment from the partners nothing would happen, and this had been a problem in the past. This comment indicated that the funding from the partnering organisations was a valuable source of operational funds for the SA Centre, because unlike other sources of funding (described below) it involved fewer regulative requirements to deliver on specific projects and activities.

> *"It really is around the maturity of the governing partners and having adequate resources to then implement. Otherwise it will just be an aspirational dream again [..] it hasn't really*

> *delivered to date, purely because it hasn't really been funded, it's been a vehicle by name, and it hasn't had the resources to do anything. It's had aspiration, don't get me wrong, we've got lots of projects we could do. But it's herding the cats to be able to get it underway" (HSE2).*

Requiring member organisations, as well as project groups, in the SA Centre to contribute money to effectively "join" the initiative through a subscription model had the added benefit of ensuring that they all had "skin in the game" (EM3). This strengthened the commitment of collaborating partners and projects to the overall success of the SA Centre, resulting in alignment of regulative and normative forces around a population health role. Essentially, if organisations or project groups wanted to be involved with the SA Centre, they had to pay, resulting in increased commitment from these organisations and groups to its overall vision and goals.

> *"Projects that really want to be under the Centre, and there are some, because of their politics, that want to come together under us, I'm saying 'that's great, can you bring a bit of resource with you?' […] It's also that skin in the game: if they really believe in this, don't just dump it on me to do it. Come with something, bring something with it. Now that we've got through and we've got some money, I need the people who are wanting to work with the Centre to actually have a commitment to where it's going" (EM3).*

At the time of data collection, a tiered financial contribution structure was being worked through, involving either cash or in-kind contributions from organisations seeking to retain organisational "membership" of the initiative (EM3). These funds supported a small team of staff with some operational funding pooled and administered for jointly agreed activity.

In addition to the partnering organisations' financial contributions as members, the SA Centre received funding from the Medical Research Future Fund (MRFF) through the "Rapid Applied Research Translation" resourcing scheme, which included a $6.1 million allocated in 2017/18 to support projects in its priority areas (Funding Application Form 2018). To administer the MRFF funding within the SA Centre, a competitive "Rapid Applied Research Translation for Health Impact Grant Scheme" had been established within the Centre. To be eligible, the applying Chief Investigator needed to be employed within one of the SA Centre partners, demonstrate "opportunities for true collaboration with health services and other SA Centre partners" and also align their application with at least one "SA Centre priority area" as well as "at least one MRFF priority area" (Funding Application Form 2018). The MRFF Priorities were (Funding Application Form 2018):

> *"Clinical pathways and care transition;*
>
> *Building collaboration across the care continuum;*
>
> *Enhancing data integration and strengthening health services, implementation, and public and preventative research capacity and activity;*

> *Reducing clinical variation, data linkage and integration;*
>
> *Improving the health of vulnerable groups including those with chronic co-morbidities, those towards the end of life and disadvantaged ethnic and Indigenous groups; and*
>
> *Wound management"*

Although many of the MRFF Priorities were very broad and seemingly well-aligned with the SA Centre priorities, and in general the funding was seen as necessary to support the work of the SA Centre, many interviewees were uncertain about how the funding might influence the SA Centre's prioritisation processes, recognising that the MRFF Priorities were set externally. This suggested that the funding from the MRFF, as a regulative element in the SA Centre, was potentially misaligned with its normative aspirations. At the time of data collection, interviewees were generally uncertain as to the overall significance of this potential misalignment; but were generally wary of what it could mean for the future of the SA Centre, including for the population-focussed vision and goals that SA Centre stakeholders had worked hard to negotiate and develop.

> *"Now that resources are attached, the SA Centre is less of a conceptual thing and more around MRFF deliverables" (EM1).*
>
> *"They [the MRFF] have [been a bit prescriptive], and a lot of it has been through funding, so 'tail wagging the dog': if you want to get funding, you will tailor your proposal to it. I can't say with hand on heart there's been a population health analysis that has determined burden of disease and priority, to focus and sharpen the Translation Centre. I think it's been opportunistic in terms of funding, as to where they've positioned priorities" (HSE2).*
>
> *"The question of prioritisation is really germane and it's because the funding is coming from the MRFF and there has been this overlay of the MRFF setting priorities that are out of the blue, off the cuff. Therefore, by – almost by default, the Translation Centres have suffered from that lack of clarity about what the priorities are" (UE2).*
>
> *"The legislative framework around the MRFF is such that there are opportunities for those priorities to change every few years. But it still is in the hands of the Minister, whilst he's got some parameters through the Act [MRFF Act 2015] with Priorities set by an advisory board" (UE4).*

Also, the short-term, project-based nature of the MRFF funding was described as a challenge and as a potential disincentive to co-designed research processes which necessitated longer timeframes. Because co-designed research processes are an important component of population-oriented research, these short timeframes were misaligned with population health goals in the SA Centre.

> *"I think, like anything, these organisations - it's really - when you're waiting for the next wave of funding and you don't know whether it's going to come or not. It's really hard to plan in the long term. So, I think one of the barriers to these sorts of centres is if they're reliant on these vaguely random announcements for money - and then of course there's […] a six-week turnaround for this money. That's not helpful for researchers. It's not helpful. If you want to co-design priorities and projects, six weeks is a nonsense" (UE2).*

The SA Centre's existence as a designated AHRTC also meant that it responded to NHMRC designation requirements including adherence to the NHMRC designation criteria to retain its AHRTC status. These regulative requirements also contributed to shaping the goals of the SA Centre within the normative pillar, driving the emphasis in the SA Centre on "research translation".

> *"The listed or named purpose [of the SA Centre] is really tacked on to the NHMRC agenda, which is increasing the translation of research to impact for the system" (UE4).*

As a designated AHRTC, the SA Centre was also a *de facto* member of the Australian Health Research Alliance (AHRA), which created a more national (beyond South Australia) focus to SA Centre activity in some project areas. AHRA allocated "national projects" to designated centres; among the designated centres in Australia, the SA Centre had been allocated leadership of the Indigenous Capacity Building AHRA project, which broadly aligned with its normative goals. The perceived benefit of AHRA was the national reach (beyond the AHC) of its projects.

> *"[AHRA] can run quite significant national projects. So the one that we [the SA Centre] are leading is Indigenous Capacity Building […] if you want to get these [national] projects done you have to do it through AHRA […] It's very quick. Whereas if we wanted to do that by ourselves, we'd have to contact every separate hospital and every separate university [in the country]" (UE1).*

To deliver on the multiple expectations and requirements of these different funders and bodies (partnering organisations, MRFF, NHMRC and AHRA), a very broad and complex skill set was seen to be needed by board and advisory group members as well as operational staff of the SA Centre. The operational staff in particular needed to be able to "broker relationships" (observation memo, 2 August 2018), have a "strategic lens" (HSE7) and have "a helicopter view over everything" (HSE1).

In summary, regulative forces in the SA Centre included multiple accountabilities to different funders and organisational bodies, including: the organisational partners of the SA Centre; the MRFF; the NHMRC as the designating body; and AHRA as the network infrastructure of designated AHRTCs. These accountabilities influenced the way that the SA Centre operationalised its goals, such as priority-setting processes and the projects funded and supported by the SA Centre. Both the NHMRC designation and MRFF grants reinforced the "translation" focus of the SA Centre, with the nature of funding through the MRFF encouraging short-term projects that detracted from broader, health systems change agendas.

Alignment of organisational accountabilities. The SA Centre did not affect the partnering organisations' independent accountability relationships with funders and other reporting bodies. As such, the partnering organisations in the SA Centre continued to respond to their own regulative obligations, including separate funding and performance agreements specifying the roles and responsibilities of each organisation. Stakeholders in the SA Centre recognised this as a challenge, but also saw it as part of the very rationale for establishing the Centre.

> *"Particularly in a country where healthcare delivery is funded by the states at a tertiary level and by the feds [federal government] at a primary level, universities are funded federally, MRIs [Medical Research Institutes] are funded both at state and federal level […] so it's quite an unconnected system. That's okay for a number of areas like bioscience et cetera, but if you are actually trying to influence and improve health outcomes and healthcare delivery, then to have hospitals and universities and MRIs not connected is a problem" (UE1).*

Some interviewees expressed concerns, however, that the separate accountability lines of the partnering organisations overrode the goals of the SA Centre and were sometimes at odds with them. The health service partners, in particular, were described as being highly motivated by efficiency considerations and acute care -focussed service performance indicators, in addition to any expectations imposed by other funders (such as the Commonwealth).

> *"If you're talking about CEOs of the various Local Health Networks […] They will be directed by bureaucracy which is reliant on funding […] I mean the acute sector is being funded through predominantly Commonwealth funding money and they've got certain KPIs for reduced hospital admissions and efficiencies and everything else. Then dollars will drive behaviour and you get perverse outcomes because they'll do things around meeting their master. If the MRFF is Commonwealth funded and the Commonwealth funding is coming from another source as well, then the health sector will play to wherever it can find the funding" (HSE2).*

There was a perceived risk that, because of these different accountabilities, the partnering organisations, especially as financially invested SA Centre members, might expect certain outputs from SA Centre work that met their individual organisational priorities rather than shared goals. The potential consequence of these expectations, as explained by some interviewees, was that the SA Centre would be forced to compromise on its population health vision.

> *"[The SA Centre may have to make] compromises to keep people happy. It's a risk if you have paid partners [that], if you try to get something that keeps everyone happy, [the SA Centre] won't focus on real issues" (HSE5).*

> *"I think funding will be an issue because if you are constantly going to be having to identify your partners, if you like, or your sponsors or your whatever – the members or whoever are going to have to be putting money in, that can divert you from doing what you want to be doing […] You need to put energy into that, and then you get caught into that, oh well we've pitched it to them like this, and so now well, they've put in their $10,000 or $100,000 or whatever, so we need to make sure we support whichever institution or organisation to – so that they can see what they've got for their money. Then, what if your agenda shifted and there's a big priority that's – particularly the equity or whatever – that doesn't really fit with why they think they've joined?" (HSE7).*

Nonetheless, some interviewees felt that the governance infrastructure of the SA Centre would function in such a way as to manage the different expectations of partners. To one interviewee, an essential component of this infrastructure should be its capacity to recognise when its activities were becoming diverted from its original vision and goals (such as becoming too "medico-centric").

> *"I guess it's about having a good high level strategic leadership group that keeps itself in check and has someone who constantly lets that group revisit: what are we about; what are we trying to do; have we made assumptions here; how do we be disruptive in the way we are looking at things; are we getting – you know, see[ing] all the risks. Are we getting medico-centric – that's an easy risk for any of these organisations – are we getting metro-centric; are we losing sight of the social accountability or the equity mission or whatever it is? Just having a way to operationalise it's work so it keeps itself in check" (HSE7).*

While this comment suggested that the potential for competing priorities among the SA Centre partners could be managed, the very composition of the SA Centre detracted from its population health goals. For example, although the social determinants of health received some attention within health service strategic vision and goals (observation memo, 3 August 2018), some interviewees in the study saw a lack of attention to the social determinants in how the state government distributed resources for health. This gap was described by an interviewee who stressed the importance of the social determinants of health in improving health outcomes in the state, but who also described challenges they had encountered in seeking government support for such efforts. The interviewee also reflected that such challenges were unlikely to be solved by the kinds of research undertaken within one of the central SA Centre partners (SAHMRI).

> *"If people are not in supported accommodation and clean and healthy accommodation, and that includes food on the table, then the low socio-economic [populations], as we know, will*

> *always be the ones that are worse off, and that includes here in the northern suburbs, northern and western suburbs of metro, to the farthest and remotest communities. So, the health impacts from an early age are critical […] With the social determinants, the environmental health stuff, [the issue] is – we had State Government – a major blue with them the other week. They withdrew their environmental health funding for the remote area […and these problems are] not necessarily going to be solved in that cheese grater [the SAHMRI building]" (HSE4).*

One reason for the lack of interest in the social determinants of health described by this interviewee could be that the regulative forces acting on the health service partners through government requirements and funding tended to foreground health service efficiency and health care delivered in acute care settings, rather than population health (as identified earlier). Programmatic approaches to research, then, which did not seek to address broad misalignments between the way the health system is funded and population health goals, did not offer a suitable solution. Other interviewees similarly recognised a disconnect between the discrete project-based approach adopted by the SA Centre in operationalising its research translation goals (as exemplified by the MRFF-funded projects described earlier), and (as yet unrealised) opportunities for the development of integrated programs of work oriented towards effecting broader health systems change.

> *"These seem to be significant intractable problems that we always talk about. The cost shifting between states and feds […] That means that it's hard to actually – when everyone [the SA Centre partners] comes to the table, which they may all do willingly, how much will they give? I don't mean give in terms of resourcing, I mean give in terms of yes, we want to do this together and yes, we can find solutions" (UE4).*

> *"How do we embed these translational activities to become systems approaches, and not just demonstration projects, so that whole sustainability [agenda is delivered]? Because it's all well and good to trial something, and if we know it works, how do we then embed it and make that translatable across the broader systems? I think that is a challenge" (NCA1).*

In the eyes of these interviewees, adopting the necessary integrated approaches to research requires not only commitment to sustaining investments beyond initial intervention trials, but also a willingness among organisational leaders, as sponsors of the research, to put system goals above organisational ones.

In summary, the member organisations retained their existing regulative accountabilities in the SA Centre and therefore continued to respond to requirements that were sometimes misaligned with population health goals. This meant that in the broader health system in the state, population health -

related imperatives, such as the social determinants of health, were not receiving adequate attention. There was some concern, then, that as subscribing members of the SA Centre, the partnering organisations would expect the SA Centre to work in ways that benefitted each member organisation, which would dilute, or hinder its capacity to achieve, the SA Centre's population health vision. Despite widespread hopes that the governance infrastructure of the SA Centre could overcome any misalignments, the project-based approaches to research in the SA Centre were lacking the sort of integrated, sustained, and systems-focussed characteristics considered essential for broader health systems challenges to be addressed.

Cultural-cognitive forces

Cultural-cognitive forces shaping a population health role in the SA Centre are reflected in the themes of *organisational culture* and *power relationships*.

Organisational cultures. Different cultures were apparent within the different SA Centre partners, which were closely linked to the separate regulative forces operating in each of them. The academic (university and research institute) partners of the SA Centre were accustomed to traditional measures of success that privileged indicators such as publications and grants. Although shifts were underway in how translational impacts were becoming rewarded in these organisations (e.g. a renewed focus on "impact" by research funders and ranking systems in Australia), the cultural transitions accompanying these changes took time.

> *"Typically, bibliometrics – where you publish and what you get for your next grant – is the thing that's success, and now we are saying 'impact' is important. […The NHMRC] are putting impact through the applications now. So the culture will start to change, however it [traditional academic metrics] will still be a thing. Then we've got the ERA [Engagement and Impact Assessment] measures at the universities which we need to respond to" (EM3).*

> *"I also think targeted calls [for project funding] – even though they are a bit of a bane to the priority setting, is really good. Because otherwise we just get researchers doing investigator-led stuff which is basically what interests them that doesn't necessarily speak to what you're talking about. Well, what is the societal need? But what are the big issues? I know all of us – all of our unis are trying to tackle 'grand challenges' and be seen to be tackling stuff that's of importance to society. However [the researchers] still just go around doing what they're doing […There are] some structural barriers within universities in terms of how research is rewarded" (UE2).*

The traditional structures of reward (such as the use of publication and grant counts in academic promotion structures), and associated academic cultures, also conveyed less value to health services and systems research when compared to biomedical research. While one interviewee saw this biomedical predominance as something that the SA Centre could rectify, another suggested that the SA Centre may continue to be influenced by it because the biomedical researchers, who had strong track records by traditional academic standards, could still compete for and receive funding through SA Centre initiatives.

> *"I think the equity issue is a challenge, with peoples' research careers. The people who are doing the research on the populations [are the ones] that really need the help; and not the ones that are going to get the great track records, attract the grants, et cetera. Even if you look at primary care research, it could really make a difference. [But] there's not a lot of money thrown at that setting. I think it's about researcher identity, and if the Academic Centres can do that piece of work, it would be really great" (HSE7).*

> *"There are plenty of grant schemes for that benchwork stuff. They [biomedical researchers] don't think there are, but there are plenty. Might not be as much as it used to be, but it's still plenty. This Centre was an opportunity to actually start dealing with […] the human stuff, [but] there's been a bit of this pull to this [biomedical] side. It's not entirely fair of me to say that that's happening. But that tension is always there. Literally, the MRFF – I just was looking at the ad coming out from the Translation Centre and I know that the biomedical people are going to jump on it" (UE2).*

A key barrier to growing health services and systems research in the SA Centre, as research areas that have traditionally received less funding and support than biomedical research in broader research funding systems, was that entire research careers and professional identities had been shaped by the original incentive systems which were difficult (if not impossible) to suddenly re-direct.

> *"It's all very well for people to say they want to be part of something and work together. But if your whole career and professional identity has been founded on your individual trajectory and your professional development and everything else is aligned with that, it's a big shift of identity […] and their success has been built on a certain research career pathway" (HSE7).*

At the same time as health services and systems research, oriented towards improving population health, were not yet usual business in the university partners of the SA Centre, translational research supporting health services improvement was, according to some, not yet embedded in usual ways working within the health service partners of the SA Centre. Two researchers with experience working in a clinical setting within health service organisations in the SA Centre felt that cultures in the health service organisations tended not to be conducive to translational research because "inter-disciplinary" ways of working were not valued (CA1) and internal systems and processes tend to be slow to "respond to changing evidence" (UE2).

Accordingly, cultures within partnering organisations were somewhat misaligned with both population health and health service improvement goals of the SA Centre. This presented a barrier to the ability of the SA Centre to drive health systems change. Cultural alignment, according to one interviewee, was as a necessary precursor to population health improvement because without it, the partners in the SA Centre were unable to work "in an integrated way".

> *"You're talking about system change and there's a lot of players in the system. There is no king, and because there is no king, lots of players have their say. It's really cultural change. Making a cultural change in the system so that it actually does think in an integrated way, as distinct from acting in an integrated way without actually a culture that supports that […] It isn't just – it isn't the culture necessarily of the individual worker. It isn't necessarily the culture of the manager. It isn't necessarily the culture of the government. You need them all to line up. I would always put it back to intellectual flexibility. I think there's a lack of intellectual flexibility to actually see the advantages that could be achieved" (HSE8).*

This interviewee argued that cultural alignment needed to be achieved at multiple levels both within and between each partnering organisation in the SA Centre, which was not only a major challenge but one that was not fully understood or recognised by the SA Centre leadership. Indeed, issues relating to cultural alignment between the partners did not feature strongly in the activities and planning documents of the SA Centre.

In addition to being relatively under-recognised in the SA Centre, the challenge of cultural alignment in the SA Centre was compounded by widespread uncertainty among core stakeholders and funders about what key operational terms meant in practice. The "translation" concept, in particular, was interpreted very differently among stakeholders, with some interviewees directly describing widespread misunderstanding of the term.

> *"I think the biggest barrier is the narrative. Is getting people to understand. I suspect that there are a number of health leaders who don't understand what a Translation Centre is. It's actually a terrible word, but you know that's what we've been dealt. We could call it – we wanted actually initially to be called Academic Health Science Centres but the NHMRC decided they didn't like the word 'academic'. I'm not sure a lot of people understand what an Academic Health Science Centre is either […] Often our PR people […] say: 'no one knows what translation means', except we all think they do. But translation I think means moving ideas into an impact, and more quickly; but translation actually doesn't mean doing it more quickly. But what we want is more quick translation" (UE1).*

> *"So, that knowledge translation and implementation stuff […] I think that's both the strength of the Centre and also the weakness. Because I don't think that the people that they had*

> *originally on the beginning committee [of the SA Centre], actually really thrashed that difference out" (UE2).*

The concept of "innovation", too, was described by an interviewee as problematic because it was interpreted very differently between stakeholders in the SA Centre:

> *"I think innovation is a particularly unhelpful word. Well, it's unquantifiable. Politicians like it but it's stupid. Actually it's not good for them either because people can go back and say well, 'what did you do to innovate?' And then you can say 'well, we did this, we did that', and then someone else can say well, actually that's not [innovation]" (CA1).*

Some interviewees also reflected on, or indicated through their own understanding, the difficulties in defining the boundaries of what constitutes "research". While one interviewee reflected on a lack of clarity, another suggested that "practical application" of evidence was not research, which contrasted with other definitions of research that encompassed such translational aspects.

> *"I think [there is] a lack of clarity about 'what is research'. So in other words, you might describe clinical audits as research. When patients come to you and talk to us, they say 'I've done some research'. What they mean is, they've googled it. That's not what you would understand as research or describe as research. That's just an enquiry" (CA1).*

> *"It [the SA Centre] does not involve itself in base science research or anything else: it looks at the practical application. It can direct the research and say we might have a need, and we're finding that the incidents of X, Y, Z in this particular region is high et cetera. But the Translation Centre should not, in my opinion, or even by virtue of its purpose, be undertaking research" (HSE2).*

One interviewee contended that the varied understandings of key terms in the SA Centre reflected a broader, national problem wherein research systems privileged positivist types of research and rejected complexity:

> *"I think that the reality is that there are multiple understandings and views of what research translation or implementation science actually mean […] Because even though varying science is telling us that in understanding these things, you have to embrace complexity science and complex adaptive systems, most people behind the tables that make decisions are still basing their theoretical and intellectual understanding within a positivist, reductionist paradigm what lends itself to straight line thinking and clarity and certainty, which is definitely not the world that we inhabit" (UE3).*

In the eyes of this interviewee, one of the widespread myths associated with translational research was that it could be represented by linear pipeline, which was a drastic over-simplification:

> *"I would say that the people who are more or less setting these systems [AHCs] up are very much on this notion that knowledge translation is a pipeline. So you've got different stages and different gaps and quite simplistically, the notion is, oh right well we've done the primary research, it's really good. We've done […] trials so now we have to get it into the clinical application. So all we do is we write some guidelines and then we give it to the medics and then they implement it. Case closed. That's as simple as it is" (UE3).*

The different usages and understandings of these key terms was a problem within the SA Centre because it meant that core stakeholders lacked the necessary precision in their language to arrive at common meanings about goals and priorities, to then drive decision-making and action. It also meant that cultural misalignments between the partners in the SA Centre were more likely to go unnoticed, and therefore unaddressed.

One tangible manifestation of this lack of precision in language and meaning was the composition of the SA Centre board, which at the time of data collection did not include experts in implementation science (UE3). This was described by one interviewee as indicative of a lack of understanding about, and therefore unconscious disregard for, certain types of knowledge that are central to driving health systems change. The specific knowledge described by this interviewee as lacking included understanding of multiple sources of evidence (outside of the biomedical paradigms), and methodologies relating to processes of implementation and change in health services.

> *"So if you think of most people who are now sitting on the boards of Translation Centres will be trained trialists or biomedical researchers who believe that [the] randomised controlled trial is the gold standard to generate knowledge. So it doesn't take a great leap of imagination to realise that, if they do not know the value of other methodological approaches, to understanding the complexity of implementation science. So how are they going to judge what good science is if they've not been trained to judge it? If they don't allow the health service researchers and implementation scientists behind the table to make judgements about what the qualities of this type of good science is, how are they going to then make the judgements about what to invest in?*
>
> *There's actually no awareness that – no understanding of, health service research, no understanding of implementation science as a growing discourse. No understanding of the psychology of change. No real appreciation of improvement science or safety. So there's such blinkered views of the world that unless we bust this thing open, we're just going to waste a whole pile more money. So what will happen, is that we'll just end up doing less robust science and call it 'translation science' and then that gives translation science a bad name" (UE3).*

Without a common, precise language to support specific definition and enactment of SA Centre goals, the lack of such central forms of knowledge went largely unnoticed by SA Centre stakeholders, apart from two university-based researchers who argued that in-depth education of clinicians, researchers and policymakers in the field of “implementation science” should be pursued as a strategy by the SA Centre to help people to understand and implement translation in practice.

> *“I think Australia's nowhere as good as some of our international collaborators in implementation science and health systems research. So, I think there's that. I think we have a skills shortage in that expertise, which we should seek to overcome. That should be an agenda that we build on” (UE4).*
>
> *“If somebody gives me a lecture on it or then a tutorial or whatever, I'm still not going to know how to do that. I'll have some knowledge about how other people do that and more understanding but I'm still not going to be competent. So I think there's a real lack of understanding about how much experience you need in order to move into the implementation space and to do that effectively” (CA1).*

One of these interviewees reflected that the lack of knowledge in this field was evident in the day-to-day difficulties that they and colleagues encountered in trying to identify people who had implementation science skills. These skills were often opaque, especially when compared with clinical skills which were much more widely understood and recognised.

> *“So if I were thinking – if I wanted someone to run a translational project, I would probably pick a physiotherapist or a pharmacist with good clinical experience […] But usually they've got very weak implementation skills, but you can teach them that. But people don't really know what other people know. Like people know what doctors know a little bit, like drugs and operations and doing stuff to people so people sort of get that. But when it comes to kind of theoretical knowledge and particularly soft skills, then people really have no idea who's got what kind of capability” (CA1).*

Nonetheless, the changes to the governance structures of the SA Centre that were underway at the time of data collection, involving the establishment of a “skills-based” advisory group (in addition to a board that achieved representation from partnering organisations), suggested the possibility that implementation science expertise may be added into the SA Centre governance structure in the near future. However, the perceptions of several interviewees (shown above) indicated that the SA Centre leadership were still somewhat unaware of this as a gap that needed to be addressed.

In summary**,** traditional structures of reward in the academic partners of the SA Centre (such as the use of publication and grant counts in academic promotion structures), and associated academic cultures, conveyed less value to health services and systems research when compared to biomedical research. In the health service partners of the SA Centre, there were some indications that translational research supporting health services improvement was not yet embedded in usual ways working. Accordingly, cultures within partnering organisations were somewhat misaligned with population health, and health service improvement, goals of the SA Centre. This presented a barrier to the ability of the SA Centre to pursue health systems change but was not fully recognised by the SA Centre leadership; and this barrier was compounded by different interpretations about what key operational terms (“translation”, “innovation”, and “research”) meant in practice. One tangible manifestation in the SA Centre of this lack of precision in language and meaning was the lack of understanding about, and therefore unconscious disregard for, certain types of knowledge that are central to driving health systems change.

Power dynamics. Some specific challenges relating to power dynamics were identified by some interviewees who expressed concerns that the organisational partners with fewer resources or political influence had less input into the agenda and activities of the SA Centre. The dominance of the CBD-based health and translation precinct located on North Terrace, for example, was perceived by some to obscure the voices of the other SA Centre partners located in broader Adelaide or elsewhere in the state.

> *“I think we do have to be mindful that there's opportunities that Northern Adelaide Local Health Network can't get at the moment within the precinct because it's about the precinct. I think in developing any of the Translation Centre and the health precinct that we have to be extremely mindful of the catchment we all serve, and that's the State [of South Australia]. It's something that we need to be mindful of and we all need to be kept accountable to all of our catchments, not just the CBD there” (HSE1).*

> *“I mean, South Australia in itself is a city-state model […] that can be a strength but also a weakness. We're talking about regional, rural, metropolitan – all of this focus [in the SA Centre currently] seems to be metropolitan focus. Not a lot of reach out in to regional” (HSE2).*

> *“If you're closer to a country town most of those essential services are there, but even if it's a referral to the Ceduna Hospital or Port Lincoln Hospital at least there's an accessibility there, but Coober Pedy, Oak Valley, Yalata […] if somebody has had a stroke, well the option is if you've had a stroke and you've got, you know, left or right-sided weakness, whether that be a CVA or a heart, you're better off being in Ceduna because you've got an old folks home there […] I think the [rural and remote] voice is there [in the SA Centre], but it's not being heard” (HSE4).*

At the same time, the language used by some interviewees ("we" and "they"), also suggested that academic stakeholders, rather than health service clinicians or executives, were the perceived owners of the SA Centre initiative.

> *"We want to inform the health care system how it can do its job better and we want to make sure that solutions that we identify that work for those at the fringes of society can be translated to the benefit of all" (UE4).*
>
> *"I think the Translation Centre would be – I think it would be great if they could support whatever evidence or findings they produce to be more transparent and easier reading" (HSE1).*

This use of language likely reflected a disproportionate representation of SAHMRI staff among SA Centre leaders – as both the SA Centre Director and Deputy Director simultaneously held senior roles in SAHMRI, which had given some people the false impression that the SA Centre and SAHMRI were one and the same (observation memo, 3 August 2018). It also indicated that technical and scientific expertise, traditionally regarded as the domain of academics, was an important source of power in the SA Centre.

Overall, because the SA Centre had been established as a structure imposed over the top of existing organisational structures and relationships, it did not challenge pre-existing power dynamics between the partners, and simply replicated them. This was recognised by one interviewee who argued that "building a structure" like the SA Centre did not automatically lead to process and behaviour changes that resulted in health systems change and population health improvement; yet it was assumed by many that it would.

> *"It is good that [Australia] has decided to look at these structures [AHCs], but the fallacy is that people think that, by building a structure, automatically it means that processes and behaviour has changed and they don't – you just basically reconstitute a power hegemony that is just going to keep everything as status quo. So unless there is disruption in this sort of system that allocates the privilege, preference and production of knowledge into a system, then you're not actually going to get outcomes that are going to translate into population or disadvantaged peoples' improvement of health" (UE3).*

Because the governance infrastructure of the SA Centre was representative of the partners, the same people responsible for the operation of the broader health system also led the SA Centre. Other interviewees also saw this as a problem because it risked perpetuating the very siloed ways of working and thinking that the SA Centre had been established to overcome.

> *"One of the difficulties will always be, if the same people are instrumental in operating the system which has got a problem, and they are operating the Translation Centre, then you're going to have a problem right from scratch" (HSE8).*

> *"You have the usual suspects on the governance and the council [of the SA Centre] who are, universities doing research and trying to find all sources of revenue to undertake the research […] there is not anyone in the [SA Centre] research committee who is not conflicted. Regardless of what board you put them on, there's going to be a conflict of interest" (HSE2).*

In summary, as a structure established on top of existing organisational structures, the SA Centre reflected existing power dynamics and potentially replicated these through its governance structures. Some specific sources of power were identified that potentially challenged the population health goals of the SA Centre. Organisations and groups located in the central Adelaide were seen to disproportionately influence the work of the SA Centre, reflecting the greater material, political and network power of these stakeholders relative to other outer metropolitan and rural and remote stakeholders. This created a perceived power imbalance between urban and rural partners within the SA Centre, diverting the focus of the SA Centre away from rural and remote health challenges. In addition, the language of some interviewees suggested that technical expertise and knowledge was an important source of power for academics who tended to be framed as the as SA Centre owners.

6.5 Chapter summary

This chapter presents the findings of a case study of the South Australia Academic Health Science and Translation Centre (SA Centre – subsequently renamed Health Translation South Australia in 2019), located in South Australia. The chapter explores the role of the SA Centre in improving population health, by examining how population health is characterised and described within the SA Centre, how population health goals are operationalised by the SA Centre, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces shaping a population health role in SA Centre.

Improving the health of the South Australian population, and especially the health of Aboriginal populations within the state, was a defining aspiration of the SA Centre. Operationalisation of SA Centre goals, including through priority-setting processes and projects funded and supported by the SA Centre, demonstrated a strong emphasis on effecting translation of research into both clinical practice and policy impact. Multiple projects were underway at the time of data collection that enacted these pathways, including the work of the Aboriginal Chronic Disease Consortium to establish chronic disease policy roadmaps for diabetes, cancer, and heart and stroke. The SA Centre was fast becoming a go-to organisation for health-related policy work in the state, and in addition to producing the chronic disease roadmaps, the SA Centre had been engaged by SA Health to evaluate major state government reforms (SA Centre 2018).

Several barriers, however, were identified that inhibited the operationalisation of population health goals in the SA Centre. First, despite holding clear population health aspirations, the overall orientation of the work of the SA Centre was on improving health care practice and policy, rather than population health. This reflected the health care -dominant organisational composition of the SA Centre. As in the TAAHC case study, this orientation detracted from a population health role because it conveyed little capacity to enact cross-sectoral activity, given that the broader social determinants of health are largely responsible for the burden of illness distribution within populations (WHO 2008, p. 1). To address this, future activity in the SA Centre might seek to integrate cross-sectoral partners (beyond health care), and further leverage the population health capabilities of existing partners (such as AHCSA), in the development and implementation of projects and initiatives.

Second, the way that the SA Centre was funded and its reporting requirements and obligations to different funders, networks and government bodies diminished the SA Centre's capacity to maintain a focus on locally determined population health priorities. For example, funding from the MRFF, while a welcome resource in the SA Centre, was linked to externally determined research priorities and supported short-term, programmatic activity that effectively disincentivised co-produced research and policy, since these generally require resource-intensive stakeholder engagement over longer timeframes. Responsiveness to local health needs and priorities is a hallmark of place-based policy approaches and requires deep understanding of social, cultural, economic, and environmental conditions that influence causal relationships between interventions and consequences (Tan et al. 2019). Such responsiveness is underpinned by co-production methods which are often time-consuming yet critical to achieving population health goals (Tan et al. 2019). To effectively deliver on locally determined population health priorities, therefore, there is a need first for a clear and unambiguous strategic agenda that defines intended beneficiaries, and second for operational resources that support, rather than diminish, this agenda. The findings from this case study suggest that a single, long-term funding stream and reporting relationship, linked directly to locally determined goals rather than externally imposed priorities, is needed to enable co-production of research and policy with stakeholders. The successes of previous work in the SA Centre such as the community engagement processes adopted with great success in the Aboriginal Chronic Disease Consortium are likely to be useful in informing these co-production approaches.

Third, although there was a broad expectation that the governance infrastructure of the SA Centre would enable achievement of its state-wide population health goals, the SA Centre did not seek to challenge power dynamics between the organisational partners or the regulative and cultural-cognitive forces that underpinned organisational silos and traditional structures of reward. Power imbalances between the organisational partners shaped a dominance of inner metropolitan Adelaide, and academic, perspectives in SA Centre planning and activity which reflected different levels of material resources, political influence, networked relationships and perceived possession of technical expertise and knowledge. As such, the SA Centre reproduced existing health system structures and relationships which limited its capacity to deliver the systems-level change needed to improve population health outcomes in the state. Although the SA Centre had demonstrated capacity for self-reflection in evaluating and restructuring its governance infrastructure, addressing these barriers is likely to require deeper and more rigorous evaluation processes that seek to understand both regulative and cultural-cognitive barriers to enacting population health -related goals. Achieving precision in the definition and interpretation of key operational terms (“translation”, “innovation”, and “research”) among core stakeholders is likely to facilitate identification of barriers and strategies to overcome them.

7. Case Study 3: Oxford Academic Health Science Centre

"Unless our model of competing structures for research, education, patient care and funding is radically streamlined, we will not realise the huge potential for improved patient care that lies within our grasp" - Lord Willis of Knaresborough, House of Lords (Hansard 2 July 2019 vol 798 c40GC).

7.1 Introduction

This chapter presents the findings of a case study of Oxford Academic Health Science Centre (OxAHSC), located in Oxfordshire, England. The chapter explores the role of OxAHSC in improving population health, by examining how population health is characterised and described within OxAHSC, how population health goals are operationalised by OxAHSC, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces shaping a population health role in OxAHSC.

The chapter first describes the study setting and context, including geography, demographics, health system features and characteristics, and the establishment history and structure of OxAHSC. Results are then presented using the three institutional pillars framework (Scott, 2014), commencing with normative elements. Within each pillar, data are analysed and presented against six deductive themes: aspirations and activities and impacts (normative); accountability at an OxAHSC level and alignment of organisational accountabilities (regulative); and organisational cultures and power dynamics (cultural-cognitive).

In the normative pillar, OxAHSC aimed to align the strategic goals of the partnering organisations towards the broader goals of: improving the health of patients locally, nationally and worldwide; and generating wealth (and improving health) through growing the life sciences industry in the Oxfordshire region and nation. These aims built on a long history of research excellence in, and collaboration between, the organisational partners which had underpinned world-leading biomedical discoveries.

Several barriers to the enactment of a population health role in OxAHSC were identified. First, notwithstanding recent efforts by the OxAHSC board and executive to strengthen its responsiveness to local health service priorities, the focus of OxAHSC was on driving excellent research for health impact anywhere in the world, rather than on driving population health improvement within the Oxfordshire region. This was reinforced by dominant university cultures that emphasised biomedical research and elevated the knowledge of university-based researchers over health service staff including clinicians and commissioners. Addressing local health system challenges such as persisting health disparities, population ageing and health system fragmentation was therefore not the focus of OxAHSC.

Second, despite initial hopes among some stakeholders that OxAHSC might be established as an entity capable of integrating the three missions of research, education and patient care in its locality, this approach had proven too difficult to enact in practice largely due to competing regulative imperatives in the partnering organisations and was not incentivised by formal government recognition (designation). As such, OxAHSC had little functional and operational capacity to drive large-scale health systems change towards either clinical care or broader population health improvement goals.

Third, OxAHSC tended to emphasise biomedical and private industry-focussed research and activity over health services, systems and population-focussed research. This deflected attention away from opportunities to conduct research and activity addressing local health and health care needs in the Oxfordshire region.

7.2 Study setting and context

Geography and demographics

OxAHSC is established in Oxfordshire, a county in South East England, UK (**Figure 15**). Around 700,000 people live in Oxfordshire, with 60 percent living in Oxford City and the county's other main towns (Dent et al. 2020). Oxford City, with 152,500 residents, is the largest by population of the five local authority districts in the county (Oxfordshire County Council 2019). Oxford is internationally renowned for knowledge-intensive industries, with health, education, research, technology, tourism, car manufacturing, and publishing being its key industry sectors (Oxford City Council 2020). Oxford also has the third highest ethnic minority population in South East England, with 26 percent of residents born outside of the UK (Oxford City Council 2020).

Although life expectancy in Oxfordshire is higher than the England average for both men and women, there are pockets of disadvantage with a life expectancy gap between the least and most deprived areas of 6.1 years for men, and 3.0 years for women (Dent et al. 2020). Within the region's hospitals, the more deprived wards experience significantly higher mortality rates than England, and the life expectancy gap between the highest and lowest wards is 16 years for males and 13 years for females (Dent et al. 2020). Further, the population of Oxfordshire is ageing with people aged over 65 making up 20 percent of Oxfordshire's four rural districts (Dent et al. 2020). Mental health diagnosis and referral rates are increasing and almost two-thirds of the adults are overweight or obese (Dent et al. 2020).

Figure 15: Boundary of Oxfordshire in England, United Kingdom

Source: Google Maps 2018

Health system characteristics

Health and social care services are provided in Oxfordshire by: Oxford Health NHS Foundation Trust (OH); Oxford University Hospitals NHS Foundation Trust (OUH); the region’s city, country and district councils; general practitioner and other primary care services; and a range of private and charitable providers. OH provides physical, mental health and social care for people living in Oxfordshire, Buckinghamshire, Swindon, Wiltshire, Bath and North East Somerset though hospitals, clinics, community locations and homes. OUH is made up of four hospitals: the John Radcliffe Hospital, the Churchill Hospital and Nuffield Orthopaedic Centre are located in Oxford; and the Horton General Hospital is located in Banbury, north Oxfordshire. The Oxfordshire Clinical Commissioning Group identifies service requirements in the county and ensures that they are provided. Oxford features prominently in the history of academic medicine, and there is a long history of collaboration between academic institutions and hospitals in Oxford. Sir William Osler, Regius Professor of Medicine at the University of Oxford in 1905, was a key proponent of linking medical education in universities with medical care in hospitals (Ovseiko et al. 2010). In addition, the discovery of penicillin in the 1940s, one of the greatest medical advances in the 20th Century, was founded on successful academic-clinical collaboration in Oxford (Wood 2010).

Establishment and structure of OxAHSC

OxAHSC is a collaboration between four organisations in the Oxfordshire county: Oxford University, Oxford Brookes University, OH, and OUH. OxAHSC achieved formal designation as an “AHSC” in the second round of designations in 2014, after applying but subsequently failing to achieve the designation in the first round. As a designated AHSC, OxAHSC was expected to:

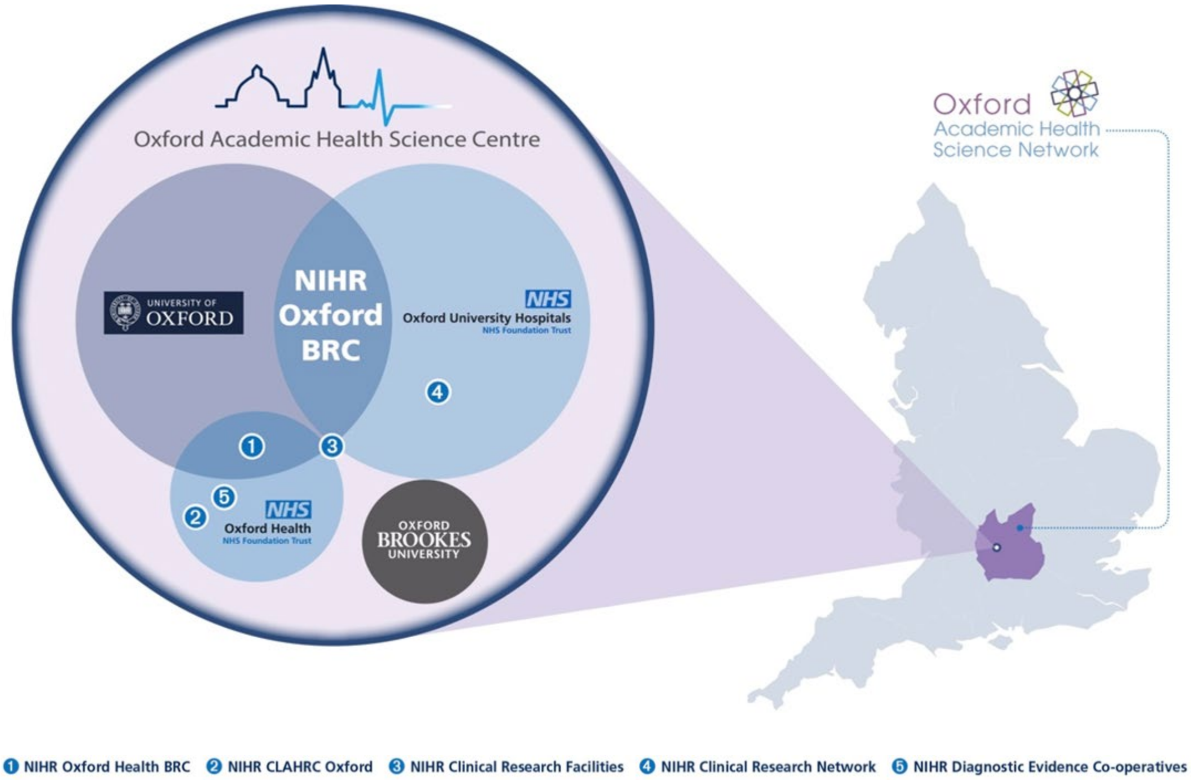
> *“combine the institutions’ individual strengths in world-class basic science, translational research, training and clinical expertise to address 21st century healthcare challenges. It will allow scientific discoveries to move rapidly from the lab to the ward, operating theatre and general practice, so patients benefit from innovative new treatments. It will also drive economic growth through partnerships with industry, including life sciences companies” (University of Oxford 2013).*

A Strategic Partnership Board comprising representatives from the member organisations was established to oversee its work across six themes: big data and clinical informatics; building NHS, university and industry relationships; modulating the immune response for patient benefit; managing the epidemic of chronic diseases; emerging infections; and cognitive health. OxAHSC’s work is also supported by a Joint Executive Group responsive for overseeing the operation and implementation of OxAHSC objectives generally and through four specialist committees dealing with buildings and estates; personnel; education and training; and research and development. A small operations-focussed office, comprised of individuals employed by one of the member organisations using funding obtained from the partnering organisations’ subscriptions, is led by a Chief Operating Officer.

OxAHSC coexists with several other health service partnerships in the region that similarly bring together combinations of university and health service partners in the Oxfordshire and broader Thames Valley regions (**Figure 16**). At the time of data collection, these included two NIHR Oxford Biomedical Research Centres (NIHR BRCs), the NIHR Oxford Collaboration for Leadership and Applied Health Research and Care (NIHR CLAHRC) and the Oxford Academic Health Science Network (AHSN). The two NIHR BRCs are research translation-focussed collaborations between Oxford University and OH, and Oxford University and OUH, respectively. The NIHR CLAHRC, hosted by OUH, is a partnership between Oxford University, Oxford Brookes University, Oxford AHSN and a range of health system organisations in Oxfordshire and the Thames Valley focussed on identifying “local and national health and social care priorities” and funding projects to address these (Oxford NIHR CLARHC, 2018). The Oxford AHSN, one of 15 across England, covers a region of three million people living in Berkshire, Buckinghamshire, Milton Keynes and Oxfordshire and is focussed on getting “innovation into clinical practice to improve patient safety, outcomes and experience, and generate economic growth through collaboration between the NHS, industry and universities" (Oxford AHSN 2020).

At the time of data collection, OxAHSC's five-year designation period had almost elapsed but the designation renewal process had been delayed to December 2019. OxAHSC intended to apply for re-designation once the new round was opened. At the time of writing, OxAHSC has successfully achieved this re-designation in April 2020 and had undergone a name change to Oxford Academic Health Partners. The original "OxAHSC" title is retained in this case study as it reflected OxAHSC as it was at the time of data collection.

Figure 16: Partnering organisations constituting OxAHSC and its relationship to other initiatives in the Oxfordshire and broader Thames Valley region (Greenhalgh et al. 2017)



7.3 Case Study 3 methods

The OxAHSC case study involved data collection between May and June 2018 from three sources: semi-structured interviews with core stakeholders; direct observation of OxAHSC activity over multiple days (recorded in research memos); and documentation, including both published and unpublished grey literature. **Table 17** shows data collection methods including interviewee characteristics in the OxAHSC case study. A total of 16 interviews were conducted representing three of the four OxAHSC partnering organisations. The study design and data collection and analysis methods were replicated across all four case studies in the broader study and are described in detail in **Chapter 4**.

Table 17: Data collection methods including interviewee characteristics in OxAHSC

INTERVIEWS (*n* = 16; female = 5, male = 11)

Average duration: 36 minutes (range: 13 to 67 min). Method: 15 in person; 1 by phone. Digital recordings: 11 digitally recorded; 5 recorded in handwritten notes.

Role type and number of interviewees*	*Role description and relationship to OxAHSC initiative*
Executives, directors, managers and project officers of AHC (EM) (*n* = 3)	Central core of individuals tasked with OxAHSC strategic decision-making and operations at executive, director or senior project/management levels.
Health system executives (HSE) (*n = 1*)	Individuals holding executive-level roles within partnering health care organisations, who are involved in OxAHSC strategic decision-making, including via membership of the OxAHSC board and/or sub-committees.
University and research institute executives (UE) (*n* = 2)	Individuals holding executive-level roles within member universities or research institutes, who are involved in OxAHSC strategic decision-making, including via membership of the SA Centre board and/or sub-committees.
Clinical academics (CA) (non-executive level) (*n* = 1)	Individuals occupying clinical roles within member organisations while also leading or participating in clinical research activity linked to OxAHSC.
Non-clinical academics (NCA) (non-executive level) (*n* = 9)	Non-clinicians employed in member organisations who are involved in research activity linked to OxAHSC.

OBSERVATION MEMOS (*n* = 4)

Features and activities observed included: co-location or distance between executive offices of OxAHSC member organisations; nature and mode of interactions between the partnering organisations; executive operating environments; and visible organisational goals. Researcher attended one Oxford University research group meeting as an observer and was an invited guest at a closed health systems-focused seminar hosted by Oxford University which involved NHS stakeholders.

DOCUMENTATION (*n* = 8)

- "Health science centre brings university and NHS closer": University of Oxford media release, 2013;
- OxAHSC Annual Report 2014/15, 2014;
- OxAHSC Annual Report 2017/18, 2017;
- OxAHSC Board meeting minutes, 2017;
- OxAHSC Board meeting agenda, 2018;
- OxAHSC Away Day Report, 2018;
- OxAHSC Research and Innovation Oversight Group Terms of Reference, 2018;
- OxAHSC News Record 2017-18, 2018.

7.4 Case Study 3 results

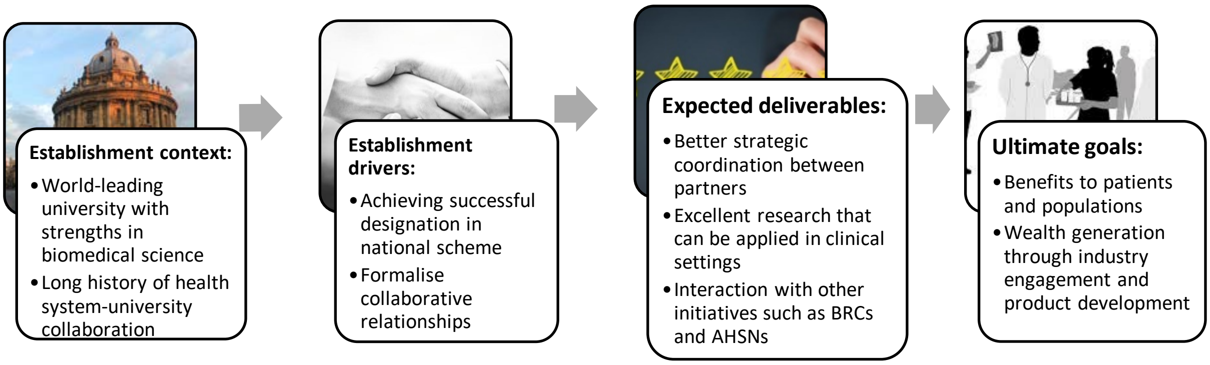
The results are supported by verbatim quotes from interviews, memos and documentation. Each interview quotation is identified using an acronym relating to profession type (executives, directors, managers and project officers of the AHC="EM"; health system executive="HSE"; university executive="UE"; clinical academic="CA"; non-clinical academic="NCA") and a number corresponding to their random order in a list of interviewees in each professional grouping. Other demographic information (e.g. gender, age and length of time in the role) are omitted to maintain confidentiality of the participants. The documents referenced in the chapter are listed in **Table 16.**

Normative forces

The normative pillar is about valued ends of effort and the legitimate means to these ends, and as such *aspirations* (shared understandings about what OxAHSC should do), and *activities and impacts* (how OxAHSC should do things and valued ends of effort) are the themes in this section enabling exploration of normative forces shaping a population health role in OxAHSC.

Aspirations. OxAHSC is normatively constructed on a shared understanding that alignment between the strategic goals of the partnering organisations will improve the health of patients and generate wealth through growth of the life sciences industry. **Figure 17** summarises the defining establishment drivers and expected deliverables and impacts of OxAHSC within its health system context, which are explored below.

Figure 17: OxAHSC's establishment drivers, goals and expected deliverables (author's graphic)



Establishment context:
- World-leading university with strengths in biomedical science
- Long history of health system-university collaboration

Establishment drivers:
- Achieving successful designation in national scheme
- Formalise collaborative relationships

Expected deliverables:
- Better strategic coordination between partners
- Excellent research that can be applied in clinical settings
- Interaction with other initiatives such as BRCs and AHSNs

Ultimate goals:
- Benefits to patients and populations
- Wealth generation through industry engagement and product development

The establishment and designation of OxAHSC built on a long history of collaboration between the university and health system partners and existing strengths in research, education and healthcare. In this context, achieving AHSC designation (referred to as the "badge") was valued as a way to recognise and build on these existing strengths and partnerships through creating a more formal structure and brand to frame the collaboration.

> *"[The AHSC designation] created an awareness – that there was a way and an importance to bringing things together, under a sort of brand. Give it focus, give it a profile. [The AHSC*

> *structure] is just formalising existing relationships and [has] created a structure which can be used" (EM3).*

> *"I'd say that the badge was way more important than anything else at the time [of OxAHSC's establishment]. To say that you are one [an AHSC] – even though you are one [already in practice] – you're Oxford, and that might sound like an arrogant statement but you can check any metric in the world, it is what it is. It's important to have that accrediting badge. And that was the point of this – it was to catch up with others" (EM1).*

According to some stakeholders, the NHS Trusts also saw the designation as an opportunity to develop, and compete with London, as tertiary facilities through building clinical academic capacity (observation memo, 1 June 2018).

Provision of a coordination and collaboration infrastructure was described by OxAHSC leaders, as well as multiple other interviewees, as one of the key functions of OxAHSC, enabling it to engage in "strategic decision-making" (NCA2). In practice, this involved a board that was representative of the leadership of the four partnering organisations which met regularly in person to discuss a range of opportunities for collaborative work (OxAHSC board meeting agenda 2018).

At the same time, reflecting the national designation scheme, a key aim of OxAHSC was to leverage this collaboration infrastructure to deliver excellent research with clinical application.

> *"[The role of AHSCs] is to cluster excellent science and innovation, and to take things to the point where they can be demonstrated to be useful in the clinic. So they are the bridge between basic research and early proof of principle, proof of effect in the clinic […] our [OxAHSC's] purpose is to cluster excellent science, teaching and clinical care" (EM1).*

A clinical academic similarly described the role of AHSCs, including OxAHSC, as being to address research translation gaps, particularly the so-called "T1" gap which is about pathways from basic research to human testing (sometimes referred to as bench-to-bedside translation).

> *"[AHSCs] are focused, essentially – they are really focused on T1. Now if you read the remit, they have a broader remit – but actually they're focused on how you translate the strengths of research excellence and translation in the world's leading universities in the UK into practice" (CA1).*

As well as driving impacts on patient health through research, OxAHSC was expected to have a role in generating benefits to the local and national economy, echoing the *health and wealth* agenda espoused in national policy documents and commitments to economic impacts in the AHSC designation criteria. Central to the idea of the health and wealth pairing in Oxford was the notion that "industry", referring to private for-profit life sciences companies, would both drive and benefit from the work of OxAHSC. As one university-based academic reflected:

> *“I don't know what the motto is for the [Oxford] Academic Health Science Centre but it’s definitely bringing wealth and health, so there's this massive impact on both. And many of those improvement initiatives [led by OxAHSC] have very strongly industry and industry benefit in mind” (NCA6).*

In parallel, OxAHSC’s existence as a collaboration between publicly funded entities was seen by some to establish a moral responsibility to improve health systems within Oxfordshire and the nation.

> *“Do we have a bit of responsibility, since we work within the UK and are partly publicly funded, to try and work out how best to produce desirable change for health systems? Of course we do. And part of that is partnership working, and part of it is: can we come up with a sense of the way that we prioritise things better than we currently do?” (UE1).*

OxAHSC had established six research themes which were “designed to address healthcare challenges as opposed to individual condition-focused research programmes” (Away Day Report 2018). These were (OxAHSC Annual Report 2018-18):

- Theme 1: Big Data and Clinical Informatics;
- Theme 2: Building NHS, university and industry relationships;
- Theme 3: Modulating the Immune Response for Patient Benefit;
- Theme 4: Managing the Epidemic of Chronic Disease;
- Theme 5: Emerging Infections; and
- Theme 6: Cognitive Health.

Across the themes, a major focus was on supporting translation and innovation through the OxAHSC partnership (OxAHSC Annual Report 2018-18; Away Day Report 2018). At the time of data collection, discussions were taking place among members of the OxAHSC leadership about re-working some of the themes to better capture emerging priorities and challenges (Away Day Report 2018). An agreement among the OxAHSC leadership had also been reached to increase the focus of OxAHSC on prevention of poor health in Oxfordshire, which also leveraged industry partnerships:

> *“It has also been noted that there should be an increased focus on early detection, diagnosis and prevention for patient benefit and the resources across the partners and the local life sciences communities should ensure that the Oxford AHSC can have a major role in this area. Plans are already in place to take this forward through intelligence gathering locally” (Away Day Report 2018).*

An OxAHSC executive described the potential for OxAHSC to provide an “academic umbrella” over the health system in Oxfordshire to enable exploration of health problems that went beyond hospital care provision (EM3). In the eyes of this interviewee, this approach could potentially involve identifying opportunities to involve research disciplines other than medicine in the research process.

> *"AHSCs are not limited to health disciplines; they are not limited to evaluative research. They should leverage all sciences and all disciplines to solve healthcare problems" (EM1).*

OxAHSC's existence within an ecosystem of similar initiatives also shaped normative expectations about its role. One interviewee referred to the role of AHSCs as being partly defined in relation to the NIHR BRCs: while the actual conduct of "translational research" is led by the NIHR BRCs, the AHSCs are positioned to facilitate collaboration and coordination between the academic and health service organisations involved to enable the translation process.

> *"The Biomedical Research Centres were about translational research, [whereas] the AHSCs were supposed to be the fora in which the institutions talk to each other – the hospitals and the universities. So it was never set up as a research [entity]" (EM2).*

The work of AHSCs, including OxAHSC, was also intended to feed into that of the AHSNs, which were meant to be about diffusion and dissemination of the products coming out of the AHSCs.

> *"OxAHSC is embedded within the recently designated Oxford Academic Health Science Network. This will enable the swift uptake, adoption and translation of research outcomes, innovations and improvements in healthcare practice across this wider geography" (University of Oxford media release 2013).*

> *"That's what an academic health centre should do. To create that environment to pull those ideas up from everywhere, internally and externally. And allow you to nurture and develop and then push out to the AHSNs" (EM1).*

The co-existence of these multiple, similar entities, however, obscured some stakeholders' understanding of the value and purpose of OxAHSC. A senior academic, for example, despite their close involvement with one of the NIHR programs, reflected that they were unsure of the role of both OxAHSC and the Oxford AHSN:

> *"I think they're sort of nebulous to be honest. I think most people are aware of the AHSN which is much more NHS-facing […] I think it's such a nebulous concept that most of us don't really know what they're really up to […] I think that it was the Academic Health Science Centre [that] was set up as a partnership between the NHS and the universities more broadly. And it was never quite clear what the focus for that was" (NCA4).*

Compounding the uncertainties, the structures and missions of each of the entities appeared to change quite frequently (observation memo, 30 May 2018). There was also a sense of resignation among some interviewees at the constant introduction of new initiatives that offered unclear benefits.

> *“It's a bit like that the way that the NHS has evolved – there's a lot of different bits and you wonder really whether they're all functioning appropriately and whether it's an appropriate way to organise stuff” (NCA4).*

Reflecting on another new government initiative called the “sustainability translation partnerships”, one interviewee expressed an intention to ignore it and just continue with their usual work:

> *“[I’m] just ignoring it. [It’s] just another idea […] You know once every six months somebody has a dumb idea. But that’s fine” (EM2).*

In summary, OxAHSC is normatively constructed on a shared understanding that alignment between the strategic goals of the partnering organisations will improve the health of patients locally, nationally and worldwide, and simultaneously generate wealth through growing the life sciences industry in England. The purpose of OxAHSC had been shaped by its existence within an ecosystem of similar initiatives. These related initiatives, like OxAHSC, aimed to effect greater strategic alignment between partners towards research translation and innovation goals at different points in a translation continuum (from discovery science to diffusion of innovation across a health system). As such, the role of OxAHSC as a structure that facilitates and aligns strategic effort as part of a broad “translation” agenda is shaped by related initiatives, such as the NIHR BRCs and Oxford AHSN.

Activities and impacts. Activities, along with reported impacts attributed to OxAHSC, represented legitimate means to valued ends, showing how OxAHSC stakeholders sought to frame and operationalise its goals. In addition, expectations of the types of indicators that could be used to measure the “success” of OxAHSC were communicated by interviewees or were evident in documentation, which also reflected norms and values of core stakeholders. These normative forces were important in shaping the role of OxAHSC because, apart from some broad reporting fields that OxAHSC was required to address as a designated AHSC in annual reports (described in elsewhere in this chapter), the initiative was not required to report on any specific key performance indicators. As shown in **Table 18**, planned activities relating to impact in OxAHSC spanned all the CAHS (2009) impact categories. The examples in the table are summarised as impact indicator types in the final column.

Table 18: Activities, impacts and definitions of "success" in OxAHSC

Impact Category	Examples of "what success looks like"	Examples of activities and impacts	Types of impact indicators suggested
1. Advancing knowledge	"Bring cutting edge methodology to bear on the most preoccupying and fundamental clinical uncertainties" (OxAHSC 2017-18 Annual Report). "Combine routine clinical data with epidemiological and laboratory science" (OxAHSC 2017-18 Annual Report).	"Recruitment of over 1000 patients in 37 sites across Europe for a study of pathogenesis of acute respiratory infections" (OxAHSC 2017-18 Annual Report). "An international research collaboration studying the genetics of Zika virus in Brazil and beyond has provided a new understanding of the disease and its rapid spread through space and time" (OxAHSC News Record 2017-18). "Development of a new type of imaging test to provide an early warning of coronary artery disease, and the risk of heart attacks" (OxAHSC News Record 2017-18). "The AHSC has been around for five years. In that time, it has coordinated and boosted research" (NCA2).	Progress and findings of research studies in OxAHSC themes
2. Building capacity	Provide "a real world, pragmatic research environment to study long-term conditions and care in Oxford" through the "OX4" project (OxAHSC 2017-18 Annual Report). "Things like AHSCs [build on a…] recognition that you have to actively seek ways of getting tribes working together more effectively" (UE1).	Active coordination of partnership activities (e.g. funding applications) (OxAHSC 2017-18 Annual Report). Oxford named as "one of six sites to receive funding as part of the Medical Research Council Health Data Research UK initiative" (OxAHSC 2017-18 Annual Report). "A number of companies secured additional funding including Vaccitech (£20m), OxSyBio (£10m) and Oxford Vacmedix (£20m)" (OxAHSC 2017-18 Annual Report). Created a virtual institute in digital health that "brings the expertise of partners into a single programme" (OxAHSC 2014-15 Annual Report). "The AHSC has provided a governance role, that's not in doubt" (UE2).	Enhanced collaboration between the four partnering organisations Enhanced platform for patient-focussed research Creation of new collaborative initiatives Enhanced access to financial resources Industry engagement

3. Informing decision-making	“Allow scientific discoveries to move rapidly from the lab to the ward, operating theatre and general practice” (University of Oxford media release 2013). “Pioneer the development and national implementation of scalable psychological therapies innovations” (OxAHSC 2017-18 Annual Report). “[The role of OxAHSC is to be] the bridge between basic research and early proof of principle, proof of effect in the clinic” (EM1). “Our focus will be to transform healthcare for the benefit of patients and their carers, both locally and globally” (University of Oxford media release 2013).	“Digital health programmes are being rolled out by the AHSN, and locally by OUH and OH, to support the management of patients with mental illness, chronic disease, gestational diabetes, and to track severely ill patients in an acute hospital setting” (OxAHSC 2014-15 Annual Report). “The close physical and intellectual collaboration between clinical and academic researchers provides an innovative, fast-paced, evolving approach to translational medicine that results in significant advances in patient treatment and care” (OxAHSC 2017-18 Annual Report) Establishment of a “Research and Innovation Oversight Group” (RIOG) to coordinate translation-focussed initiatives in OxAHSC (RIOG Terms of Reference 2018). Establishment of a charitable organisation in OxAHSC to enable social care, primary care and public health organisations to become more involved in OxAHSC (EM1).	Facilitation of translation of research outputs into clinical settings
4. Health impacts	“Everything says it’s about producing better outcomes for patients, or better health services, or better patient experience” (NCA2). “We exist to cluster the excellent science that might be applied in Blackpool, maybe it will be applied in Zimbabwe” (EM1).	*No specific impacts attributed to OxAHSC.*	Improved patient health locally, nationally and internationally
5. Broader socio-economic impacts	“OxAHSC will be a major boost for the life sciences sector in Oxfordshire and wider Thames Valley” (University of Oxford media release 2013).	“Oxfordshire has become the dominant biotech cluster in the country” (OxAHSC 2014-15 Annual Report). Between 2014 and 2018, 31 “spin-out” companies were established in Oxford that reportedly brought in £134 million (OxAHSC 2017-18 Annual Report) “The partners have contributed significantly to the interface with industry, using novel approaches to engage and support economic growth in the Life Sciences” (OxAHSC 2014-15 Annual Report).	Growth of the life sciences sector in the region and England

A wide range of activities and impacts were identified in documentation and by interviewees, which mapped particularly to the *advancing knowledge*, *building capacity* and *informing decision-making* impact categories. Multiple examples were reported of actual impacts in these categories – these reflected individual research project outputs, and platforms and products of collaborative effort. Patients, located locally or anywhere in the world, were positioned as the major beneficiaries of this work. An example of locally focussed work was the "Ox4" project, which aimed to improve chronic disease care among disadvantaged population groups within Oxfordshire (OxAHSC 2017-18 Annual Report). An example of more globally focussed work included efforts to apply big data techniques and genomics to investigate antimicrobial resistance (OxAHSC 2017-18 Annual Report).

Informing decision-making and *health* impacts were mostly represented by aspirational statements about the translational role and focus of OxAHSC on clinical settings and patients, but no evidence was reported of specific health impacts that were attributed to the work of OxAHSC. Nonetheless, activity was underway at the time of data collection to better facilitate research translation to maximise benefits of OxAHSC's work for patients and populations (Away Day Report, 2018). An example of this activity included work led by OxAHSC executive staff to undertake more detailed planning about pathways and resourcing of the "implementation of innovation":

> *"Where steps need to be taken to facilitate development or implementation of the innovation, then the partners would agree to coordinate resources to support this" (Away Day Report 2018).*

This activity included establishment of a "Research and Innovation Oversight Group" (RIOG) to coordinate the various translation-focussed initiatives to better support ongoing AHSC accreditation and interaction with NIHR infrastructure such as the BRCs:

> *"The RIOG is responsible for coordinating and overseeing strategic and scientific direction of collaborative research undertaken by the AHSC partners and for promoting the 'pull through' of research from basic discovery to translation, evaluation and implementation leveraging resources such as the NIHR infrastructure […] The RIOG will ensure that research activities across the AHSC partnership are coordinated to meet the requirement of AHSC accreditation demonstrating plans for nurturing innovation from discovery to applied evaluative research and enabling implementation" (RIOG Terms of Reference 2018).*

Broader socio-economic impacts focussed predominantly on growth of the life sciences industry in Oxfordshire, with examples reported of how OxAHSC had enhanced industry engagement through the creation of "spin out" companies (OxAHSC 2017-18 Annual Report).

Overall, however, the extent to which the OxAHSC initiative had itself enabled, facilitated or driven particular impacts (as distinct from the partnering organisations) was difficult to determine, particularly as data on impacts were reported in diffuse narratives (rather than as progress against specific targets) within the annual reports. At the time of data collection, the Department of Health was considering future evaluation frameworks for AHSCs as part of a national innovation review (letter to AHSC Board Chairs, May 2018). In parallel, the OxAHSC leadership had recently identified a need to more systematically coordinate and track the activity and impacts of OxAHSC where these related to “innovation”:

> *“Currently the four partners do not have a formal coordination mechanism to track the progress of innovation as it is further developed within the AHSC. The proposal is that where an innovation is developed and evaluated by two or more of the partners, this should be tracked by a group or person on behalf of the AHSC Board” (Away Day Report 2018).*

In summary, activities of OxAHSC, combined with reported impacts, demonstrate the value placed within OxAHSC on coordination and alignment between partners to support research excellence and its translation in clinical settings. There was also a clear focus in OxAHSC activity on achieving *broader socio-economic impacts* through facilitating life science sector growth, including biotech commercialisation pathways. Because data on impacts were not clearly reported in annual reports, however, it is difficult to attribute activity and reported impacts to OxAHSC rather than any one of the partnering organisations. Indicating that this was a limitation recognised by others, both the Department of Health and the OxAHSC board and operational team were developing processes to more deliberately capture impacts ongoing in the future.

Regulative forces

Regulative forces are about rule-setting, monitoring and sanctioning process which are attempts to control and shape behaviour. Regulative forces shaping a population health role in OxAHSC are reflected in the themes of *accountability at an OxAHSC level* and *alignment of organisational accountabilities*. These themes enable examination of regulative forces firstly at the OxAHSC level, and secondly at the level of the member organisations in OxAHSC.

Accountability at an OxAHSC level. As part of its designation as an AHSC, OxAHSC was required to report annually against a set of broad activity fields. The collection and reporting of data for this purpose was undertaken using a proforma containing a small number of data fields that mirrored the designation criteria, which included (OxAHSC Annual Report 2017-18):

- Aligning the strategic objectives of the NHS provider(s) and university(ies) in order to harness and integrate world-class research, excellence in health education and excellence in patient care;
- The AHSC’s contribution to economic growth and the economy; and
- Leadership, strategy and governance arrangements.

These regulative requirements aligned closely with the normative forces shaping the role of OxAHSC by emphasising collaboration among partners to drive research and clinical care excellence, and wealth generation in the broader economy.

As OxAHSC did not receive any funding from the Department of Health as part of its AHSC designation, funding for the initiative came from the partnering organisations' subscriptions and was supported through other initiatives such as the NIHR BRCs and AHSN (although the latter sources supported specific, discrete work that responded separately to NIHR BRC and AHSN requirements). Subscriptions from the partners were minimal and were predominantly used to support the small OxAHSC operational team (EM3). As such, OxAHSC's approach to governance was described as "light touch", which meant that the partnering organisations retained their individual governance arrangements but, through the OxAHSC board and executive group, were able to "raise items together and to take decisions" (OxAHSC 2014-15 Annual Report). The small quantum of funding, however, made it difficult for OxAHSC leaders and managers to establish a strong OxAHSC "mandate":

> *"Without funding, without a resource, they've not got a mandate to be something more than they are; they [AHSCs] are just a bash. And you're not going to get that mandate in Oxford for sure, or any time soon" (EM1).*

> *"They've not been properly funded – until they're properly funded, people don't take it seriously. And until you say 'here's the budget for the AHSC', people end up doing it on the side as opposed to their main job" (UE2).*

Although OxAHSC was seen by some interviewees to be relatively under-resourced when compared with other AHSCs in England, limited funding, combined with relatively broad reporting requirements, were challenges seen to be facing all AHSCs in England. One interviewee suggested that the creation of AHSCs, as well as AHSNs, in the UK was actually a government strategy to compensate for historical health system errors, but without the necessary funding:

> *"I think this country's struggling because they keep destroying the architecture and they haven't really put structures in place that work. And I see the AHSN and the AHSC as kind of trying to replicate what's been lost but in a disguised way without anybody funding it or actually making it accountable" (UE2).*

From a population health perspective, these limitations, as well as the mandates of the partnering NHS Trusts, created structural barriers to a population health role in OxAHSC. The partnership was not inclusive of sectors outside of health care, which limited its organisational capacity to meet its population health goals. The partners, for example, positioned patient care as their primary focus rather than addressing the distribution of population health outcomes within Oxfordshire. Recognising this as a potential limitation from a broader population health perspective, core stakeholders within OxAHSC had madeefforts to include primary care, social care, and public health organisations in the Oxfordshire region within the OxAHSC partnership, culminating in the establishment of a Charitable Incorporated Entity to create a new definition of membership. This followed an early directive by the Department of Health that these organisations should not be part of OxAHSC, which indicated that, from the perspective of the government, OxAHSC was never intended to deliver on a population health role, beyond driving excellence in research and clinical care. By establishing the Incorporated Entity, therefore, the OxAHSC board and executive had commenced a process of extending the role of OxAHSC beyond these government expectations to bring in other organisations and make it more responsive to population health priorities in Oxfordshire.

> *"The reason we don't have primary care and social care [as OxAHSC partners] is that the Department at designation did not allow for it […] it was a purposeful split. We actually asked, can we have primary care? [They said] No […] The way we are getting around it is by creating a vehicle – a charitable organisation – for which I have invented a new definition of membership and that allows me to have social care and primary care as members of the AHSC" (EM1).*

In summary, OxAHSC, as a designated AHSC in England, reported to the Department of Health against a set of broad activity categories that were well aligned with its normative goals. Resourcing was primarily from partner organisation subscriptions which supported a small operational office and "light touch" governance infrastructure. Noting that the extent of OxAHSC's mandate was effectively limited by the composition of its partners, the OxAHSC board and executive had sought to establish an Incorporated Entity to involve a broader range of health system organisations in OxAHSC andto better align the composition of partners in OxAHSC with a more locally focussed and population health -oriented agenda.

Alignment of organisational accountabilities. Although members of OxAHSC, the four partnering organisations retained their independence as separate organisations, which sometimes conflicted with the normative goals of OxAHSC. The separate organisational accountabilities were described as creating barriers to the innovation and translation goals of OxAHSC:

> *"There are inherent conflicts in the statute, in the cultures, in the drivers, and desired outcomes, KPIs, metrics etc [between the partners]. And so you can't innovate effectively in that system until you have addressed those" (EM1).*

Another interviewee similarly described the separate regulative accountabilities of the partnering organisations as each existing in a "parallel universe", with few incentives to align efforts toward shared goals:

> *“The parallel universe is that there are lots of people here who don't really see what the hospital’s doing and there are also people in the hospital who don't understand what's happening here [in the university]. And that's a combination of partly the funding aspect of, ‘I've got to get my grants, I've got to get my papers in, and that's my focus and the rest is peripheral’. And if you're sitting in the front door of the hospital you've got to get Mrs Jones sorted out – and whatever the research says – she’s sitting here in front of me I've got to get her moved on” (NCA4).*

Regulative incentives, such as rewards for publications and grants, within the university partners tended to drive a focus on traditional academic impacts over translation and innovation in clinical settings. A clinical academic, for example, reflected on the barriers they encountered trying to focus their research efforts on “implementation” and clinical “impact”, despite the introduction of national reward schemes for research impact in the university sector:

> *“There's very little – few incentives for researchers to do what I have done: to step across and do the implementation. And in fact there’s many disincentives to doing it […] because universities don't want you to do it. They say they do around the impact case but they don't really, they just want the paper you produced which needs to be able to show it’s been adopted. That's not the same as you doing it. The impact is problematic because the impact cases – you don't have to show what you did to get the impact you just have to show it had impact. Mostly universities do nothing to ensure impact. They do absolutely nothing” (CA1).*

In parallel, the short-term budget and reporting cycles within the health service partners in OxAHSC were seen to inhibit research efforts, because these regulative constraints meant that research was not embedded as core business. In the eyes of one interviewee, this was a problem for the NHS because it meant that it was a recipient of something (research) that it had little involvement in producing.

> *“[Research] isn’t seen as core business [in the NHS] and of course if it is competing with its other priorities like treating people, it's always going to lose out. And yet it [the NHS] is the ultimate recipient of research. If there is any benefit in research, it will only translate into clinical settings. So you've got that huge mismatch there, where the structure that ought to most benefit from the research has the least stake in its generation or its implementation” (UE1).*

In an environment where research was not core business, clinicians found it difficult to find the time to do research, and even if they did have time, research skillsets were often lacking.

> *"I think if you talk to most GPs, and most hospital doctors, they are pretty busy. And very few of them can get to step back and think about it [research]. And probably, maybe they don't have the right skillset to do it" (NCA4).*

Growing budgetary pressures within the NHS organisations were making finding the time for research and research training even more challenging (observation memo, 5 June 2018).

At the same time, interviewees reflected on a series of pressing health challenges facing the Oxfordshire health system. One interviewee reflected that there was an urgent need in the region's health system to re-think health care provision to better manage frailty, multi-morbidity and population ageing:

> *"How do you provide first rate healthcare in a setting where resources are limited? And actually the other problem here is – we are dealing largely with very old people now, and so it's more to do with how we manage frailty and ageing rather than how we manage clinical care to some extent" (NCA4).*

Other challenges included health service fragmentation and health workforce shortages due to the relatively high cost of living in Oxford.

> *"The reality is you've got – we've got a variety of problems, the first is that – first of all, admitting and discharging people too quickly […] Second problem is that we are not providing the primary care gatekeepers that we always used to […] and then critically of course the GPs have got no control over social care. So it's fractured between the hospital and the GPs, and between hospitals and the district nurses and the social care providers, so there's a lack of integration" (UE2).*

> *"Oxford's a bit unusual because it's an expensive place to live, and the salaries are the same wherever you work in the NHS. So attracting people in – particularly lower salaried people in to work here - it's very hard which leads to shortages" (NCA4).*

These local health service and population health priorities and needs, however, were seen to be a somewhat lesser priority within OxAHSC because research strengths in Oxford tended to be in the area of biomedical research and, increasingly, commercialisation-focussed industry engagement. Some academics thought that OxAHSC should be more responsive to local health needs and priorities, expressing concern that OxAHSC was more interested in building the life sciences industry and accessing commercial funding than in improving health care or health systems in the Oxfordshire region.

> *"Oxford is more focussed on improving wealth, and through that you improve health […However], bringing in pounds is a million miles away from being socially responsible […] Oxford's line is we are very good at innovation – through that we create jobs and improve the*

> *region's health. [But that is a] very different framing to 'how are we going to help ageing populations who can't access health care?'" (NCA7).*

> *"Part of the thing that it [OxAHSC] could focus on is how you engage social care with NHS care for example. I don't think they [the AHSC] are doing that […] people could say, 'what would be the most remarkable innovation?' It would be to sort that out. How do we deal with old people who don't need to be in hospital? And how do we care for them in the community? All that sort of stuff" (NCA4).*

Recognising this gap, OxAHSC leaders had identified a need to better align research activity and health service priorities and had articulated an intention to address this in the future. Specifically, OxAHSC leaders had agreed to a body of work focused on how to "address the translation gap in Oxford and how it can be bridged" (Away Day Report 2018,).

> *"One issue raised was the mismatch of research activity to the priorities of the health service. The was a sense that often solutions were being developed without a clear problem to address and that there needed to be better communication between provider partners and the academic partners to identify priority areas for research and to create the necessary pull through to clinical practice" (Away Day Report 2018).*

In parallel, a dedicated group of implementation science researchers in Oxford University were working on evaluating AHC initiatives, with the group active in building the evidence base on AHCs (including examination of challenges relating to regulative alignment between partners) following OxAHSC's first designation attempt in 2008 (observation memo, 5 June 2018)

In summary, a misalignment was apparent between the translational research agenda of OxAHSC and regulative forces in the member organisations. Where the university-based researchers tended to be rewarded for traditional academic impacts over translation and innovation in clinical settings, research-interested clinicians in the health service partners contended with the challenge of research not being core business, and therefore not well supported. Despite the need for several pressing health system challenges and priorities to be addressed in Oxfordshire, OxAHSC had tended to focus attention towards biomedical research excellence and growing the life sciences industry, rather than improving health care or systems in the region. This was a disconnect also recognised by some OxAHSC leaders who, at the time of data collection, were working towards better strategic alignment towards the goal of having patient health impact within the Oxfordshire region.

Cultural-cognitive forces

Cultural-cognitive forces shaping a population health role in OxAHSC are reflected in both *organisational cultures* and *power dynamics*.

Organisational cultures. Different cultures were apparent within the separate OxAHSC partnering organisations, which to some extent reflected the separate regulative controls imposed on each of them. As one interviewee observed, the current roles and structures of the OxAHSC partners are strongly informed by their environment and history (NCA3). A challenge for OxAHSC, as noted above, was that the university partners were felt by some to undervalue health systems research with a more dominant focus on world-leading, biomedical research and translation. This likely reflected the historical achievements and ongoing successes of biomedical research in Oxford University, which attracts the best and brightest from all over the world.

> *"Here we are – number one medical school in the world – the students we have are just mind-blowingly clever, and when they qualify, what many of them want to do is they want to create new companies. They want to create new drugs for patients or new devices or new biomarkers" (NCA5).*

One interviewee described a disproportionate focus within Oxford University, and by extension OxAHSC, on cutting-edge basic science compared to implementation science and health systems research, with "innovation" in Oxford taking the shape of a tadpole, with the head representing the "big molecular focus" and the tail representing clinical trials, which tended to be more of an afterthought (NCA7). This was described by another interviewee as a national problem that manifested in over-prioritisation of "research" over "development"; addressing this was likely to require deeply ingrained academic cultures to be challenged.

> *"If you look at R&D [research and development] in a typical company system, you put about half your money in the 'R' and half your money in the 'D'. We [England] put 99.9 percent of the money in the 'R' and 0.1 percent in the 'D'[…] the thing we are saying now is you've got it all wrong in terms of the amount of money you're putting in. So this is very uncomfortable – people don't like it. And the research community particularly don't like it" (CA1).*

Because it tended to be less emphasised in the university setting, there was some uncertainty among some academic stakeholders about where "implementation" fit into the research cycle, whether as part of OxAHSC or more generally. One interviewee, who held a role that interfaced with both a health service and university organisation in OxAHSC, observed that some senior university-based researchers in OxAHSC did not see implementation of research in clinical settings as part of their role:

> *"The researchers' answer [to the question of why research isn't being implemented] is that 'it's not my problem, that's your problem, the NHS. You're not implementing it.' The researchers say this all the time" (CA1).*

A university-based interviewee indeed reflected that researchers had neither the funding to engage with NHS problems nor the capability to drive change within the NHS; as such, health service -focussed implementation research was decidedly not their role:

> *"Is it the role of the academics to solve the [NHS's] problems? Absolutely not. Because we spend 145 billion pounds a year on the NHS, and if I even began to think that part of my role [as an academic] is sorting out [health service] practice, I would fail in absolutely everything […] because these are macro issues over which I have very little influence or control […] The health system thinks that they should determine the research priorities that are then implemented […] but if these are people who don't understand research or how you articulate working things out, then that might not be very sensible" (UE1).*

Several interviewees expressed the view that health service staff (whether clinicians, executives or commissioners) did not have the requisite research skills to lead research, or even determine service-related research priorities. As such, they needed to be educated not only about how to do research, but also about the benefits of research – in order to temper any misapprehensions about what could be delivered through research.

> *"I think our job as academics is to communicate the benefits of some of these [research-related] things to people who believe they are victims or they're not getting any benefit" (NCA5).*

In contrast to earlier statements indicating that implementation research should not be the role of university researchers, one interviewee argued that because NHS clinicians and administrators tended have less understanding of research, it should fall to the university-based researchers to think about implementation:

> *"We [researchers] have to tell people [executive and clinical staff in the health service organisations] what they need, really. Because they're not very good at telling us what they want […] I mean commissioners, providers you know – how can I help you? What do you want? It's an absolute waste of time" (CA1).*

According to this interviewee, university-based researchers should lead research translation efforts because they were more capable than health service staff at identifying priority areas for, and delivering, implementation-focussed research.

While differing slightly, these views all reflected a cultural tendency among the academic stakeholders in OxAHSC to value certain types of (academic) knowledge over others; which led to their knowledge being taken for granted as superior to that of clinicians and other staff in the health service. This perceived knowledge imbalance between health service staff and university-based researchers drove expectations about roles and responsibilities of key actors relating to the translational goals of OxAHSC, including an assumption by researchers that health service staff were unable to lead research or even identify key priorities for research. This culture also led to a perception that, because it did not conform to traditional definitions of research excellence, health services research that responded to local needs and priorities was generally not their role.

Such views reflected a linear, biomedical conception of research translation which was reinforced by the positioning of OxAHSC relative to other translation-focussed organisations in the region (such as the Oxford AHSN which aimed to effect broader adoption and diffusion in the NHS). As noted earlier, OxAHSC was normatively positioned somewhere towards the biomedical discovery and bench-to-bedside end of the translational continuum. This linear model may have contributed to reinforcing cultural boundaries between different organisations at different parts of the continuum.

The linear conception of research translation, however, was challenged by some in OxAHSC who thought it obscured the true complexity of translation processes and incorrectly gave the impression that OxAHSC operated within an interconnected translation system, which was not the case. Expressing frustration at the linear model, an OxAHSC leader explained that it had likely been perpetuated by a diagram developed by the NIHR to describe how the multiple translation-focussed initiatives in England (including NIHR BRCs, AHSCs, NIHR CLAHRCs and AHSNs) were positioned on a translation continuum:

> *"The NIHR diagram is something which I would love to be removed from the history books. Linear innovation is a fallacy […The NIHR] is not a system, it's just a bunch of funding initiatives under one umbrella. And they don't link up and they don't pull through effectively. So it is not possible to say that the scaling factors are there. You can't necessarily scale from a project to a program to a BRC to a CLARHC to an AHSC to an AHSN. That's the theoretical framework. And it would be awesome if it worked that way. But in reality it's in and out of each one all the time" (EM1).*

This comment indicated that the concept of "translation" was subject to different interpretations among stakeholders in OxAHSC.

In summary, different cultures were apparent within the separate OxAHSC partnering organisations, which to some extent reflected the separate regulative conditions within each of them. There was a sense that Oxford University drove a disproportionate emphasis in OxAHSC on cutting-edge basic science compared to implementation science and health systems research, and that this reflected a national pattern of support and funding for "research" over "development". While the key normative concepts of translation and innovation were widely supported in OxAHSC, university-based researchers tended to see themselves as responsible for research while seeing clinicians and health services administrators as responsible for implementation, reflecting a perceived knowledge imbalance between academics and clinicians. Linear conceptions of "translation" may have contributed to reinforcing cultural boundaries between different organisations at different parts of a translation continuum.

Power dynamics. The structure, role and operations of OxAHSC were also influenced by power dynamics between the OxAHSC partners. These forces helped to shape OxAHSC's existence as a strategic coordination, rather than an integrated, entity. During the establishment phase of OxAHSC, the partners were unwilling to cede financial and political sources power that constituted their respective academic and clinical domains.

> *"Some of the university departments – particularly medicine – were threatened by the idea of coming together with the hospital, whereas they were quite happy to show that the university could lead. They were frightened that the hospital would somehow drain their financial resource […] They were frightened that if they took on this responsibility of clinical care then somehow this research budget which is funded through teaching and research would somehow go to a black hole of clinical care" (UE2).*

Although a variety of governance models were discussed at the time of establishment, including with reference to University College London which had developed a more integrated structure, there was a concern within the establishment phase of OxAHSC that changing the power dynamics (and regulative accountabilities) might cost Oxford University financially. This drove the establishment of OxAHSC towards becoming a less challenging strategic coordination entity (enabling information flows and master planning), rather than an integrated entity responsible for delivering on the tripartite mission.

> *"[OxAHSC] is more a coordination and information flow between the four big organisations so it's a question of making sure everybody knows what's going on and what's important […] in terms of everything – in terms of master planning of estates in terms of – in fact it doesn't really impact on the research agenda [...] It can be anything. It can be to improve services, to develop strategic plans around where you're going to put buildings and organise transport, or lab research engagement and interaction […] the AHSC coordinated that but we didn't actually do any of the work, everybody else did the work" (EM2).*

One interviewee explained that OxAHSC had eventually "landed" on this coordination, rather than integrated, governance model following its initial failure to achieve formal designation as an AHSC in the first round:

> *"So the model we've landed on is to use Oxford's convening power – it's more of a facilitating AHSC than anything else. And so the Board is able to say 'we want this to happen, let's go and make it happen'. We don't insist on it or route things through departments. That's where we've landed comfortably" (EM1).*

In the eyes of this interviewee, the initial failure of OxAHSC to achieve designation (or the NIHR "badge") was due in part to the challenges involved in trying to change pre-existing relationships and power dynamics.

> *"When you come to a panel meeting and fall out in public, as a prestigious academic institution, and a large teaching hospital, it's not a good thing. And so you don't get your badge. And so you've got to re-stock – you've got to step back and think – what have you got to do? So a lot of realignment went on […] There was lots of work done […] to try and educate the partners around how you create one of these things [an AHSC] – but Oxford is Oxford, and doesn't really partner as well as the others" (EM1).*

As a result of the failed initial designation attempt, the leaders of the partnering OxAHSC organisations built from the experience and pared back an initially ambitious partnership agenda to make it more palatable to the partnering organisations (UE2). The pathway from this initial failure to its eventual designation was therefore one which involved some compromises to the initial OxAHSC vision as well as some leadership changes.

> *"What [the current OxAHSC Chair] did was essentially force a structure over the top of [the partnering organisations] and said 'we're doing these six areas of science, and we're run this way, and that's what we're gonna do'. And then [the Chair] presented and we got the badge. And that's an example of how sometimes you have to do things here […] sometimes in Oxford, you need somebody with sufficient power to make that fundamental shift […] The way we did it was very forced, was very top down, was very this is [the Chair's] view, but the content came from the scientists, the content came from the community" (UE2).*

Although the compromises led to eventual success, the initiative was seen to have had lost some of its initial transformative promise in terms of delivering on the potentialities of being an AHC.

> *"The re-bid arguably – and I'll be very critical here – it was very well done it was very impressive it did the trick – it got the designation, but it hasn't done the things that I think an AHSC needs to do in terms of its primary objective. Having said they've set up some exciting programs that attracted the international panel. But in a way it was about avoiding the too difficult-to-do" (UE2).*

While OxAHSC was seen by this interviewee to be delivering high profile and important projects, the eventual pursuit of a coordination approach rather than a more integrated governance model meant that "it [OxAHSC] is not providing teaching, research and clinical care" (UE2) – attributes that characterise the US model of AHCs and which are reflected in their definitional tripartite mission. According to this interviewee, such a model is transformative because it involves specific funding and an executive accountable to each of the three, integrated missions (UE2).

OxAHSC's coordination role was still influenced by power dynamics between the partnering organisations. Differences in relative reputations and resources of these organisations influenced the nature of relationships. . For example, OH traditionally had a significantly smaller research budget than OUH and fewer clinical academics, which affected the nature of interactions in the OxAHSC board (EM1). The nature of the relationship was also influenced by the recent awarding to OH of an NIHR BRC as the second among the OxAHSC partners (with the first led by OUH (researcher notes, 1 June 2018)). Similarly, one interviewee reflected that there was a resourcing imbalance between Oxford and Oxford Brookes universities within OxAHSC, which influenced the expectations of each partner relating to research activity:

> *"If the partnership is based on unequal fiscal funding, it is much more difficult. The expectations of partners are different" (NCA9).*

The perceived power differential between the universities in OxAHSC also potentially reflected the global standing of Oxford University in medical and biomedical sciences and its greater depth of clinical academic engagement with OUH than Oxford Brookes (researcher notes, 30 May 2018).

In summary, power dynamics between the partnering organisations contributed to shaping the development of OxAHSC as a strategic coordination body rather than as an integrated initiative driving more fundamental health systems change to align the three elements of teaching, research and patient care. The reputations and resources of partnering organisations contributed to shaping power dynamics between them which influenced their expectations of OxAHSC.

7.5 Chapter summary

This chapter presents the findings of a case study of Oxford Academic Health Science Centre (OxAHSC), located in Oxfordshire, United Kingdom. The chapter explores the role of OxAHSC in improving population health, by examining how population health is characterised and described within OxAHSC, how population health goals are operationalised by OxAHSC, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces shaping a population health role in OxAHSC.

OxAHSC aimed to align the strategic goals of the partnering organisations towards the broader goals of improving the health of patients locally, nationally and worldwide; and generating wealth (and improving health) through growing the life sciences industry in the UK. These aims built on a long history of research excellence in, and collaboration between, the organisational partners which had underpinned world-leading biomedical discoveries, such as the discovery of penicillin.

Several barriers to the enactment of a population health role in OxAHSC were identified. First, notwithstanding recent efforts by the OxAHSC board and executive to strengthen its responsiveness to local health service priorities by seeking to broaden its partnership base, the focus of OxAHSC was on driving excellent research for health impact anywhere in the world, rather than on driving population health improvement within the Oxfordshire region. This emphasis on research excellence and impact closely resembled the research and impact aims of its university partners (University of Oxford 2020; Oxford Brookes 2020), which indicated that OxAHSC did not seek to challenge existing structures and organisational roles within health and research systems, but rather to augment and support them. This was at odds with a population health role because it meant that addressing systemic challenges in the Oxfordshire region relating to persisting health disparities, population ageing and health system fragmentation were not the focus of OxAHSC.

Second, despite initial hopes among some that OxAHSC might be established as an entity capable of integrating the three missions of research, education and patient care, this approach had proven too difficult to enact in practice and was not incentivised by designation. The barriers to enacting this more integrated role included misaligned regulative accountabilities between the partnering organisations, involving systems of reward in the university partners for traditional academic rather than real-world impacts, and short-term budget and reporting cycles within the health service partners that tended to de-emphasise research. The partnering organisations resisted efforts to change these accountability relationships which reflected deeply entrenched power dynamics between the partners, ultimately resulting in OxAHSC consciously adopting a less challenging approach that was then rewarded by successful designation. This inability of AHSCs in the UK to functionally align the three missions is being increasingly recognised by policymakers nation-wide as a limitation to their ability to improve patient care (Hansard 2 July 2019 vol 798 c40GC). Moreover, OxAHSC's light touch governance infrastructure and few dedicated resources meant that it had little operational capacity to drive large-scale health systems change towards either clinical care or broader population health improvement goals.

Third, OxAHSC tended to emphasise biomedical and private industry -focussed research and activity over health services, systems and population-focussed research. This deflected attention away from opportunities to conduct research and activity that more directly addressed local health and health care needs in the Oxfordshire region. Research and impact pathways tended to be seen through a linear, biomedical lens which drove role expectations of key actors: university-based researcher tended to see themselves as the *producers* of research; whereas clinicians in the health service partners were framed by these researchers as the *recipients* of research. This was reflected in the dominant conception of "translation" among stakeholders in OxAHSC that implied this role-based distinction in responsibilities for the production (academics) and implementation (clinicians) of knowledge for clinical practice impact. As well as conflicting with the knowledge mobilisation paradigm (which posits that translation of research into practice requires direct engagement of healthcare organisations in research (Kislov et al. 2014)), this biomedical dominance was at odds with a population health role in OxAHSC because health care improvement alone is insufficient to improve population health outcomes (WHO 2008). Moreover, the implied expectation relating to the industry engagement focus of OxAHSC was that wealth generation, through growing the life sciences industry, would improve overall population health and wellbeing, despite such “trickle-down” approaches being ineffective as a population health improvement strategy (Qureshi 2008).

8. Case Study 4: Health Innovation Manchester

"What Manchester does today, the rest of the world does tomorrow" (Benjamin Disraeli, former British Prime Minister, 1844).

8.1 Introduction

This chapter presents the findings of a case study of Health Innovation Manchester (HInM), located in Greater Manchester (GM), England. The chapter explores the role of HInM in improving population health, by examining how population health is characterised and described within HInM, how population health goals are operationalised by HInM, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces shaping a population health role in HInM.

The chapter first describes the study setting and context, including geography, demographics, health system features and characteristics, and the establishment history and structure of HInM. The chapter then provides some case-specific detail about how the study was operationalised. Results are presented using the three institutional pillars framework (Scott, 2014), commencing with normative elements. Within each pillar, data are analysed and presented against six deductive themes: *aspirations* and *activities and impacts* (normative); *accountability at a HInM level* and *alignment of organisational accountabilities* (regulative); and *organisational cultures* and *power dynamics* (cultural-cognitive).

Improving the health of the GM population through innovation was a defining aspiration of HInM and responded to the substantial disadvantage faced by populations in GM across a range of health indicators as well as its establishment within a broader population health -oriented, and nation-leading, devolution initiative underway in GM. Parallel aspirations were to improve health service efficiency within the GM health system and generate wealth through growth of the life sciences industry. Substantial "innovation" and "translation" activity was being managed and led through a dedicated HInM project office, which was driving important health care improvements within the GM health service organisations.

Several barriers, however, were identified that inhibited enactment of population health goals in HInM. First, the specific aims and activity of HInM were predominantly about health care improvement rather than population health. Second, the health and wealth pairing, while championed in landmark UK policy documents, was either centred on a health care improvement agenda (rather than a population health agenda) or based on an unsubstantiated premise that population health improvement will automatically follow life sciences sector growth. Third, because HInM did not challenge existing structures or organisational power dynamics, it was not functionally constituted to implement a broad population health improvement agenda. Beyond offering high-level governance infrastructure to enable shared planning and prioritisation among organisational representatives, the organisations involved in HInM retained their separate regulative accountabilities to funders and regulators, which preserved the status quo.

8.2 Study setting and context

Geography and demographics

Greater Manchester (GM) is a metropolitan county located in the North West of England (**Figure 18**), which covers an area of around 1,276 square kilometres (Encyclopaedia Britannica 2013) and is home to a population of around 2.8 million people (GMCA 2017). The region is comprised of the cities of Salford and Manchester as well as 10 local councils, or localities, that operate as autonomous administrative units (Encyclopaedia Britannica 2013). The growth of Manchester's textile industries in the 19th Century put it at the forefront of the industrial revolution, and this reflected Manchester's growing reputation as an innovative city and region (Encyclopaedia Britannica 2013). Further, the world's first true railways started operating from a purpose-built station on Manchester's Liverpool Road in 1830, and several important global social movements had their origins in the city (Manchester City Council 2018). Manchester's social and technological leadership led to Disraeli reportedly saying, "what Manchester does today, the rest of the world does tomorrow" (Rothwell 2015). This phrase is commonly used to describe the identity of Manchester as a city building on its past to continue to lead global scientific and industry advancement.

GM's population is growing and ageing; the population is predicted to increase by three percent, and the number of people aged over 70 predicted to increase by 15.2 percent, by 2021 (Encyclopaedia Britannica 2013). GM's population experiences significant health inequities compared with England averages, with lower levels of both life expectancy and healthy life expectancy (GMCA 2017). "Deeply embedded" health inequities are also observed between populations which are "often less than a stone's throw apart" (GMCA 2017, p. 4).

Figure 18: Boundary of Greater Manchester in North-West England, United Kingdom

Source: Google Maps 2019

Health system characteristics

Greater Manchester’s population is served by nine National Health Service (NHS) Foundation Trusts, two NHS Trusts, 10 Clinical Commissioning Groups and multiple primary health care providers including around 500 GP practices, 450 general dental services, and 700 pharmacy services (GMHSC 2018; GMCA 2016a). Social care services are also delivered to the GM population by a range of formal and informal providers who provide care and social protection for children and adults (The King’s Fund 2018).

The Greater Manchester Combined Authority (GMCA), was established in 2011 to provide a platform for the 10 localities in GM to better coordinate planning and activity on region-wide priorities (GMCA 2019). In order to address perceived fragmentation of the region’s health and social care system and to improve health outcomes, the GMCA led negotiations with the UK government to devolve power from central to local governments in GM. Following these discussions, a landmark agreement was signed in November 2014 between the 10 leaders of the GM local authorities and the UK Chancellor of the Exchequer to transfer a range of powers and responsibilities from the central government to Greater Manchester (Manchester City Council 2014). This agreement initiated what is known as “devolution” or “devo Manc” in Greater Manchester. In 2015, a memorandum of understanding was executed between the national government, GM health bodies, local authorities and NHS England to give GM “local control” over a budget of around £6 billion per annum from April

2016 to 2021, to deliver primary, acute and secondary care, community and mental health services, and public health for the GM region, notably linking health and social care in the same budget. Manchester became the first local authority in England to attempt city-region devolution, living up to its nation-leading identity and offering an experiment in restructuring the health system that is being watched closely by the rest of the country (Pidd 2016). Importantly, despite the transfer of some powers and responsibilities, the NHS providers in the GM region remain within the NHS and therefore subject to the NHS Constitution and Mandate (GMCA 2015).

To set a framework for delivering on the agreements, in 2015 the GMCA published its first strategic plan called "Taking Charge", which outlined an ambition for:

> *"GM to become a financially self-sustaining city region, sitting at the heart of the Northern Powerhouse, with the size, assets, skilled and healthy population, and political and economic influence to rival any global city" (GMCA 2015, p. 5).*

Improving the "health and wellbeing of the population" in GM, including addressing the persisting health inequalities, was described within *Taking Charge* as a key goal alongside growing the region's economic success (GMCA 2015, p. 14). Under the devolution arrangements, GM was required deliver on its goals with a budget that was £2 billion less than what was projected to be needed over a five-year timeframe (GMCA 2015). To deliver on this combined efficiency, health and wealth agenda, a range of new governance structures would be established, including: a Strategic Partnership Board to oversee the GM health and social care economy; and a Joint Commissioning Board to produce a GM-wide commissioning strategy and make joint and binding decisions on health care commissioning (GMCA 2015). A single locally accountable body called the Greater Manchester Health and Social Care Partnership (GMHSC Partnership) was established in 2016 to oversee the devolution agenda.

Following extensive public consultation, a devolution Implementation Plan (GMHSC Partnership 2018) and Population Health Plan (GMHSC Partnership 2017) were published by the GMHSC Partnership in 2017 and 2018 respectively, which outline a series of targets aligned with three key foci: "start well" (early intervention and prevention of disadvantage focussed on children); "live well" (improve health of GM residents in mid-adulthood); and "age well" (promote healthy ageing). These targets and the devolution project itself position the social determinants of health as central to the goal of improving health outcomes in GM:

> *"We are convinced that the key to better population health is to get upstream of the impact of illness and disease in focusing on prevention and early intervention. We are also committed to a life course approach; we believe that from pregnancy right through to ageing we have multiple opportunities to enhance future quality of life." (GMHSC Partnership 2017, p. 4).*

Establishment and structure of HInM

One of the early projects of the new GMHSC Partnership was to create an “Academic Health Science System” to integrate and accelerate the pace of innovation including the translation of evidence into care pathways and health outcomes (Bernstein and Deegan 2016 p. 3). In 2015, leaders of the GM health and social care system signed a memorandum of understanding to create Health Innovation Manchester (HInM) to serve this function (HInM 2017-18 Annual Report 2017). HInM was officially launched as an academic health science “system” in 2017.

The identification of HInM as a “system” (rather than “centre”) referred to its integration of the previously separate initiatives of Manchester Academic Health Science Centre (MAHSC) and the Greater Manchester Academic Health Science Network (GM AHSN) under the one umbrella. The GM AHSN existed as one of 15 AHSNs established by NHS England “to spread innovation at pace and scale – improving health and generating economic growth” in its designated region (AHSN Network 2020).

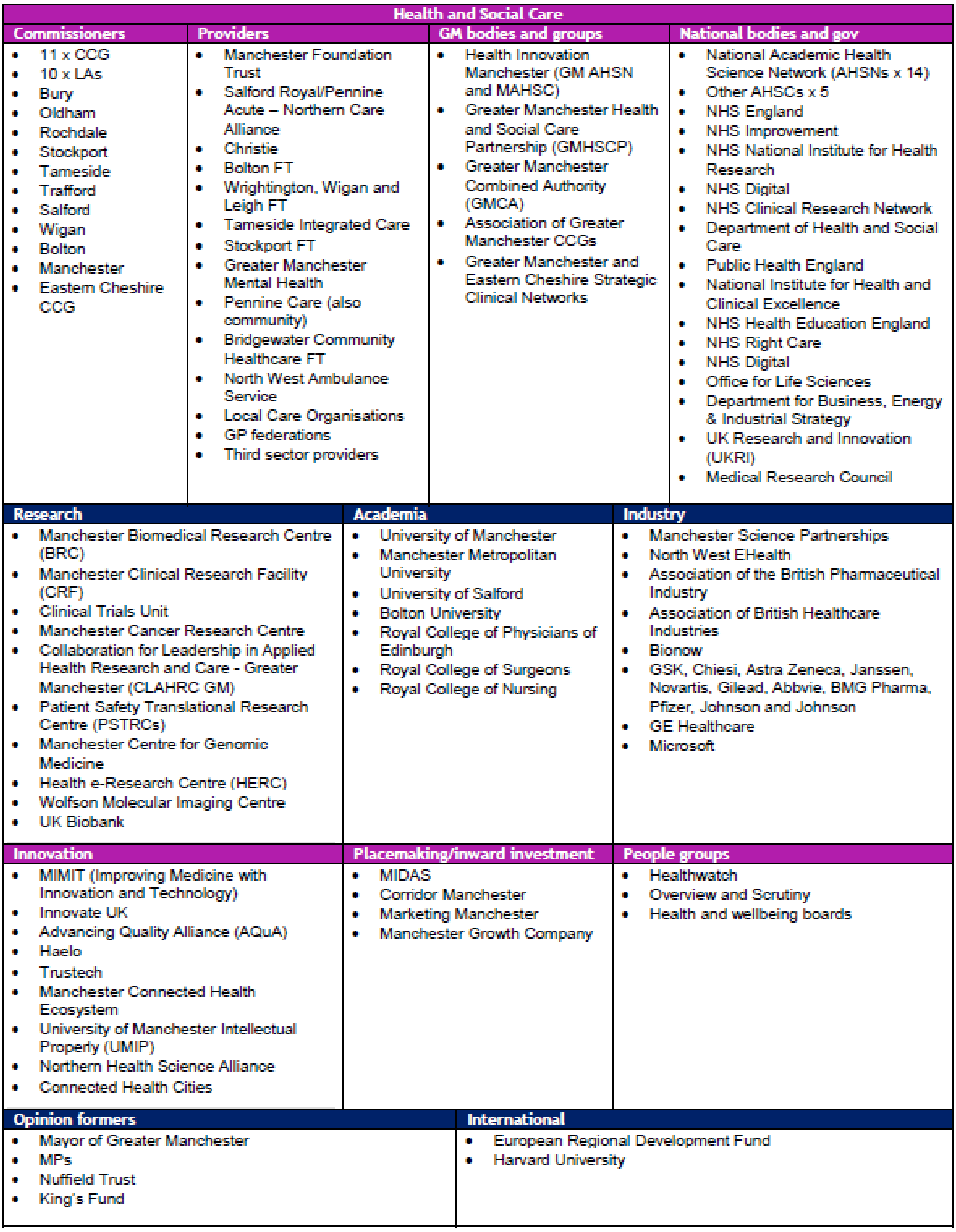
MAHSC was a collaboration between the University of Manchester, Manchester University NHS Foundation Trust, the Christie NHS Foundation Trust, Salford Royal NHS Foundation Trust and Greater Manchester Mental Health NHS Foundation Trust. The initiative was first designated as an AHSC in 2009, achieving re-designation for a further five-year period in 2013. A media release in 2013 described MAHSC as an organisation:

> *“providing clinical leadership and helping health care organisations reap the benefits of research and innovation to drive improvements in care” and as “a beacon within the local health system” (University of Manchester 2013).*

The activity of MAHSC was structured around six “domains” in the areas of: cancer; cardiovascular health; human development (which later became maternal and child health); inflammation and repair; mental health; and population health (MAHSC 2016-17 Annual Report). At the time of data collection, the largest NHS partner in MAHSC was overseeing work in three of these domains, two of the others were being led by other partners, and one (population health) was in the process of being reconceptualised.

HInM included multiple GM commissioners, providers, universities and other health care, research and “innovation agencies” within a broader governance framework (HInM 2017-18 Annual Report 2017). These health, academic, industry and community organisations, listed in **Figure 19**, were referred to by HInM as “system stakeholders” (HInM presentation 2018; HInM Business Plan 2018). Some of these system stakeholders were simultaneously member organisations of the GM AHSN or both MAHSC and the GM AHSN. The HInM organisation (comprising MAHSC and the GM AHSN) is also itself listed as a “system stakeholder”.

Figure 19: List of HInM “system stakeholders” (HInM Business Plan 2018)



Health and Social Care

Commissioners

- 11 x CCG
- 10 x LAs
- Bury
- Oldham
- Rochdale
- Stockport
- Tameside
- Trafford
- Salford
- Wigan
- Bolton
- Manchester
- Eastern Cheshire CCG

Providers

- Manchester Foundation Trust
- Salford Royal/Pennine Acute – Northern Care Alliance
- Christie
- Bolton FT
- Wrightington, Wigan and Leigh FT
- Tameside Integrated Care
- Stockport FT
- Greater Manchester Mental Health
- Pennine Care (also community)
- Bridgewater Community Healthcare FT
- North West Ambulance Service
- Local Care Organisations
- GP federations
- Third sector providers

GM bodies and groups

- Health Innovation Manchester (GM AHSN and MAHSC)
- Greater Manchester Health and Social Care Partnership (GMHSCP)
- Greater Manchester Combined Authority (GMCA)
- Association of Greater Manchester CCGs
- Greater Manchester and Eastern Cheshire Strategic Clinical Networks

National bodies and gov

- National Academic Health Science Network (AHSNs x 14)
- Other AHSCs x 5
- NHS England
- NHS Improvement
- NHS National Institute for Health Research
- NHS Digital
- NHS Clinical Research Network
- Department of Health and Social Care
- Public Health England
- National Institute for Health and Clinical Excellence
- NHS Health Education England
- NHS Right Care
- NHS Digital
- Office for Life Sciences
- Department for Business, Energy & Industrial Strategy
- UK Research and Innovation (UKRI)
- Medical Research Council

Research

- Manchester Biomedical Research Centre (BRC)
- Manchester Clinical Research Facility (CRF)
- Clinical Trials Unit
- Manchester Cancer Research Centre
- Collaboration for Leadership in Applied Health Research and Care - Greater Manchester (CLAHRC GM)
- Patient Safety Translational Research Centre (PSTRCs)
- Manchester Centre for Genomic Medicine
- Health e-Research Centre (HERC)
- Wolfson Molecular Imaging Centre
- UK Biobank

Academia

- University of Manchester
- Manchester Metropolitan University
- University of Salford
- Bolton University
- Royal College of Physicians of Edinburgh
- Royal College of Surgeons
- Royal College of Nursing

Industry

- Manchester Science Partnerships
- North West EHealth
- Association of the British Pharmaceutical Industry
- Association of British Healthcare Industries
- Bionow
- GSK, Chiesi, Astra Zeneca, Janssen, Novartis, Gilead, Abbvie, BMG Pharma, Pfizer, Johnson and Johnson
- GE Healthcare
- Microsoft

Innovation

- MIMIT (Improving Medicine with Innovation and Technology)
- Innovate UK
- Advancing Quality Alliance (AQuA)
- Haelo
- Trustech
- Manchester Connected Health Ecosystem
- University of Manchester Intellectual Property (UMIP)
- Northern Health Science Alliance
- Connected Health Cities

Placemaking/inward investment

- MIDAS
- Corridor Manchester
- Marketing Manchester
- Manchester Growth Company

People groups

- Healthwatch
- Overview and Scrutiny
- Health and wellbeing boards

Opinion formers

- Mayor of Greater Manchester
- MPs
- Nuffield Trust
- King's Fund

International

- European Regional Development Fund
- Harvard University

8.3 Case Study 4 methods

The HInM case study involved data collection between April and May 2018 from three sources: semi-structured interviews with core stakeholders; direct observation of HInM activity over multiple days (recorded in research memos); and documentation, including both published and unpublished grey literature. **Table 19** shows data collection methods including interviewee characteristics in the HInM case study. A total of 25 individuals were interviewed who had involvement with HInM at various levels. The study design and data collection and analysis methods were replicated across all four cases studies and are described in detail in **Chapter 4**.

Table 19: Data collection methods and interviewee characteristics in the HInM case study

INTERVIEWEES (*n* = 25; female = 6, Male = 19)

Average duration: 32 minutes (range: 10 to 75 min). Method: 22 in person; 3 by phone/skype. Digital recordings: 24 digitally recorded; 3 recorded in handwritten notes.

Role type and number of interviewees*	*Role description and relationship to HInM*
Executives, directors, managers and project officers of AHC (EM) (*n* = 8)	Central core of individuals tasked with HInM strategic decision-making and operations at executive, director or senior project/management levels.
Health system executives (HSE) (*n* = 6)	Individuals holding executive-level roles within partnering health care and/or health system advocacy organisations, who are involved in HInM strategic decision-making, including via membership of the HInM board and/or sub-committees.
University and research institute executives (UE) (*n* = 2)	Individuals holding executive-level roles within member universities or research institutes, who are involved in HInM strategic decision-making, including via membership of the HInM board and/or sub-committees.
Clinical academics (CA) (non-executive level) (*n* = 5)	Individuals occupying clinical roles within HInM system organisations while also leading or participating in clinical research activity linked to HInM.
Non-clinical academics (NCA) (non-executive level) (*n* = 4)	Non-clinicians employed in HInM system organisations who are involved in research activity linked to HInM.

OBSERVATION MEMOS (*n* = 6)

Researcher observations on: space, actors, activity and goals. Features and activities observed included co-location or distance between executive offices of HInM member organisations, nature and mode of interactions between the partnering organisations, executive operating environments, and visible organisational goals. Researcher attended one formal HInM meeting as an observer.

DOCUMENTATION (*n* = 14)

- HInM Annual Report 2017-2018;
- HInM Project Portfolio 2018;
- HInM Business Plan 2018-2021;
- HInM PowerPoint presentations, 2018 (five presentations);
- HInM Project Assessment Form and Scoring Criteria, 2018;
- HInM Innovation Prioritisation and Monitoring Committee Terms of Reference, 2018;
- HInM Work Portfolio Status Dashboard, May 2018;
- HInM organisational infographic, 2018;
- MAHSC Annual Report 2016-17;
- AHSN reporting workbook 2018/2019.

8.4 Case Study 4 results

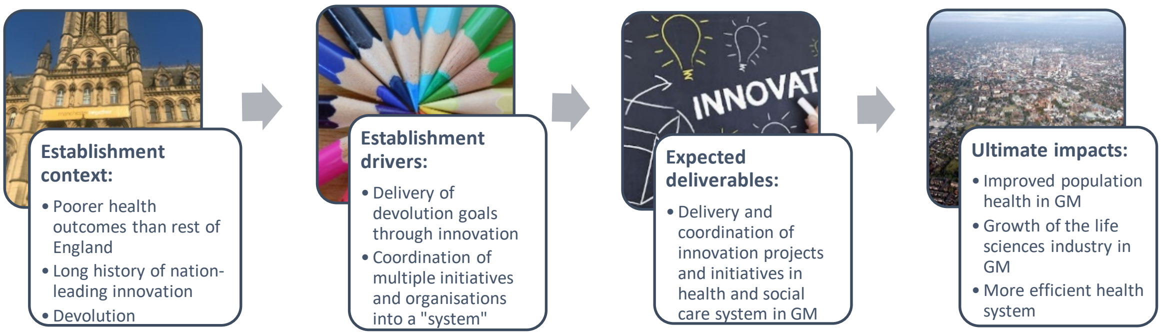
The results are supported by verbatim quotes from interviews, memos and documentation. Each interview quotation is identified using an acronym relating to professional role type (executives, directors, managers and project officers of the AHC="EM"; health system executive="HSE"; university or research institute executive="UE"; clinical academic="CA"; non-clinical academic="NCA") and a number corresponding to their random order in a list of interviewees in each professional grouping. Other demographic information (e.g. gender, age and length of time in the role) are omitted to maintain confidentiality of the participants. The documents referenced in the chapter are listed in **Table 18.**

Normative forces

The normative pillar is about valued ends of effort and the legitimate means to these ends, and as such *aspirations* (shared understandings about what HInM should do), and *activities and impacts* (how HInM should do things and valued ends of effort) are the themes in this section enabling exploration of normative forces shaping a population health role in HInM.

Aspirations. HInM is normatively constructed on a shared understanding that creating a system based on the concept of innovation will improve the health of populations in GM, improve health service efficiency and generate wealth through growth of the life sciences industry. **Figure 20** summarises the defining establishment drivers and expected deliverables and impacts of HInM within its health system context, as explored below.

Figure 20: HInM's establishment context and drivers, and goals and expected deliverables (author's graphic)



Establishment context:
- Poorer health outcomes than rest of England
- Long history of nation-leading innovation
- Devolution

Establishment drivers:
- Delivery of devolution goals through innovation
- Coordination of multiple initiatives and organisations into a "system"

Expected deliverables:
- Delivery and coordination of innovation projects and initiatives in health and social care system in GM

Ultimate impacts:
- Improved population health in GM
- Growth of the life sciences industry in GM
- More efficient health system

Improving population health in the GM region was the overall, explicitly stated goal of HInM. HInM's Business Plan, for example, highlighted HInM's vision:

> *"to be a recognised international leader in accelerating innovation to improve the health and wellbeing of our 2.8 million citizens" (2018).*

This vision was printed within public HInM documentation and the HInM website and was also displayed within the HInM office (observation memo, 16 May 2018). Several interviewees also described the health challenges facing the GM population as important components of HInM's context.

> *"We've got to serve our own population first of all. And as you've probably heard many people tell you, we have a significant health inequality compared with most of the rest of the country. So lifespan for men and women is lower than it would be down in South East England – high incidence of cancer, high incidence of teenage pregnancy, mental health disorders suicidality, cardiovascular disease – the whole lot" (CA4).*

"Innovation" was a term widely understood as representing the key vehicle for population health improvement and was the defining purpose of HInM.

> *"We need to provide care differently because health outcomes are poor and there is unacceptable variation across the 10 areas of Greater Manchester. We know that if we do nothing things will get worse, with an ageing population, increasing incidence of disease and escalating costs of healthcare. To improve requires innovation" (HInM Business Plan, 2018).*

> *"Health Innovation Manchester is a GM system-wide organisation which actually drives innovation into delivery for the benefit of the local population" (EM8).*

> *"So for me it's fairly simple – it [the goal of HInM] is [to] address the health and social care priorities of our community of our population through the research and innovation that we generate as a system, and make sure that that is pushed out into the general populace as quickly as possible" (EM3).*

Strengthening the relationship between academic and health service delivery organisations, and between academics and clinicians within these organisations, through a coordinating body, was the central strategy underpinning the "innovation" agenda of HInM. This suggested a dominant focus on health care, rather than population health, in the way that HInM sought to operationalise its goals.

> *"HInM is trying to take what is going on in the university and the Trusts and focus on the projects that will meet the needs of the population" (EM7).*

> *"So the key to make [devolution in GM] work is Health Innovation Manchester, because they sit at the interface between academia and the health and social care system" (NCA1).*

> *"In my mind, some of the best examples of how an academic health science and innovation system [are] working is – how are your academics informing how you [as a clinician] do stuff and then researching what you do? Which is what ties it together" (EM8).*

> *"That relationship [between academics and clinicians] is really important – it's not something individual researchers should try to manage; that's not possible, and it becomes messy very soon because you've got individual bonds and preferences" (NCA2).*

Another, parallel goal of HInM, linked to its innovation agenda, was to grow the life sciences sector in GM, by becoming the "front door" (CA2) for private industry – meaning the first point of contact for life sciences companies interested in pursuing commercialisation in GM.

> *"What it [HInM] is supposed to do is act as a single way into Manchester, and I think if it delivers on that alone then that will be a positive – i.e. a company with an interest in academic whatever, that would be the front door in and then you get signposted properly to the right people to do it" (CA2).*
>
> *"So how can we better manage the relationships within the system so that we're more cohesive and coordinated when we speak to industry […] so you can't come through by the back door?" (EM4)*
>
> *"Crucially, the bit that's always been missing from previous initiatives has been the question of industry collaboration, which I believe and most observers believe has been the reason why in this country we have never really have been firing on all cylinders […] private industry – the people who will take responsibility for the contract development for the actual development of the commercialisation" (EM6).*

This goal echoed a *health and wealth* agenda as espoused in national policy and reflected in AHSC designation criteria, which involved an assumption that growing the life sciences industry would lead to broad population health benefits.

> *"[There's a] very strong sense of health and wealth, [that these] are strongly inter-connected. And the university and the academic partnership with the NHS is potentially a hugely useful tool to attract inward investment into GM to improve, provide higher quality jobs and employment and increase the economic wellbeing of the city region" (NCA1).*
>
> *"Through partnering with industry a key component of Health Innovation Manchester, the improvement of the health and wellbeing of GM citizens, can be achieved" (HInM presentation March 2018).*

Linked to the broader devolution agenda, HInM also had a role to help the health system to become more efficient by connecting academic and health service organisations and facilitating research translation. Saving money was broadly understood to be an imperative owing to the two billion pound per annum health budget deficit that the region was set to face as part of devolution.

> *"Efficiency and improving health go hand in hand. [This is something we] must do, due to 2-billion-pound deficit" (EM1).*

> *"Manchester knows that it has 6 billion [pounds] a year to look after its health budget, [but] it actually costs Manchester 8 billion a year. They've got to find 2 billion of efficiency. The only way they can do that is actually start to put a runway from academic and clinical and translatable research […] with a lit runway into the population" (HSE1).*

> *"As Health Innovation Manchester delivers its business aims, we will improve the health of the local population through better care, enhance the efficiency of local health and care systems and attract inward investment to our universities and healthcare organisations" (HInM Business Plan 2018).*

In addition, a distinguishing feature of HInM, compared with other AHC initiatives in GM and elsewhere in the country, was its identity as a *system* rather than a *centre* or a *network.* Being a *system* enabled the population health, industry and efficiency aims of HInM to be presented in an integrated way.

> *"Health Innovation Manchester is the city region's Academic Health Science System, ensuring a simplified landscape and route for researchers and life sciences industry into GM's devolved 6 billion pound health and social care economy and the wider NHS. They provide a single industry gateway and innovation pathway, world-class informatics infrastructure, clear view of system needs, and processes that enable speedier decision-making with shorter and more certain routes to adoption" (HInM poster, documented in observation memo, 22 May 2018).*

Being a *system* also enabled HInM to adopt a coordination role across various aspects of a GM research and innovation "ecosystem" (MAHSC Annual Report 2016/17). This ecosystem was comprised of multiple co-existing but distinct translation-focussed organisations that integrated different combinations of health service and academic partners using collaborative governance mechanisms. These included the NIHR GM Collaboration in Leadership for Applied Health Research and Care (NIHR CLAHRC), NIHR Manchester Biomedical Research Centre (NIHR BRC), NIHR Local Clinical Research Network, Patient Safety Translational Research Centre, and Corridor Manchester (observation memo, 17 May 2018). HInM was described as an "umbrella", helping these different entities to operate across a research translation "pipeline".

> *"Health Innovation Manchester – it's really trying to span the whole thing as an umbrella organisation for Manchester, so they hopefully have sight of what we're doing, what these guys are doing, what these guys are doing – and saying we want to make Manchester ready for this innovation to be exploited" (EM5).*

> *"We're wanting to accelerate the pipeline from discovery through innovation into service" (UE1).*

> *“Health Innovation Manchester is the conductor of the orchestra […] the main engine room driving this [research translation] pipeline” (UE1).*

> *“[HInM provides a] convening role of all partners, and that's a willing convening […] the one Manchester voice, the ability to convene us, the ability in some cases to say ‘this is a really good idea you should all be using it, we should all be using it’ – that's their mandate. What the mandate isn't, is to replicate what each sovereign organisation is doing” (HSE4).*

> *“The whole point is about system connectedness so to bring your assets together it seems to be the logical way of talking and reducing overlap and optimise your return” (HSE6).*

Functionally, the HInM organisation integrated the two separate initiatives of MAHSC and the GM AHSN. MAHSC was described as representing HInM’s “discovery to care continuum” function (CA4), while the GM AHSN delivered “adoption of technologies and innovations into the NHS” (EM4). Linking the two initiatives was described as central to enabling HInM’s innovation role.

> *“In order to integrate all components of the ecosystem and to ensure that GM is a world-leading location for undertaking clinical research we have created an Academic Health Science System, Health Innovation Manchester (HInM). This links the power of MAHSC partners in basic and discovery research with the wider partnership of the GM Academic Health Science Network (AHSN) in implementing clinical innovation. (MAHSC Annual Report 2016/17).*

> *“It was very clear that these two components couldn’t really exist in isolation. And they needed to be integrated […to] create […] an academic health science system to merge the AHSC and the AHSN” (UE2).*

For example, reflecting on role of the newly-acquired NIHR BRC within MAHSC, which was focussed on “the early translational step of getting discoveries from the university and pulling them through into proof of concept studies in humans” (EM5), one interviewee described an opportunity to draw in healthcare providers to better prepare the system for implementation of new discoveries into practice.

> *“It's really important that the system downstream is at least half aware of what we’re doing. So if we identify an algorithm that predicts a better response to drug X and drug Y and we want to produce a guideline to use in Manchester – they [health service providers] need to be able to […] facilitate that to be implemented quickly, rather than us (researchers) then finding out that it takes 10 years to implement it because the structures weren't prepared for it” (EM5).*

Prior to the establishment of HInM, the co-existence of these highly related initiatives caused a high degree of confusion among HInM stakeholders. Some interviewee described a “crowded” and confusing landscape of overlapping organisations and initiatives that had unclear mandates and relationships with each other. HInM, as a new overarching entity, therefore held some promise as way to coordinate these initiatives.

> *“I think this crowded landscape thing is really important, and I think that comes back to how everything is funded, and it's all very piecemeal and we bid for an Academic Health Science Centre […] and bid for a BRC – it’s a bit unclear really how these things are supposed to – each thing on its own obviously has a particular role and approach, but the problem is when you sort of put them next to each other it's quite hard to see how they should interact over time. I think that's a bit of an issue” (CA1).*

> *“When we had MAHSC and AHSN, just nobody got that. Nobody got that. And then you've got the strategic clinical networks that sit on top of that as well […] And then you’ve got the CLAHRC [NIHR GM Collaboration for Applied Health Research and Care] and the Patient Safety [Collaborative] and blah blah blah, and we just made the landscape” (UE1).*

> *“Nobody sort of really knows how they all fit together […] so somebody might understand CLAHRC, somebody might understand the Academic Health Science [Centres], somebody might understand devolution […] but what most people lack is a coherent whole” (CA5).*

> *“It is just extraordinarily complicated!” NCA1*

> *“It's a brilliant example of innovative-it is […] the central delivery model as I’ve described it is brilliant in generating initiatives, almost on a daily basis” (EM6).*

Among the entities that existed prior to HinM and that were being brought under the HInM banner, the NIHR CLAHRC was an exception – it had not yet been involved in HInM at the time of data collection, and it previously had little involvement in MAHSC prior to HInM’s establishment (observation memo, 18 May 2018).

Remedying the perceived lack of integration between the different, pre-existing initiatives was indeed part of the rationale for HInM’s establishment.

> *“One of the things we were able to do with HInM is to say: this is just crazy, we’re taking a system-wide approach here. We’ve got a single devolved healthcare budget, we can’t operate in silos, if you make a saving here and the cost is here that’s ok, whereas previously in the NHS and UK if the saving and cost aren’t in the same place you can’t do it. So you’ve got to break out of that siloed approach into a systems approach” (UE2).*

In summary, HInM is normatively constructed on a shared understanding that creating a system based on innovation will improve the health of populations in GM, improve health service efficiency and generate wealth through growth of the life sciences industry. Enacting this innovation agenda was seen to require collaboration between academics and clinicians working within GM health system stakeholder organisations, and coordination of various components of a pre-existing and continually evolving innovation ecosystem in GM.

Activities and impacts. Activities, along with reported impacts attributed to HInM, represented a shared perception of legitimate means to valued ends, showing how HInM stakeholders sought to frame and operationalise its goals. In addition, some interviewees described their expectations of the types of indicators that could be used to measure the “success” of HInM, which also reflected norms and values of core stakeholders. These normative forces were important in shaping the role of HInM because the initiative was not required to report on any specific key performance indicators, although a key future priority articulated in HInM documentation was to establish “a robust outcomes framework” with which to evaluate its performance against its goals (HInM presentation 2018).

As shown in **Table 20**, activities relating to impact in HInM spanned all the CAHS (2009) impact categories. The examples in the table are summarised as impact indicator types in the final column. As an early activity, HInM executives had commissioned a conceptual map of the GM “innovation landscape” to help articulate the various relationships and roles (**Figure 21**) and had also developed multiple explanatory diagrams for system stakeholders (HInM presentations).

Figure 21: Map of the HInM "innovation landscape" (HInM organisational infographic 2018)

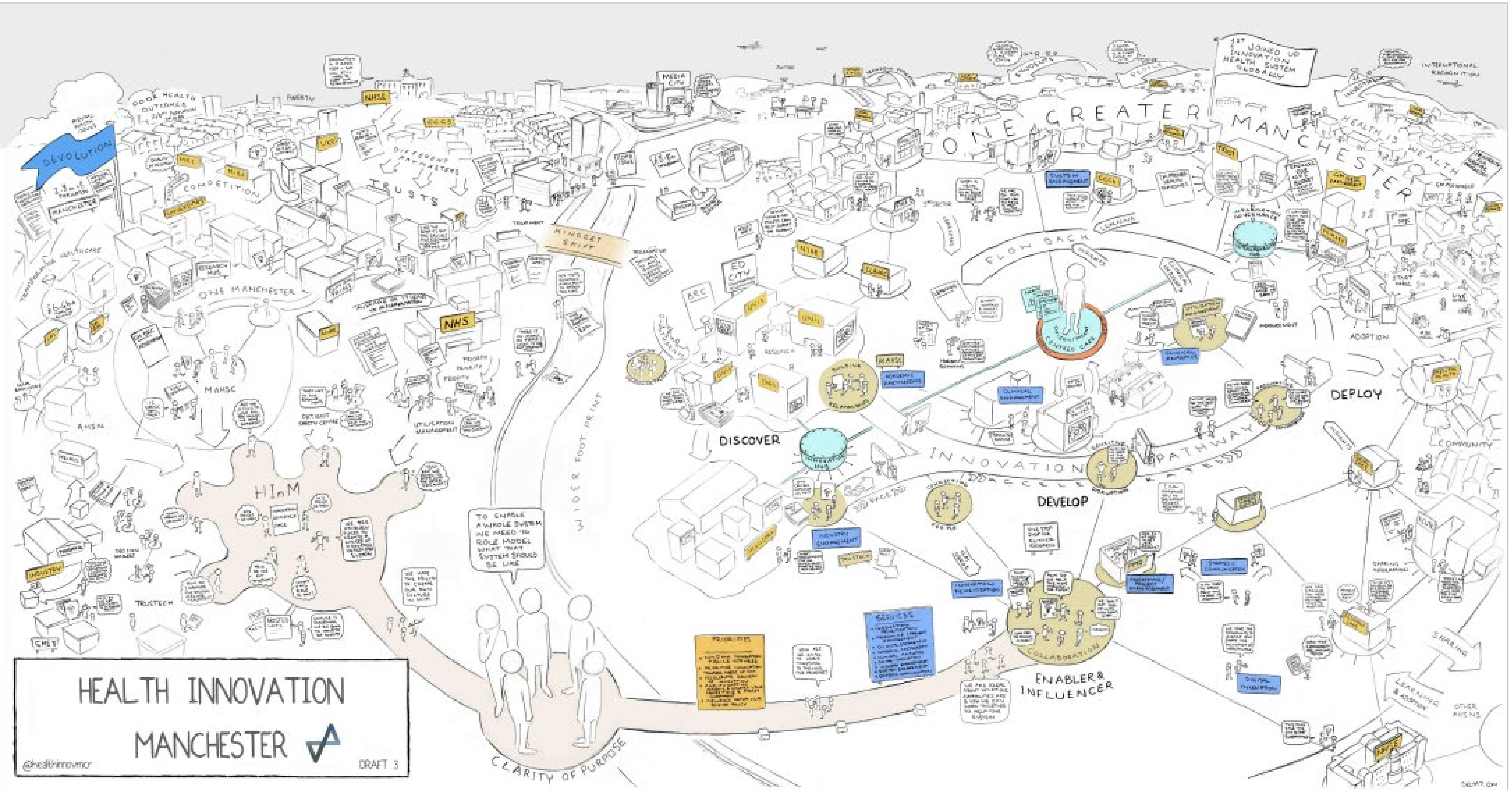


Table 20: Activities, impacts and indicators of "success" in HInM

Impact Category	Examples of "what success looks like"	Examples of reported activities and impacts	Types of impact indicators suggested
1. Advancing knowledge	Deliver on five novel radiotherapy/ drug combination trials (MAHSC Annual Report 2016/17)	Production of high-quality academic outputs (grants, papers & PhDs) which impact on GM health and wellbeing (MAHSC Annual Report 2016/17)	Outputs relating to commencing or undertaking research projects
2. Building capacity	"[Success looks like] gaining inward investment into the city and research funding bodies through augmenting existing industry and academic value propositions" (EM8) Develop an enhanced Clinical Trials Unit to support the next generation of clinical trials (HInM Annual Report 2017/18) Build integrated data systems across the health and social care system (HInM Annual Report 2017/18)	Establishment of a comprehensive training programme in inherited cardiovascular disease (MAHSC Annual Report 2016/17) Securing of assets such as the NIHR Biomedical Research Centre, equating to £90 million during the 2017/18 financial year (HInM Annual Report 2018) Frequent one-on-one meetings between HInM executives and academics from the universities across GM to build relationships and discuss opportunities for research through the HInM initiative (LE3).	Health and clinical academic workforce development Enhanced access to financial resources Enhanced ability to create a unified bid for major funds Establishment of research-enabling infrastructure Industry engagement
3. Informing decision-making	Develop a pipeline of new treatments and pathways that will address the health needs of our population in years to come (HInM Annual Report 2017/18) Contribute to national and international health and life science policy (HInM Annual Report 2017/18) "[Success is] being able to draw a direct line between the innovation pipeline and better clinical outcomes" (EM8) "[Success is] what gets picked up" in the media (UE1); "what we do here, others want to emulate" (EM3)	Worked with patients and clinicians to agree on a ranked top 10 of research questions to answer (MAHSC Annual Report 2016/17) Delivery of the first Atrial Fibrillation pharmacy-led anticoagulation clinic across the city of Manchester to support stroke prevention (HInM Annual Report 2017/18) Establishment and scale-up of the "Rainbow Clinic": a "specialised service for women and their families in a subsequent pregnancy following a stillbirth or perinatal death" in GM (HInM Annual	Linking better clinical and population health outcomes with HInM-enabled research Impact on national/international policy How the public and competitors respond to the work of HInM

	Spread at pace selected innovations that will improve the health of the populations (HInM Annual Report 2017/18) Deliver 80% of clinically appropriate treatment locally to where patients live (MAHSC Annual Report 2016/17)	Report 2017/18); “700+ women have attended the clinic excepting two resulting in successful pregnancies. Independent evaluation demonstrates a social return on investment of £6 for every £1 spent” (HInM Status Dashboard 2018). Raised the uptake of cervical screening in women before the age of 28 to 50% (MAHSC Annual Report 2016-17)	Deployment of health, social care and wellness programs in the GM health and social care system
4. Health impacts	Become the first UK city region to eliminate Hepatitis C by 2021 (HInM Annual Report 2017/18) Reduce Trust suicide rates so that they are in the bottom quartile nationally (MAHSC Annual Report 2016/17) Reduce the rate of preventable stillbirths by 50% across the GM region (MAHSC Annual Report 2016/17) Assessment of innovation proposals in HInM should consider measures of “patient value” (relating to patient outcomes, experience and unmet needs); and “health and social care impact” (PAF scoring criteria 2018) “You should be able to say: people with this condition – a high proportion of them are in work, less of them are claiming benefits, [they are] living a more rounded life – therefore you can say we have improved the overall health of the city” (EM5)	22 million patients have benefited from AHSN input (HInM 2017/18 Annual Report) Five-year cancer survival rates improved in Manchester to over 70% (MAHSC Annual Report 2016/17)	Improvements to health and wellbeing of patients and populations in GM
5. Broader socio-economic impacts	The HInM PAF (2018) includes the “economy” as a potential beneficiary of new projects, with expected benefits focussing mostly on broader economic development such as “job creation”. Harnessing “big industry drives around new medicine, robotics, diagnostics” (UE2) Helping private companies to see how their product could “get all the way through to procurement [and] use” (HSE1)	The AHSN initiative delivered £42 million in savings to the NHS (HInM 2017/18 Annual Report) HInM signed a memorandum of understanding with the Association of British Pharmaceutical Industries to “bring forward a pipeline of innovations for rapid adoption” within GM (HInM presentation 2018).	Savings delivered to NHS system Job creation

Activities of HInM were framed in terms of three clinically-oriented operational concepts that were documented alongside HInM's population health vision statement: "discover" (enable research excellence), "develop" (develop and evaluate treatments and services), and "deploy" (create pathways for adoption of new technologies and treatments) (HInM Business Plan 2018). As such, success of HInM, and examples identified of both planned activity and impact, spanned multiple impact categories. *Informing decision-making*, in particular, was a major focus reflecting its "innovation" aims.

As at May 2018, more than 30 projects were listed within HInM's work programme (Status Dashboard 2018). All projects reflected service delivery targets aimed at improving health services for patients, and, despite the population health vision of HInM, none reflected activity aimed more broadly at the social determinants of health (Status Dashboard 2018). Similarly, the 20 "key programmes and projects" listed in the HInM project portfolio (2018) were focussed on health service delivery, and HInM's Business Plan (2018) referred to "frontline care" as the main target for HInM's innovation work. In the MAHSC component of HInM, all 91 targets listed in the 2016/17 Annual Report were clinically related apart from two which addressed broader social issues, against which no outputs were reported.

At the time of data collection, the HInM Innovation Prioritisation and Monitoring Committee (IPMC) had just been established as a strategy to oversee the work programme of HInM:

> *"The Greater Manchester Innovation Prioritisation and Monitoring Committee, is a sub Committee of the Health Innovation Manchester (HInM) Board, tasked to prioritise and oversee the innovation and improvement work programme for HInM. The Committee will approve business cases through evaluation of proposals and application of selection and prioritisation criteria […] in line with the GMs strategic priorities, leading to the development of a programme of work for Health Innovation Manchester which will be delivered by working with the wider system partners" (IPMC Terms of Reference 2018).*

The IPMC held its inaugural meeting in May 2018 (the researcher attended this meeting as an observer). The meeting involved a large group of around 20 representatives comprising clinicians from multiple organisations, researchers, council members, GMHSC Partnership Board members and HInM staff meeting in person in Manchester to discuss how the IPMC would work to "prioritise [HInM activities] towards the needs of the population" (observation memo, 22 May 2018). As an interviewee and participant in the IPMC explained:

> *"I think the role of the Innovation Prioritisation Group is really saying how important is this [a project idea] is to the system and how can this build a portfolio of key pieces of work" (HSE6).*

A proposal was put forward at the meeting by HInM executives to use a standardised Project Assessment Form to enable ideas to be tabled by HInM system stakeholders for new research and innovation initiatives to be considered by the IPMC and then funded and supported by HInM (observation memo, 22 May 2018). The form required applicants, who were intended to be clinicians and researchers working within the HInM system stakeholder organisations, to highlight the "expected value" of their project across six stakeholder groups (see **Figure 22**): patients/carers; the GMHSC Partnership; HInM; healthcare professionals; industry partners; and the economy (HInM PAF, 2018). "Reduction in health inequalities and variation" was one value field listed on the form, but the dominant overall focus was on health care services (HInM PAF 2018). Apart from the value fields linked to the broader economy, none directly addressed social determinants of health outside of health care.

HInM was also actively engaged in operationalising its life sciences industry growth goals, reflecting activity and impacts in the *broader socio-economic* impact category. HInM had employed staff in dedicated industry engagement roles and was in the process of developing a commercial strategy to outline:

> *"how to better manage the relationships within the system so that [HInM is] more cohesive and coordinated when speaking to industry" (EM4).*

Although health service delivery and industry engagement dominated the activities and impacts of HInM, "success" of HInM was still defined by HInM executives and leaders as improving population health outcomes.

> *"Success for me looks like being able to draw a direct line between that innovation pipeline and better clinical outcomes. Delivering things into production doesn't feel like success for me. Delivering things into production which actually change those outcomes and decrease the variation across GM, close the gap between GM and elsewhere, that's what success feels like, that's what success is for me" (EM9).*

Supporting this vision, a HInM Research and Education Committee had been established in HInM as a vehicle for aligning academic strengths with the priorities of the health and social care organisations in GM. This structure enabled a dialogue between GMHSC Partnership stakeholders and academics in GM about finding solutions to GM problems through research.

> *"This is where the structure of Health Innovation Manchester is going to help, because we bring together, through our Research and Education Committee, our [collective] strengths with the health and social care work, health and social care priorities, of Greater Manchester. Someone from the [Health and Social Care] Partnership will work with our Education and Research Committee to say, 'right guys, so this is what we're focusing on in Greater*

> *Manchester, how can you help us? What are the key research questions you need to be asking in order to help us to find a solution to this? Or [to] improve what we need to do?' So that's the bit of work we're I doing to align those priorities and get our academics and clinical scientists scratching their heads in saying, 'how can we help do that?' And 'what are the key research questions?'" (EM3).*

However, because the HInM entity was a very new creation at the time of data collection, its work was still mostly aspirational with reported impacts to date largely reflecting the work of MAHSC and the GM AHSN, which had existed for some years prior to HInM's establishment. Prior to the establishment of HInM, MAHSC had organised regular meetings between biomedical scientists and clinicians, to identify ways of working collaboratively. However, these meetings had reduced in frequency and their future was uncertain in HInM.

> *"We do have networking meetings where we've invited specific groups so the last one we had was we got a load of basic scientists out of the [University of Manchester] Faculty of Life Sciences – so these are really hard core scientists – and sat them in a room for an afternoon, and then, as a bunch of clinicians with interesting questions, we stood up and gave five minute pitches about what we thought our clinical challenges were and, could they be met by any of it? And that worked really work well – if nothing else, it generated a lot of discussion, it generated some partnership – at least networking meetings" (CA2).*

Reflecting on the reported impacts of MAHSC and the GM AHSN, a key challenge identified by some interviewees was that it was difficult to accurately attribute impacts to MAHSC and the GM AHSN as opposed to other GM organisations:

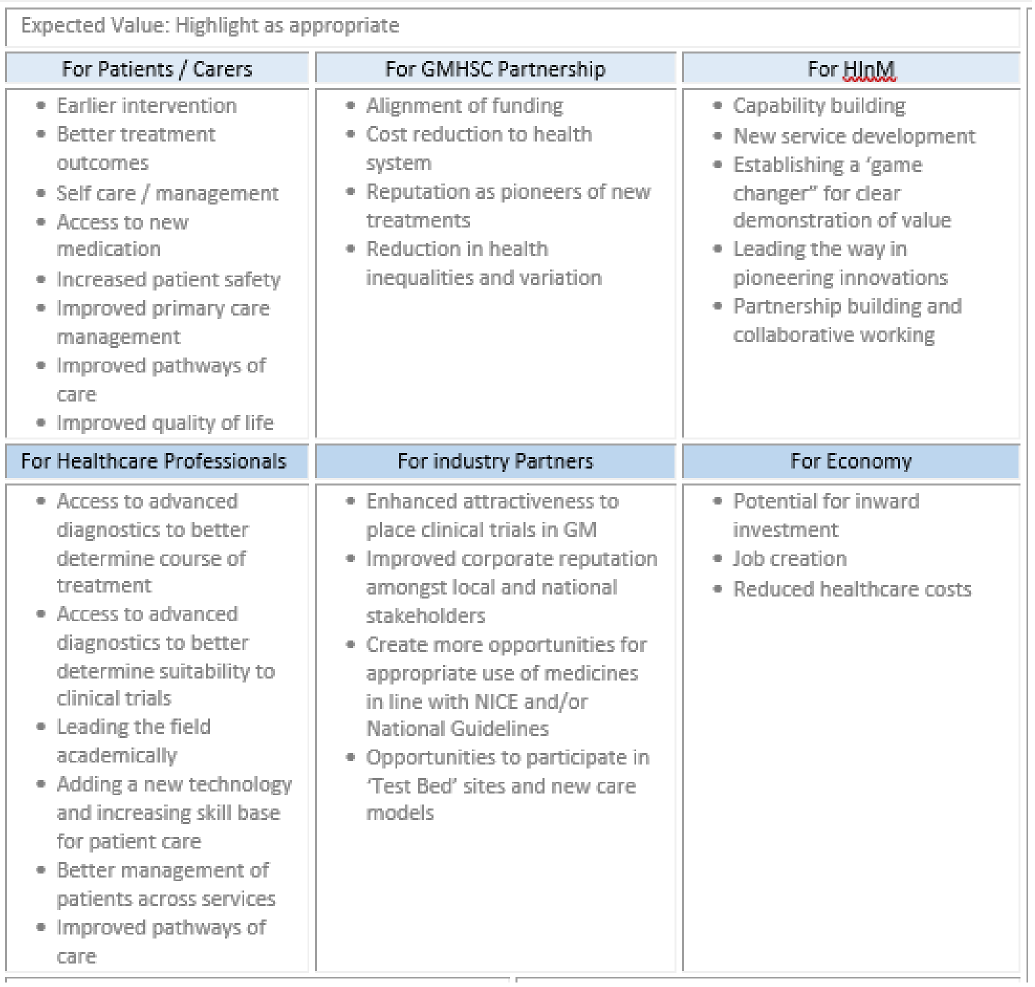
> *"There's no doubt that at the beginning of this there was a bit of poaching of what was out there, so we were looking to see what was already happening and stealing that and putting it under the MAHSC umbrella and saying 'this is now part of MAHSC's work'" (CA2).*

> *"[MAHSC] were over here [towards the experimental medicine end of a translation pipeline]. And then you've got the Academic Health Science Network which spent most of its time duplicating what MAHSC was doing […] they were always duplicating what everybody is doing" (EM6).*

> *"[In] MAHSC, these domains take up, or take, or report, on things that were going on anyway […] they brought together – they were capturing what was going on anyway […] The BRC – that's just going on – that was going on anyway. It's not connected to this […] because MAHSC isn't an entity, it's like a stamp of excellence, that's all it is" (EM7).*

Moreover, no or few details were provided about how some reported impact figures attributed in documentation to the GM AHSN were derived or what the benefits actually entailed. For example, no explanatory data accompanied the claims that the GM AHSN "delivered £42 million in savings to the NHS", or that "22 million patients have benefited from AHSN input" (HInM 2017/18 Annual Report).

Figure 22: "Expected value" field within the HInM Project Assessment Form (HInM 2018)



Expected Value: Highlight as appropriate

For Patients / Carers	For GMHSC Partnership	For HInM
• Earlier intervention • Better treatment outcomes • Self care / management • Access to new medication • Increased patient safety • Improved primary care management • Improved pathways of care • Improved quality of life	• Alignment of funding • Cost reduction to health system • Reputation as pioneers of new treatments • Reduction in health inequalities and variation	• Capability building • New service development • Establishing a 'game changer" for clear demonstration of value • Leading the way in pioneering innovations • Partnership building and collaborative working
For Healthcare Professionals	**For industry Partners**	**For Economy**
• Access to advanced diagnostics to better determine course of treatment • Access to advanced diagnostics to better determine suitability to clinical trials • Leading the field academically • Adding a new technology and increasing skill base for patient care • Better management of patients across services • Improved pathways of care	• Enhanced attractiveness to place clinical trials in GM • Improved corporate reputation amongst local and national stakeholders • Create more opportunities for appropriate use of medicines in line with NICE and/or National Guidelines • Opportunities to participate in 'Test Bed' sites and new care models	• Potential for inward investment • Job creation • Reduced healthcare costs

In summary, activities and reported impacts of HInM reflected a dominant focus on health service delivery and patient care. The *informing decision-making* impact category was a major focus reflecting its "innovation" aims. HInM was also actively engaged in operationalising its life sciences industry growth goals, reflecting activity and impacts in the *broader socio-economic* impact category. Efforts were underway at the time of data collection to establish prioritisation structures for future work, coordinated through the newly established HInM Innovation Prioritisation and Monitoring Committee. A HInM Research and Education Committee had also been established in HInM as a vehicle for aligning academic strengths with the priorities of the health and social care organisations in GM. While HInM executives and leaders stressed improving population health outcomes in GM as an important overarching definition of “success” in HInM, work to improve the social determinants of health, outside of health care improvement, was not evident in the activities of HInM

Regulative forces

Regulative forces are about rule-setting, monitoring and sanctioning process which are attempts to control and shape behaviour. Regulative forces shaping a population health role in HInM are reflected in the themes of *accountability at a HInM level* and *alignment of organisational accountabilities*. These themes enable examination of regulative forces firstly at the HInM organisation level, and secondly at the level of the HInM system stakeholder organisations.

Accountability at a HInM level. The HInM organisation combined both the MAHSC and the GM AHSN infrastructure, but at the time of data collection the HInM entity itself was not underpinned by any separate legal agreement. The initiative also received no direct funding except for that coming through MAHSC and the GM AHSN, and as such was referred to as a “virtual” initiative with little or no capacity to enforce compliance.

> *“[HInM is] a virtual organisation which actually was ineffective – so for two years it wasn’t doing anything because there were no resources allocated to this organisation […] there was no resource. So no initiatives could – it had no teeth. You had to rely on somebody to change what their work program was to do something” (EM4).*
>
> *“HInM’s ambitions are only by consent” (HSE5).*

As a virtual entity, the 50 (approximately) staff employed within the HInM organisation occupied positions that were hosted mostly by the constituent NHS Trusts, with some hosted by Manchester University (observation memo, 21 May 2018). The role of the HInM office was to operationalise the goals of HInM and its MAHSC and GM AHSN components, which included strategic management, governance support and dedicated project management to facilitate HInM work programmes (observation memo, 21 May 2018).

Both MAHSC and the GM AHSN continued to exist within HInM as distinct organisations with different roles, funders and reporting requirements, with both MAHSC and the GM AHSN required to submit annual reports to achieve periodic redesignation or accreditation by national agencies. This arrangement enabled the HInM executives to continue to use MAHSC and the GM AHSN separately if the need arose.

> *“The AHSN has a licence and has to report. The AHSC has a licence and it has to report metrics. And so although we have a single unitary body now, with a single board of governance that’s linked up to commissioners, we still have a virtual AHSN and a virtual AHSC. If we need it, we can have an AHSC or an AHSN but we’re trying to work seamlessly across and link it up to commissioners” (UE2).*

> *“MAHSC and ASHN are only there in HInM for as long as they need to be there to meet statutory duties, if I'm being quite honest” (EM6).*

One HInM senior manager explained that HInM’s accountabilities simultaneously reflected its integration of MAHSC and the GM AHSN, and its existence as a component of the broader devolution infrastructure, which created a “prism” of accountabilities at a HInM level:

> *“One facet from NHS England is looking in for the AHSN and their licencing probations. The next facet is for the universities and the MAHSC. Third facet would be the health and social care system of Greater Manchester. All of those are aligned with the priorities and the work that we [HInM] are doing. So one project would hit all three of those facets […] If we’re smart and have one of our projects in the centre – you have your prism – so whatever viewpoint, you’re getting one of your task master’s agendas. So that’s where we need to be very selective in the projects that we hit” (EM4).*

MAHSC was described as the “academic” arm of HInM and as a vehicle to build clinical/academic relationships between its partnering organisations (EM7). MAHSC was funded though annual subscriptions from its partners, which supported an operational staff member, time from the domain leads and small events and project funding calls (EM7). Annual reporting focussed on how it was delivering “world-class research, excellence in health education and excellence in patient care” (MAHSC annual report 2016/17). To interviewees, the historical and continuing focus in MAHSC was on research and translation into clinical practice, with an emphasis on “discovery” or “experimental” types of research.

> *“They [AHSCs in England] were to be centres of true excellence, focussed largely at the discovery science / experimental medicine end of the spectrum” (UE2).*
>
> *“The Academic Health Science Centre is really that discovery-to-care continuum” (CA4).*
>
> *“To me it [MAHSC] is about translational linkages between basic science and clinical science and about bringing those developments from clinical science out and into more mainstream practice, at which point we can sort of hand that over to other people to deliver on” (CA2).*
>
> *“There were three things that the MAHSC was set up for: clinical service improvements, research and education and training” (EM7).*

MAHSC also offered a coordination function between the partners:

> *“It [MAHSC] was a matter of coalescing our strengths and Manchester under one name, and so that was six Trusts and the one university. And I think that was helpful – it started to get the Trusts to talk to each other and to collaborate with each other which they had not done up until that point” (CA2).*

One interviewee explained that because MAHSC was established as part of a national scheme that emphasised research excellence, it mostly reflected and augmented existing academic strengths within its university partner, rather than adopting a population health focus:

> *"They [AHSCs] have not been led by population health issues […] they shouldn't be saying they're aligned with population health – that's not what they were created for. They were created as citadels, as ivory towers of excellence […]The AHSCs – look, if you were truly doing it for population health, if you were doing it for population health, why would you put five of the six AHSCs in the south of England where you don't have a horrific life expectancy or life outcomes issues as you do in the north of England? […] The BRCs and the AHSCs were led by science. And they had nowhere really to go out into the population. And that's why AHSNs were created" (HSE1).*

While MAHSC had a "population health" domain, this had been an odd fit within MAHSC from the start and was in the process of being redefined at the time of data collection.

> *"It goes back to that dissonance of the population health domain to the other domains [in MAHSC]. They were seen as sort of parallel sorts of activities and that didn't really fit" (NCA1).*

> *"The population health domain as it was in the Faculty [within the University of Manchester] was a real mismatch of things that didn't fit anywhere else basically […] it was called 'population health' because [a senior individual in the Manchester University] had come from [another university] and they had a population health domain there. Even though we don't do population health research really. […] In that domain [the funding] went straight back to [a partnering] organisation to purchase improvement science training […] It's not population health, and it's not research, and it's not been evaluated. So the problem was that the population health domain had no links with the academics" (NCA4).*

One interviewee recounted that the population health domain had initially been established because MAHSC preceded the GM AHSN, which subsequently (nominally) adopted this role from 2013:

> *"So the Manchester one [AHSC] that was set up actually involved the 'population health' domain because it wanted to do the job of an AHSN. So initially, when we set it up, we wanted to go all the way from discovery science through to implementation and commissioning" (UE2).*

The GM AHSN received funding from NHS England to deliver against specific milestones relating to spread and adoption of pre-identified and tested "innovations" based on their potential to deliver benefits for patients and the NHS (AHSN reporting pro-forma, 2018). The dominant focus of the GM AHSN, like the other AHSNs across England, was seen to be mostly on NHS issues.

> *"They [the AHSNs] are run very much from an NHS perspective" (CA4).*

> *"We've got sort of a legacy which is that, you know, the Academic Health Science Networks have been very clinically-oriented, very treatment-oriented, would be the best way of putting it" (HSE6).*

> *"[The GM AHSN] is basically delivering what NHS England want and they're our task masters and they provide funding for certain projects to be pushed. And they set a lot of the agenda for the AHSN. So the AHSN facet has the NHS England taskmaster. If NHS England are funding, you kind of have to do what your funders say" (LE4).*

At the same time, an aspiration was articulated in the HInM Business Plan to "work closely with" the GMHSC Partnership (2018) and there was a widespread understanding that HInM was a part of the broader devolution project as its innovation arm.

> *"Health Innovation Manchester's priorities are aligned to the needs of the Greater Manchester citizens and the wider health and social care system" (HInM Business Plan, 2018).*

> *"They [the GM priorities] are our priorities because we're in GM. So we want to do stuff that's at scale at pace across GM – our priorities are set there [at the GM devolution level] – they're very high level so we can map lots of things onto them" (EM2).*

> *"I hope it [HInM] would be driven a lot by the [Health and Social Care] Partnership – they have a main focus on population health improvement […] the key to make that [devolution] work is Health Innovation Manchester" (NCA1).*

In practice, GMHSC Partnership representatives sat on the HInM Board and other HInM committees, and regular meetings were convened between HInM executives and GMHSC Partnership representatives (EM3; EM8). However, how such alignment of the planned activity of HInM with the broad population-focussed devolution goals was to be effected was not articulated in HInM documentation. Some interviewees and others involved in HInM committees identified a need for clearer policy and reporting alignment between HInM and the GMHSC Partnership, including a need for guidance about respective accountabilities.

> *"Alignment [of HInM] with [GM] Health and Social Care Partnership Board priorities is not entirely clear at the moment" (EM1).*

> *"[An IPMC committee member] asked whether HInM needs to map more explicitly to the GMHSC Partnership? Does the GMHSC Partnership have any role in implementation [of innovation projects], or does it just approve the business case? Who is approving for whom?" (observation memo, 22 May 2018).*

Notwithstanding the apparent need for greater clarity about the relationship between HInM and the GMHSC Partnership, the devolution initiative itself was the subject of critiques about its capacity to deliver its population health goals. According to one interviewee, the devolution initiative was predominantly driven by a need to deliver on health service-focussed, short-to-medium-term "headline promises", which took precedence over work to address the social determinants of health, which tended to be less popular in the public eye.

> *"So when [the devolution stakeholders] said 'we're going to reduce mortality from cancer, cardiovascular disease, respiratory disease' – that's those headline promises made – I think that's the benefits that the public want. And the public decide. I think that's what devolution is about – it's about accountability to the people around us, and the here and now. So if we've not delivered the headline promises, then for me we've kind of missed the point. If we have delivered them and we've done a whole raft of other stuff as well, that's fantastic […] You can do a whole raft of stuff around the wider determinants of health and we can congratulate in three years' time, knowing that outcomes have continued to decline or not improve in the short to medium-term, and say 'that's fantastic, but we're not going to see the benefits in 20-30 years' time.' I don't think the public are going to see that" (HSE6).*

In summary, the HInM organisation combined both the MAHSC and the GM AHSN infrastructure, but existed as a "virtual" initiative with little or no capacity to enforce compliance of any member organisations to HInM goals. The role of the HInM office of around 50 staff located in Manchester was to operationalise the goals of HInM and its MAHSC and GM AHSN components of HInM. MAHSC, the GM AHSN and the devolution agenda shaped an accountability framework at a HInM level involving annual reporting requirements and a dominant focus on NHS issues through the GM AHSN. A need for clearer alignment of the planned activity of HInM with the broad population-focussed devolution goals was identified.

Alignment of organisational accountabilities. The list of HInM "system stakeholders" (**Figure 16**) was very broad and spanned health care commissioners, providers, research and innovation, academia and commercialisation-focussed ("industry") organisations, as well as multiple other GM bodies including other NHS organisations, devolution bodies and "opinion formers". Each of these organisations were separately answerable to different funders and reporting bodies. The health care organisations, for example, were driven by regulative forces emphasising patient care and efficiency responsibilities, rather than research or innovation goals.

> *“What matters to the health care organisations is a) saving money, and b) showing that any research that they commission leads to even more saving money and maybe patient improvement” (NCA3).*

The purported focus within the health care organisations on financial efficiency reflected intense budgetary pressures. There was a strong sense that the NHS organisations were chronically under-funded, and that these challenges were potentially compounded by the devolution efficiency drivers.

> *“Unless the government spends more money on the NHS nothing will change. Because it's a severely underfunded system which has been underfunded for nearly a decade” (NCA3).*

> *“I think that the NHS is grossly underfunded, and I think that that is a big issue. So I think that the so-called 6 billion [pounds] which is actually – because it's not held at the Greater Manchester level, it is distributed to all the statutory organisations within Greater Manchester – I think that it is it's not enough. and that makes it very difficult, but it means that the system is forever firefighting […and] the funding for social care has dropped off a cliff” (CA1).*

For health service staff working in this environment, it was difficult to find the time to think about things like innovation. Some reflected that the universities, too, were operating within an unusually tight fiscal environment:

> *“At times it can feel quite overwhelming. It comes back to that example of saying, well I try to talk to the nurse or a consultant in the ED, and say ‘if you do this [innovation project]’ and that they say ‘well hang on a sec I'm struggling to get my head above water and get through this shift’”(HSE6).*

> *“The other thing which causes problems is the financial climate – things are – within both the health system and higher education system – everyone’s under the financial kosh” (NCA1).*

In addition to financial imperatives to control costs, regulative forces within the HInM stakeholder organisations included contractual performance measures in the universities and health service organisations. Within the universities in GM, some interviewees observed that traditional academic metrics such as publications and grants, and biomedical research, tended to be incentivised over population or health system -focussed work, because of the way that certain types of research were traditionally funded and rewarded. The notion of “research excellence”, a dominant concept within universities, was seen to involve reward structures for biomedical types of research rather than health services or systems types of research that were more population health -oriented.

> *“Their [universities’] currency are papers and grants. And so they write their paper up and they’ve done their very lovely experiment and they write the next grant application. They don't often think, ‘well what could we do with that? What is the next step with that? How do we pass*

> *that on?' […] It's a really big challenge and the problem is – through no fault of their own – universities almost endorse that because it's almost like a perverse incentive in some respects – we just want you to publish your papers, bring in the next grant" (EM3).*

> *"So the university – because it's so large and because of the history, nobody shouts for applied health research […] so when we got the first CLAHRC [Collaboration for Leadership in Applied Health Research and Care designation] in 2008 […] some of the big biomedical people said 'oh where did that come from, we didn't know we could do anything like that'. In other words, they knew what their strengths were in biomedical, but they didn't have any idea that we could compete for something like this and get it. And even now I feel that there's not proper recognition" (NCA4).*

> *"Population health is not next generation immune-oncology, it's making sure kids eat breakfast, lunch and dinner. Population health is around getting peoples' diets – this is where I think there is a dissonance between clinical excellence and academic research" (HSE1).*

Some interviewees thought that the UK's Research Excellence Framework (REF) which incentivised "impact" from research as submitted through impact cases, might reorient the focus in universities away from these traditional academic metrics and biomedical drivers. However, others felt that the scheme did not adequately reward types of impact aligned with local health service priorities and health needs.

> *"Hopefully now with REF, I think REF is changing things for the better – the fact we have to demonstrate impact. And that has been a blessing – it's a pain in the neck for those that have got to put in their case impact study – but that actually it's focussing people's minds: there is actually life beyond the publication or the next grant, it's what we do with this lovely piece of work to move this forward through the system" (LE3).*

> *"When they talk about 'impact' in universities they want big impact, they don't want just local impact…] it would be things like something going in guidelines, I mean national guidelines […] that have an effect on policy, it would have an effect on [large] populations […] So the local impact wouldn't meet that REF criteria unless you did it locally and then somebody took it and took it nationally" (CA5).*

In addition to researchers traditionally being rewarded for publications and grants rather than clinical or population impact, one interviewee reflected that "epistemic boundaries" existed between different research paradigms, meaning that it was difficult for researchers to collaborate effectively across different disciplines (NCA3).

Managing the different stakeholder expectations of HInM stemming from these different regulative requirements and imperatives presented challenges for HInM executives and managers, particularly in attempting to prioritise the work of HInM. Interviewees identified a risk that HInM would be diverted from its goals by needing to meet too many divergent stakeholder expectations.

> *"We need to be mindful about how we craft a strategy and way of working that complements everybody's needs […] we're trying to keep everyone happy and 'oh that's a good idea we must do that' and 'oh that's a good idea we must do that as well', and there's 10 million good ideas we must do something about. And there's only finite time, resource to do the ten million things" (EM3).*

> *"There is a tension in HInM [between whether something is a] good thing to do versus [whether it] leverages all the complex relationships [… a risk is that HInM becomes] a slave to the stakeholders" (HSE5).*

Indeed, regulative forces resulted in stakeholders tending to think about HInM in terms of what their respective organisations stood to benefit from investment in HInM; rather than what could be achieved through HInM at a system level.

> *"Different organisations have got different priorities and it's about getting a set of shared priorities and also mutual benefit – 'OK, you want to do this, OK, how is my organisation going to benefit if I invest time energy, funding in this?'" (NCA1).*

Accordingly, tensions were apparent between individual (organisational) benefit and broader, GM-wide benefit. These were reflected in the IPMC meeting, wherein a key challenge discussed was how to manage the possibility that projects would involve a cost to one organisation through investment of personnel and other resources, but that the benefits might be more diffuse across GM (observation memo, 22 May 2018). A linked, practical challenge was whether the committee members had sufficient oversight over the totality of the devolution budget to be able to make determinations about the whole system rather than just their own organisations (observation memo, 22 May 2018).

From a population health perspective, the overarching problem that these challenges revealed was that few, if any, organisations within HInM's list of "system stakeholders" (**Figure 16)** themselves had a regulative mandate to address broader social determinants of health outside of healthcare. Among those with a nominal population health focus, Public Health England (listed as a "national bodies and government" stakeholder) was only peripherally involved in HInM, and this to some extent reflected pre-existing structural and functional problems relating to its role within the NHS.

> *"My problem is that Public Health England – they're nice and lovely people – but it's disconnected from the mainstream. It's part of the NHS family, but it's not an integral part of the NHS system. And what we are doing is embedding population health in our day-to-day decision-making about how we prioritise services locally, how we actually develop early help,*

> *early intervention models locally […but] their approach, by and large, is don't eat that, don't drink that, don't smoke that – you know" (EM6).*

Other organisations with a nominal social determinants of health focus included Corridor Manchester (listed as a "placemaking/inward investment" stakeholder) and Connected Health Cities (listed as an "innovation" stakeholder). Corridor Manchester, a strategic initiative centred on a "dense innovation district" along Oxford Road in Manchester, had preceded MAHSC and the GM AHSN and offered strategic and evaluative services to other organisations, with the aim of "driving a wellness agenda" in Manchester (EM1). Embedded within Manchester University and MAHSC, Connected Health Cities was a population-focussed digital health initiative funded by the Department of Health.

> *"[Connected Health Cities] links up health and social care data or Liverpool, Manchester, Leeds and Newcastle around specific projects, and it's how you influence health – by linking up these data sets and then planning services, identifying patients for trials, identifying patients for preventive interventions" (UE2).*

> *"The idea behind Connected Health Cities is to make better use of data and digital technologies to drive innovation in the NHS, building on the concept of learning health systems […Connected Health Cities] work very closely with the NHS and try to make improvements in practice, but the goal is to produce academic results, and so once […] the method [and] all the technology is a little bit more mature than it is something that could be adopted by Health Innovation Manchester, because it's successful and rolled out across a wider footprint" (NCA2).*

While these initiatives had some links to HInM through HInM board or committee representation, they had minimal capacity by themselves to address the broader social determinants of health across GM.

This issue of a misalignment between HInM's population health goals and the mandates of each of the HInM stakeholder organisations was recognised indirectly by one interviewee, who reflected on the shortcomings, from a population health perspective, of the entire devolution initiative because of its reliance on NHS organisations as the key implementation vehicles:

> *"So the Greater Manchester [Health and Social Care] Partnership, which is the new collaborative health system – devolution – and they talk a lot about population health, and so there is an aspiration that the entire NHS in Greater Manchester is looking at population health. But actually, the extent to which that's really meaningful is not necessarily obvious […] they've not got much money and they're fighting all the time, and improving population health is a very, very difficult thing to do, and I'm not sure the NHS is the best way to do it […] if you're really going to tackle population health, you need to do it at the level of the macroeconomic policies" (CA1).*

This interviewee saw the NHS organisations in GM as being incapable on their own of effecting the health systems -level change needed to improve population health in GM.

In summary, HInM was influenced by multiple regulative accountabilities through differently constituted organisations each with their own separate regulative mandates. Regulative forces within the multiple HInM system stakeholder organisations shaped their expectations and capabilities in relation to HInM, which created prioritisation challenges for HInM executives. Such challenges included how to meet its broad GM-wide goals whilst also delivering benefits to multiple stakeholder organisations that had different expectations of HInM and tended to conceptualise the potential deliverables of HInM through a self-interested lens. Few, if any, stakeholder organisations within HInM's list of "system stakeholders" had a regulative mandate to address broader social determinants of health outside of healthcare or to effect broad health system change, hampering HInM's capacity to deliver on population health goals

Cultural-cognitive forces

Cultural-cognitive forces shaping a population health role in HInM are reflected in the themes of *organisational cultures* and *power dynamics.*

Organisational cultures. The "innovation" concept, which underpinned the normative role of HInM, was understood and used by HInM staff and stakeholders in very different ways, reflecting different cultures and ways of working within the system stakeholder organisations. Several clinician interviewees were critical of what they perceived to be an over-emphasis in discussions about innovation on technology outputs or discovery science that were sometimes framed as ends in themselves. These interviewees saw these "types" of innovation as detracting from other, more pressing, needs for health service and population health improvement.

> *"[This notion of] 'innovation as the answer' – no one talks about the end product. It looked like what innovation meant was technology. It's a part, but bringing business in won't solve everything [...] some of the innovations seem to be so technology-driven and they're not about 'we need to improve the experience of people' […] I think that there's a bit of an overstatement about what technology can do" (CA5).*

> *"I think the last thing that the NHS needs at the moment is 'innovation' […] I think that if you look at the NHS at the moment, it's big issue is not that we haven't got enough wizzy special things to do – the problem is not that we're not adopting new ways of doing things: the problem is that we're not doing the basics well enough. If you wanted to improve the NHS across Greater Manchester, you would not be talking about 'accelerating innovation' – you'd be talking about supporting people to do the basics. I think innovation is the wrong focus" (CA1).*

> *"The average person won't know what 'innovation' is, […]is it discovery stuff? But if it was 'health', you know it just sounds better because that's what it is – it's all about health and improving health. So innovation – Health Innovation Manchester – I think it should be 'Health Manchester' or 'Manchester Health' – something like that" (CA4).*

One interviewee questioned whether the notion of innovation as involving (commercialisation-focussed) industry engagement was actually at odds with population health principles, as the profit motive of pharmaceutical companies drove a concern for "making money out of the NHS" rather than improving health (CA1).

While the innovation concept was widely supported among health system executives, there were some differences between individuals in how it was interpreted. One health system executive used the term very broadly to refer to delivering health care in new and different ways.

> *"There's something in there about seeing 'innovation' in a broad sense that allows us to achieve the future objectives. So sometimes that is very acute – so it is about stuff that we're doing in critical care – but at the same time it is very much about: how can we think about the prevention of serious cardiovascular disease by trying to do cardiovascular care in a broad sense in a different way?" (HSE6).*

Two other health system executives, however, sought to differentiate between 'innovation' and 'health services improvement', defining innovation as a more major, and more important, change or disruption to how things are usually done.

> *"The conversation needs to be about how to do things differently, not just implementing a new device into a health care setting […] disruptive innovation is brilliant, because it is disruptive" (HSE2).*

> *"If all we focus on is health service improvement, that is not enough […] what that will tend to do is maintain the status quo. I mean, we will marginally improve what we are doing now, but we will always be doing what we do now […] people don't want change, they just want to do things a little bit better. Where we really challenge ourselves is to look for the way that things are being done differently and better, must be better, than we are doing now. So externally, so bring in ideas externally. Is that always at with [private] industry? No. But we can look externally for the very best and bring that in" (HSE4).*

A university-based researcher, in contrast, defined both service improvement and innovation as simply the implementation side of research within health service settings. Noting the challenges arising from the different interpretations and definitions, some interviewees recognised the difficulties they encountered in using the term.

> *"I would see service improvement and innovation as actually doing something, changing something, in the health service. So in my field that would be, for instance, rolling out a new intervention – digital intervention – like decision support system, or an AI tool, or an app. All of which I think should be based on evidence and aim to improve services through evidence-based mechanisms and should ideally themselves be objective studies. So if we do that we need to study how the adoption of that intervention is taking place, and whether it's as beneficial as we hoped it to be" (NCA2).*

> *"People go, we do innovation. What exactly does that mean? I think it's a term that – anyone who uses it should then define it after they use the word, because it means so many different things to different people" (HSE1).*

HInM executives had recognised the different usages and conflicting expectations of the concept as a challenge and had sought a very broad definition in presentations and in conversations with stakeholders, which encompassed "pathways".

> *"So in some people's minds, innovation is discovering a new biomarker of disease, for others its about pathway redesign. And they're all – for me they're all innovation. They come in at different places around my cycle. New pathways, new drugs, new technologies – it's all innovation. So actually, getting everybody to recognise, getting your basic translational research scientists to recognise, that that's innovation – that's part of the jigsaw" (EM8).*

A process was being undertaken in HInM to identify the different usages of "innovation" and other key terms, based on a recognition among HInM executives that building a common understanding was important among the many HInM stakeholders (EM8).

Overall, the different interpretations among HInM systems stakeholders of the central innovation concept indicated that a health services and industry-focussed lens predominated. This potentially excluded population health conceptions within the dominant definition of innovation in HInM; reinforcing this, the social determinants of health, beyond health service delivery, was not conceptualised as part of HInM's innovation role in documentation or by interviewees. One clinical academic identified a need for HInM to further develop its focus on the social determinants of health.

> *"[The focus in HInM] should be much more on social determinants. So the usual things – stop smoking, cut down the alcohol, get more exercise, eat properly – all of those are going to help a lot of these diseases we've talked about on their own" (CA4).*

In summary, the "innovation" concept, which underpinned the normative role of HInM, was understood and used by HInM staff and stakeholders in different ways, reflecting different cultures and ways of working within the HInM system stakeholder organisations. These interpretations collectively indicated a health services and industry-focussed lens to HInM's innovation role, rather than a population health lens. Reinforcing this, the social determinants of health, beyond health service delivery, was not conceptualised as part of HInM's innovation role in documentation or by interviewees.

Power dynamics. As HInM did not disrupt regulative accountabilities and relationships between system stakeholders, power dynamics between the organisations remained relatively unchanged by HInM, despite the apparent transformative potential of the devolution context. One interviewee argued that even the entire devolution project was mostly symbolic; a view that contrasted with the views of most others who strongly supported devolution and saw it as transformational.

> *"So you have more or less an existing structure onto which a new additional layer of hierarchy is imposed […] Because it [the devolution infrastructure] does not replace the existing structures, it complements existing structures, because no one is abolishing CCGs [Clinical Commissioning Groups] right now, no one is abolishing providers, because these are hospital service providers. […] it [devolution] is an attempt to create something that resembles a system to give the policymakers some rhetorical devices – to create an illusion of something being accomplished, instead of solving societal problems" (NCA3).*

A pre-existing, and ongoing, challenge for HInM was the competitiveness between the separate NHS organisations in GM within a market-based system, which one interviewee described as "an ongoing power battle" (CA4).

> *"As a Trust we are an independent organisation to the one down the road […] we can compete for patients […because] the more activity, the more [funding] we get […] you end up replicating stuff that doesn't need replicating" (CA2).*

> *"I think in the ideal world you have a single Trust [for the whole of Greater Manchester…] but that's not going to happen" (CA4).*

A health system executive reflected that such power differentials between the Trusts had led to "predation" of some by others, which was perceived to be in the interest of "having control" rather than being for the greater good of the GM population (HSE5). These dynamics created system fragmentation, which was perceived to have inhibited the ability of MAHSC, in the past, to deliver effectively on its goals. One interviewee saw a logical function of the broader devolution initiative being to work out how to better manage the competitive relationships between the Trusts:

> *"The fragmented nature of the system militated against the delivery of MAHSC to deliver high quality integrated programs. And it was another reason why devolution was necessary […] So we have still to do, what is the role of every hospital? We shouldn't be closing any hospitals, but the role of each hospital should be refined. And then you develop your 'specialisms' so you don't have duplicated facilities for specialties […] We shouldn't be having separate*

> *finance and back off functions in every bloody hospital, for God's sake. There should be a system-wide approach to procurement. There should be a system-wide approach to human resourcing, to appointment" (EM6).*

Indeed, the devolution context was seen by some to have galvanised an intent among the separate organisations to address these competitive relationships, in order to deliver on the integrated GM agenda.

> *"I think that the devolution settlement concentrated a lot of minds […] people in Manchester are beginning to understand that we've got 2.8 million people in a devolved health system now. That's like a small country. So we have this responsibility to use the money and to use the resource and use the trust that the city's been given very, very well […] I think the level of collaboration and cooperation [between the member organisations] is actually very high" (EM5).*

Some challenges in HInM also arose because the historical composition of MAHSC involved only one GM university and a dominant focus on Manchester University NHS Foundation Trust (MFT) over the other NHS partners, reflecting different levels of political influence and network capabilities as sources of power between MAHSC partners.

> *"One of our issues from a sort of negative perspective is that [MAHSC] have tended to be a little bit MFT-centric […] most of the research people that we have involved have been on the University [of Manchester]campus, i.e. here, and I think one of the things that we ought to try and do better – we [have] talked about how to try and do that – is moving that out into some of the [other] partner organisations" (CA2).*

Co-location of MFT with Manchester University was seen to have contributed to its closer involvement in MAHSC because it was "literally across the road" from the university (CA4). One interviewee observed that even the relatively small geographic distances between the Trusts tended to "deter people from moving around", meaning that videoconferencing was used between "people who are a few miles away because it's still quicker" (CA2). Issues relating to board representation in MAHSC had also created tensions between partners:

> *"[One organisation in GM] over the years have become very angry about [the board representation issue]. Because they were paying the same money as [another partner] and they weren't even getting a seat at the table. They were being represented by [one of the partners] who had a very different [health care focus]" (NCA4).*

A key challenge for HInM executives was both to recognise and try to manage these perceived power differentials where they affected the work of HInM.

In summary, despite the presumptive transformative potential of the devolution context, neither the devolution infrastructure nor HInM challenged the pre-existing structures of, or functional relationships between, organisations in GM. The capacity of HInM to challenge power dynamics and organisational roles across the GM system towards population health goals was therefore likely to be limited despite the transformational aspirations of HInM stakeholders. Competitive relationships between the NHS Trusts in GM also inhibited the ability of HInM to operate in an integrated way at a GM system level. Different levels of political influence and network capabilities in some of the partnering organisations in MAHSC also challenged enactment of collaboration in HInM.

8.5 Chapter summary

This chapter presents the findings of a case study of Health Innovation Manchester (HInM), located in Greater Manchester (GM), United Kingdom. The chapter explores the role of HInM in improving population health, by examining how population health is characterised and described within HInM, how population health goals are operationalised by HInM, and what the key enablers and barriers are to population health -focussed activity. Analysis of interview, documentation and observation data using an institutional theory framework revealed multiple forces shaping a population health role in HInM.

Improving the health of the GM population through innovation was a defining aspiration of HInM and responded to the substantial disadvantage faced by populations in GM across a range of health indicators. Parallel aspirations were to improve health service efficiency within the GM health system and generate wealth through growth of the life sciences industry. These aspirations relating to population health, wealth and efficiency mirrored those of the broader devolution context in which HInM had been established (GMHSC Partnership 2017), positioning HInM as a core component of the broader devolution strategy in GM. By representing the first attempt in England to combine an AHSC and with an AHSN in the one organisational entity, HInM exemplified the nation-leading identity of Manchester. At the time of data collection, substantial “innovation” and “translation” activity was being driven by HInM through a well-resourced project office, and a dedicated team of executives actively drove several stakeholder engagement processes involving high level prioritisation and engagement committees. These efforts were resulting in important improvements to health care in GM with multiple major successes reported.

Several barriers, however, were identified that inhibited the operationalisation of population health goals in HInM. First, the specific aims and activity of HInM demonstrated that the dominant focus in HInM was on the health care improvement rather than population health. This largely reflected the historical emphasis on the NHS through the GM AHSN, and the partnership composition of MAHSC which included only academic and health care organisations. Because few, if any, of these or broader HInM “system stakeholder” organisations had a regulative mandate to address broader social determinants of health outside of health care delivery, the social determinants of health did not feature as a focus of HInM activity. This was underpinned by a widespread assumption among stakeholders that improving health care would automatically improve population health, which is a contention not supported in the population health literature (WHO 2008). A health care improvement lens also characterised the way that the key "innovation" and "translation" concepts were interpreted by stakeholders, indicating a strong alignment of regulative and cultural-cognitive forces around a health care improvement rather than a population health role in HInM.

Second, HInM responded to commercially oriented imperatives to engage with private industry partners such as medical and digital technology, and pharmaceutical, companies to deliver on both health and wealth agendas through innovation. This *health and wealth* pairing, however, while championed in a landmark policy document that was part of the establishment rationale for AHCs in the UK (Department of Health 2011), is either centred on a health care improvement agenda (rather than a population health agenda) or is based on an unsubstantiated premise that population health improvement will automatically follow life sciences sector growth. As outlined in the previous case study, this approach assumes a "trickle-down" causal relationship between broader economic development and population health outcomes, which is challenged in the development literature (Qureshi 2008). The efficiency goals of HInM were similarly assumed to be linked to population health goals, although no theory of change was apparent about how this assumed linkage was to be effected in practice.

Third, because HInM did not challenge pre-existing structures or organisational power dynamics, it was not functionally constituted to implement a broad population health improvement agenda. Beyond offering high-level governance infrastructure to enable shared planning and prioritisation among stakeholder organisations, these organisations retained their separate regulative accountabilities to funders and regulators, which preserved the status quo. As such, the legitimacy of HInM was largely reliant on the commitment of core stakeholders to the transformative vision of HInM, underpinned by a contention that this commitment was enough to effect new ways of working across GM to achieve population health improvement. Both regulative and cultural-cognitive forces, however, which included unchallenged competitive relationships between stakeholder organisations within market-based systems, were misaligned with this contention. Future work to develop a robust evaluation framework in HInM might facilitate efforts to comprehensively map these barriers and inform strategies to address them, leveraging the resources available to HInM and the historic, high-level commitments to population health goals in the GM region.

9. Cross-Case Analysis

9.1 Introduction

This chapter presents a cross case analysis of the findings reported in the previous in-case chapters. The cases in the preceding chapters were four AHCs[2] in two countries: the Tropical Australian Academic Health Centre (TAAHC) and the South Australian Health Research and Translation Centre (SA Centre) in Australia; and the Oxford Academic Health Science Centre (OxAHSC) and Health Innovation Manchester (HInM) in England. HInM, described as a "system", was constituted by two separate initiatives that were themselves AHCs: the Manchester Academic Health Science Centre (MAHSC) and the Greater Manchester Academic Health Science Network (GM AHSN).

The chapter explores the role of the AHCs in improving population health by comparing how population health is characterised and described within the case study AHCs, how population health goals are operationalised, and what the key enablers and barriers are to population health -focussed activity across the cases. The chapter first presents a comparison of in-case findings, including comparison of contextual features of the included AHCs. The chapter then presents four inductive cross-case themes, which are framed as propositions:

1) The AHC structures reproduce existing organisational silos and power dynamics, limiting their ability to effect systems change;
2) The terms "translation" and "innovation" are interpreted too narrowly to enable enactment of population health roles;
3) The AHCs are oriented more towards improving health care rather than population health; and
4) Impact goals in the AHCs are wide-ranging and are assumed to be linked despite little attention to impact pathways.

The four cross-case themes comprehensively demonstrate that the AHCs in Australia and England, in their current form are neither structured, incentivised nor indeed expected by core stakeholders to deliver a population health role beyond improving health care within existing health system structures. As such, the findings strongly contradict the statements in policy documents and in

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[2] Note that this study adopts a broad interpretation of the "AHC" nomenclature to encompass a wide range of initiatives that attempt to deliver the tripartite mission (research, education and health care) with a focus on mobilising knowledge to practice.

the AHCs themselves that AHCs present a solution to population health inequities, or indeed even to structural health systems issues such as service fragmentation.

Nonetheless, the population health aspirations among core stakeholders, including substantial and historic intent among leaders to effect real health systems change to improve health outcomes (emblematic in the very establishment of the AHCs), indicate an environment receptive to critical self-examination and adaptation. Such adaptation is urgently needed if the AHCs are to effectively deliver a population health role.

In presenting the cross-case analysis, the chapter draws illustrative examples from data presented in the in-case study chapters as verbatim quotes from interviews, observation and documentation from each of the individual case studies. Each interview quotation is linked to the case study of origin, and, as in the in-case chapters, is identified using an acronym relating to professional role type (executives, directors, managers and project officers of the AHC="EM"; health system executive="HSE"; university or research institute executive="UE"; clinical academic="CA"; non-clinical academic="NCA") and a number corresponding to their random order in a list of interviewees in each professional grouping. Other demographic information (e.g. gender, age and length of time in the role) are omitted to maintain confidentiality of the participants. The documents referenced in the chapter are identified with their AHC and listed in each of the in-case chapters.

9.2 Cross-case descriptive results

Population health trends across the AHCs in both countries share the similar characteristic of having pockets of disadvantage and poor health outcomes, notwithstanding the overall population health disparities between the AHC populations. While both country contexts have nominal universal health coverage, important gaps were identified in access to healthcare among some groups of people. In the populations living within the Australian AHC catchments, access to health care, and population health outcomes, generally followed a gradient from metropolitan and large regional centres (better access and health outcomes) to rural and remote areas (poorer access and health outcomes). Widely recognised health outcomes disparities between Aboriginal and Torres Strait Islander, and non-Indigenous, Australians also featured prominently in the establishment contexts of the Australian AHCs, as indicated in AHC documentation and the stated expectations of core stakeholders.

> *"That's our key driver, that's why we're doing it [establishing TAAHC] – it's about equity, and improving health outcomes" (TAAHC, HSE8).*
>
> *"We want to make sure that the health care system is delivering equitable outcomes to all people in need, depending on that need. We clearly have a focus on Aboriginal interests because they're the most disadvantaged in society, certainly from my view. So, we want to see more equitable outcomes for Aboriginal people" (SA Centre, UE4).*

In the AHCs in England, there were also substantial population health gradients reflecting differences in socio-economic status between population groups. In both countries, population ageing, mental health and risk factors for chronic disease presented as key (and growing) population health - related challenges. These trends underscore the centrality of a broad range of social determinants in shaping health outcomes within the AHC catchment populations, and demonstrate that the AHCs had been established within health system contexts that were already challenged by a wide range of demographic and structural issues hampering health system responsiveness to population health needs.

Despite a key difference between countries being the much higher population densities in England, meaning large tertiary health care facilities proximate to greater numbers of people, health system fragmentation was a common issue affecting health system responsiveness to population health needs. In both countries, coordination of key organisational components is challenged by the generally separate systems of funding and governance for provision (and commissioning) of primary care, social care, and secondary and tertiary health care services.

> *"At the moment the Commonwealth funding goes to general practice and to the Aboriginal health services – we [the HHSs] get funded by the state [i.e. the Queensland Government], and we can tap into Commonwealth funding where we're the only health care provider – but as I say, the funding is difficult, because if we had one funder, we could work with that one funder to decide how we're going to work together [across organisations…]. We will continue to do what we've got to do, but it's made so much harder by the fact that we have these different buckets of money that we can only spend on certain things" (TAAHC, HSE8).*

> *"The reality is you've got – we've got a variety of problems, the first is that – first of all, admitting and discharging people too quickly […] Second problem is that we are not providing the primary care gatekeepers that we always used to […] and then critically of course the GPs have got no control over social care. So it's fractured between the hospital and the GPs, and between hospitals and the district nurses and the social care providers, so there's a lack of integration" (OxAHSC, UE2).*

Reflecting these health system contexts, common to the establishment rationale of all four AHCs was an intent to address fragmentation by improving coordination of the activities of different health system organisations within a specified geographic region.

Similarly, because the government "designation" processes were broadly similar in Australia and England, the collaborative governance arrangements, involving several separate organisations forming a single board to support joint planning and activity, and subscription-based funding models of the AHCs, were similar across the four AHCs (although HInM differed in its inclusion not only of a designated Academic Health Science Centre (AHSC) but also an Academic Health Science Network (AHSN), therefore involving a much greater number of partners than the other AHCs as "system stakeholders"). HInM, along with the two Australian AHCs, also accessed operational funding from another source (in addition to partnering organisation subscriptions): HInM accessed funding through its AHSN, and the Australian AHCs accessed funding through the Medical Research Future Fund (MRFF).

Drawing on the two aspects of organisational collaboration as defined by Gulati et al. (2012), all case study AHCs demonstrated establishment of governance infrastructure to support inter-organisational *cooperation* (processes to enable joint planning and goal development), but there was less attention to processes supporting *coordination* (deliberate alignment of actions to achieve the jointly determined goals) in the AHCs studied. As informed by the conceptual framework used in the study, alignment (or otherwise) of key elements supporting cooperation and coordination for a population role in the AHCs were explored against three institutional pillars (Scott 2014) – normative (expectations and standards about how things should be done towards valued ends), regulative (explicit rules, policies and regulations shaping behaviour), and cultural-cognitive (largely unconscious conceptions about the way the world is).

Across the four AHCs, translational research, innovation, and collaboration and strategic alignment between partners featured strongly as common *aspirations* and *activities* in the normative pillar. When examined against regulative elements including government designation and funding requirements, however, the AHC aspirations were sometimes misaligned with *accountabilities at the level of the AHC* and contended with competing *organisational accountabilities between the AHC member organisations* (and "system stakeholders" in the HInM case). In Australia, for example, the SA Centre received funding from the MRFF, which encouraged short-term projects that detracted from broader, health systems change aspirations.

> *"I think, like anything, these organisations - it's really - when you're waiting for the next wave of funding and you don't know whether it's going to come or not. It's really hard to plan in the long term. So, I think one of the barriers to these sorts of centres is if they're reliant on these vaguely random announcements for money - and then of course there's […] a six-week turnaround for this money. That's not helpful for researchers. It's not helpful. If you want to co-design priorities and projects, six weeks is a nonsense" (SA Centre, UE2).*

Also, the organisational partners within the SA Centre retained their existing regulative accountabilities and therefore continued to respond to requirements that were misaligned with population health goals. TAAHC similarly replicated population health -related gaps within its broader health system, including a system-wide orientation towards curative services for patients, rather than cross-sectoral prevention.

> *"[One challenge] is the way the hospitals are funded. Because they get funded – activity-funded, and in hospital terms that means admissions. So how do you convince an organisation*

> *that's getting paid per admission that they need to reduce admissions by improving the health of the population? […] It [activity-based funding] is actually a counter-incentive to improving the health of the population" (TAAHC, CA4).*

> *"Public health is about illness prevention and health promotion. And they're two areas that I think we sadly lack [in northern Queensland] – we've got such a significant burden of disease" (TAAHC, HSE11).*

Similarly in England, both OxAHSC and HInM contended with regulative forces in the member organisations (and "system stakeholders" in HInM) that emphasised traditional academic indicators of research excellence (among university partners/stakeholders), patient care (health service partners/stakeholders), and wealth generation (industry partners/stakeholders); all of which were misaligned with the population health imperative of addressing the social determinants of health outside of healthcare.

In the cultural-cognitive pillar, *organisational cultures* and *power dynamics* were also misaligned with AHC aspirations and tended to reinforce regulative elements as well as usual (pre-AHC) ways of working and interacting. Accordingly, and although there were several examples of joint (cross-organisational) activity in the AHCs, enactment of processes of coordination among the partnering organisations in the AHCs were undermined by regulative and cultural-cognitive elements that tended towards maintaining the status quo (i.e. how the partnering organisations prioritised and interacted prior to the establishment of the AHCs). This was seen in TAAHC and the SA Centre where there was a sense that translational research supporting health services improvement was not yet embedded in usual ways working within the health service partners, and traditional structures of reward within the university partners (such as the use of publication and grant counts in academic promotion structures) tended to de-emphasise research responding to local practice and policy issues in favour of biomedical research. In England too, there was a sense that Oxford University, as an organisational partner, drove assumptions in OxAHSC about the relative merits of cutting-edge basic science and commercialisation pathways compared to implementation science and health systems research. In HInM, interpretations of, and reflections on, the key concept of "innovation" among HInM stakeholders indicated that patient care and private industry -focussed framings tended to dominate, which detracted from population health endpoints.

> *"Here we are – number one medical school in the world – the students we have are just mind-blowingly clever, and when they qualify, what many of them want to do is they want to create new companies. They want to create new drugs for patients or new devices or new biomarkers" (OxAHSC, NCA5).*

> *"The researchers' answer [to the question of why research isn't being implemented] is that 'it's not my problem, that's your problem, the NHS. You're not implementing it.' The researchers say this all the time" (OxAHSC, CA1).*

> *"[This notion of] 'innovation as the answer' – no one talks about the end product. It looked like what innovation meant was technology. It's a part, but bringing business in won't solve everything [...] some of the innovations seem to be so technology-driven and they're not about 'we need to improve the experience of people' […] I think that there's a bit of an overstatement about what technology can do" (HInM, CA5).*

These cross-case observations are expressed in four cross-case analytical themes which describe key barriers to enactment of a population health role in the AHCs, based on the in-case analyses of the way that the institutional pillars were misaligned. First, the findings indicate that the AHCs reproduced, through their governance arrangements, existing organisational silos and power dynamics shaping the member/stakeholder organisations' interactions, which meant that the enactment of population health -oriented goals in the AHCs was hampered by the inability of the AHCs to challenge existing structures and ways of working within their broader health systems. These issues are explored within the theme of: *the AHC structures reproduce existing organisational silos and power dynamics, limiting their ability to drive systems change.*

Second, the key operational concepts in the AHCs ("innovation" and "translation") were predominantly operationalised within a biomedical rather than a population health framing. This meant that, regardless of the many definitional differences and usages of these key terms in the AHCs, the terms delimited the activities of the AHCs to health care improvement, rather than population health. These issues are explored within the theme of: *the terms "translation" and "innovation" are interpreted too narrowly to enable enactment of population health roles.*

Related, the third cross-case theme was that: *the AHCs are oriented more towards improving health* ***care*** *rather than population health.* Within three of the four AHCs (TAAHC, the SA Centre and HInM), the dominant, though implicit, assumption was that population health improvement would automatically follow improvements to clinical care, which hampered recognition among core stakeholders of the need to address the social determinants of health in the regions in which the AHCs were located. Like the other AHCs, OxAHSC was focussed on improving health care in clinical settings as its foremost translation aim, but this focus was less responsive to its local population context than to a global one, emphasising excellent science wherever it could be applied in clinical practice. This focus on health care improvement (rather than population health) also drove the organisational compositions of the AHCs, entrenching this focus structurally.

Finally, within each of the AHCs, a wide range of indicators were identified in reported impacts and in aspirational endpoints (with stakeholders reflecting on what "success" looks like for their AHC), which framed multiple groups and organisations, either explicitly or implicitly, as intended beneficiaries. Expectations and assumptions were identified about the *linkages* between the impact types, but little attention was given to how impact pathways should be enacted in the AHCs, or evidence identified of enactment of linkage strategies. These issues are explored within the theme of: *impact endpoints in the AHCs are wide-ranging and assumed to be linked despite little attention to impact pathways.*

These cross-case observations are presented as analytical themes in this chapter. Within each theme, similarities and differences between the AHCs are explored with reference the overarching aim and research questions of the study. A summary of in-case findings, reflecting contextual features of the AHCs and findings within the three institutional pillars used in the in-case chapters, is presented in **Table 21**. The summary juxtaposes the key attributes and contexts of the AHCs, as well as key findings against each of the institutional pillars explored in the previous chapters, to support comparison between the AHCs in the ensuing themes. The table also reports the key contextual features of the AHCs including geographies, population health characteristics, number of organisational partners to the AHCs, key research and health system features and nature of historical relationships between the partners.

Table 21: Summary of in-case findings within the four case studies

	Australia		**United Kingdom**	
	Tropical Australian Academic Health Centre (TAAHC)	**South Australian Health Translation Centre (SA Centre)**	**Oxford Academic Health Science Centre (OxAHSC)**	**Health Innovation Manchester (HInM)**
KEY ATTRIBUTES AND CONTEXT				
Geography, population and health	Northern Queensland has a population of around 700,000 people living across an area of approximately 850,000km^2 proximate to Asia Pacific nations to the north. Life expectancy in the rural and remote areas of northern Queensland is lower than in the regional population centres and in the broader state and nation.	The state-wide population of just over 1.7 million people live across an area of 983,482 km^2. Population is highly urbanised with 1.3 people living within the Greater Adelaide region. Health outcomes are broadly in line with Australian averages but rates of chronic conditions are increasing, and some populations experience poorer health outcomes.	Oxfordshire has a population of around 700,000 people living across an area of 2,605km^2. Life expectancy is higher than England averages, but the region has pockets of disadvantage and a rapidly ageing population.	Greater Manchester has a population of around 2.8 million people living across an area of 1,276 km^2. The region has areas of high socio-economic disadvantage, with significant health inequities compared with England averages.
Composition and governance	Collaboration between: Cairns, Mackay, North West, Torres and Cape and Townsville Hospital and Health Services; the Northern Queensland Primary Health Network; and James Cook University (JCU). Established as a company limited by guarantee with a representative board and sub-committees.	Collaboration between South Australia Health, including five Local Health Networks (LHNs); the two Primary Health Networks (PHNs) in South Australia; the South Australian Health and Medical Research Institute (SAHMRI); the three South Australian universities (Flinders University, The University of Adelaide and University of South Australia); the Aboriginal Health Council of South Australia; and the SA	Collaboration between Oxford University, Oxford Brookes University, Oxford Health NHS Foundation Trust, and Oxford University Hospitals NHS Trust. Established as a virtual entity with a representative board and sub-committees.	HInM, as a "system", incorporates the Manchester Academic Health Science Centre (MAHSC) and the Greater Manchester Academic Health Science Network (GM AHSN). MAHSC is a collaboration between the University of Manchester, Manchester University NHS Foundation Trust, the Christie NHS Foundation Trust, Salford Royal NHS Foundation Trust and Greater Manchester Mental Health

		Health Consumer's Alliance. Established as an unincorporated joint venture with a representative board, advisory group and sub-committees.		NHS Foundation Trust. In addition, HInM "system stakeholders" encompass a wide range of health system organisations operating in GM. Established as a virtual entity with board and sub-committees.
Government designation	Applying for designation in 2018 as Centre for Innovation in Regional Health (CIRH) by the National Health and Medical Research Council (NHMRC) in the second round of the scheme. (Subsequently designated in 2019).	Designated in 2015 as an Advanced Health Research and Translation Centre (AHRTC) by the NHMRC in the first round of the scheme.	Designated as Academic Health Science Centre (AHSC) in 2014 by the Department of Health in the second round of the scheme. Seeking re-designation. (Subsequently re-designated in 2020).	Incorporates MAHSC (designated as an AHSC in 2009 in the first round of the scheme, re-designated in 2014 and seeking re-designation. (Subsequently re-designated in 2020)). Also incorporates the GM AHSN (established and funded by NHS England in 2013).
Funding	Co-contributions (subscriptions) from member organisations.	Co-contributions (subscriptions) from member organisations. Programmatic funding also received from the Medical Research Future Fund (MRFF) through the Rapid Applied Research Translation Initiative.	Co-contributions (subscriptions) from member organisations.	Co-contributions (subscriptions) from MAHSC member organisations and NHS England funding for the GM AHSN.
People	Leadership and operational staff involved through roles in member organisations as in-kind contributions.	Chief Executive Officer and small number of project support personnel employed through SAHMRI, funded by partner subscriptions.	Chief Operating Officer role and small number of project support personnel employed through Oxford University, funded by partner subscriptions.	Around 50 people, including the HInM Chief Executive Officer, constitute the HInM office. All employed through HInM system organisations (i.e. NHS Trusts and universities in GM), funded by MAHSC subscriptions and GM AHSN funds.

Research, health service and workforce features	Research developing within region’s health services. Health workforce education and training led locally by JCU with focus on rural, remote, Indigenous and tropical health. Universal health access through primary, secondary and tertiary health care services delivered by multiple federal/state organisations with some access gaps for rural, remote and Indigenous populations.	Long history of collaboration between the partners and commitment to both research translation and delivering on population health goals across the state. Universal health access through primary, secondary and tertiary health care services delivered by multiple federal/state organisations hubbed in Adelaide, with some access gaps for rural, remote, and Indigenous populations.	Long history of biomedical research and translation involving collaboration between partners, such as in biomedical discovery and development of therapeutics (e.g. penicillin). Universal health access through the NHS, provided primarily through NHS Trusts and networks of GP and social care practices and services.	Universal health access through the NHS, provided primarily through NHS Trusts and networks of GP and social care practices and services. GM health system undergoing historic devolution process to address perceived fragmentation of the region’s health and social care system, involving devolution of power from central to local governments in GM.
Location of headquarters	No formalised headquarters; initiative “distributed” and “virtual” across northern Queensland, but with Chair and support staff located within JCU facilities, Townsville.	Headquarters within SAHMRI facilities in the North Terrace health and medical research precinct, central Adelaide.	Headquarters hosted by Radcliffe Department of Medicine (Oxford University) located within John Radcliffe Hospital, Oxford.	Headquartered in a single large office space in Oxford Rd health and medical research precinct, Manchester. Co-located with Manchester University NHS Foundation Trust hospital facilities and the University of Manchester.
INSTITUTIONAL FORCES SHAPING A POPULATION HEALTH ROLE				
Normative:				
Aspirations	Using translational research and collaboration to improve the health of patients and populations living in northern Queensland. The broader tropics, especially the Asia Pacific region, also a focus in relation to strategic cooperation and life sciences industry development. Research and	Using translational research and collaboration to improve the health of the South Australian population. Research priorities: Aboriginal health; colorectal cancer; healthy ageing; cardiac rehabilitation and prevention; mental health; the first 1000	Strategic alignment between the partnering organisations to improve the health of patients through excellent research locally, nationally and internationally and to simultaneously generate wealth through growing the life sciences industry.	Creation of a system based on innovation to improve the health of populations in Greater Manchester, improve health service efficiency and generate wealth through growing the life sciences industry. Has no specific themes.

	translation themes: service delivery to rural, remote and Aboriginal and Torres Strait Islander populations; innovative health workforce models suited to regional needs; chronic diseases with a high regional prevalence; and infectious diseases and biosecurity.	days of life; stroke; and diabetes.	Research themes: big data and clinical informatics; building NHS, university and industry relationships; modulating the immune response for patient benefit; managing the epidemic of chronic disease; emerging infections; and cognitive health.	
Activity and impacts (using CAHS (2009) impact categories)	Dominant focus on achieving impact in the *building capacity* and *informing decision-making* categories, in terms of strengthening research capacity in the health services, supporting collaboration and coordination between partners and facilitating translation of research into practice.	Dominant focus on translation in the *informing decision-making* impact category, envisaged as a process of facilitating pathways from the production of knowledge through to implementation in both clinical practice and health care -related public policy.	Dominant focus on effecting coordination and strategic alignment between partners to support research excellence and its translation to clinical care, predominantly reflecting *academic*, *capacity building*, and *informing decision-making* categories.	Dominant focus on improving health service delivery and patient care in the *informing decision-making* impact category.
Regulative:				
Accountability at an AHC level	Mechanisms of compliance being strengthened through establishment of Constitution and Members' Agreement to form a company. Applying for NHMRC CIRH designation which was likely to convey an accountability relationship with the NHMRC to retain designation status. (TAAHC subsequently designated in 2019).	Required to report to the NHMRC to maintain AHRTC designation. Also required to meet MRFF requirements linked to funding and participate in the Australian Health Research Alliance (AHRA). These requirements collectively drive orientation towards health services translation and short-term projects, some with a national remit.	Light touch governance with operational mandate limited to high-level strategic alignment. Required to report annually to the Department of Health to maintain AHSC designation, which drives emphasis on academic excellence, collaboration and growth of life sciences industry.	Required to report annually to the Department of Health to maintain AHSC designation (through MAHSC) and to deliver requirements of NHS England (through the GM AHSN), which drives emphasis on academic excellence, translation, clinical care and wealth generation.

Alignment of organisational accountabilities	Competing accountabilities between member organisations inhibit operationalisation of translational research and population health agendas. Health service-focussed membership base inhibits focus on social determinants of health outside of healthcare.	Competing accountabilities between member organisations inhibit operationalisation of translational research and population health agendas. Health service-focussed membership base inhibits focus on social determinants of health outside of healthcare.	Competing accountabilities between member organisations inhibit translational research agenda. Governance infrastructure aimed at promoting strategic alignment rather than delivering integrated tripartite mission.	Different accountabilities of HInM system stakeholder organisations emphasise academic, clinical care, health service efficiency and commercial endpoints. Few, if any, system stakeholders have a mandate to address broader social determinants of health outside of healthcare.
Cultural-cognitive:				
Organisational cultures	Cultures within health service and academic partners devalue translational research and resist research becoming embedded within health services.	Cultures within organisational partners devalue translational research. Loose definitions of key term “translation” allows stakeholders to apply their own interpretations. Limited board-level attention to implementation science as a discipline.	Dominant biomedical emphasis positions university-based researchers as producers of knowledge and clinicians as recipients. Responsibility for implementation into practice lies outside of the AHSC.	Cultures within partnering organisations shape dominant conception of “innovation” as a tool for improving health services and life sciences industry growth.
Power dynamics	Lack of trust among partners evident in establishment experience, reflecting differences in organisational size, network relationships and political influence of partners. Attempts to address power-related challenges led to the board establishing stronger cooperation mechanisms to underpin the collaboration.	Challenges and barriers relating to power dynamics between the multiple organisational partners not clearly understood by core stakeholders or addressed by the SA Centre. Some perceived a dominance of central Adelaide over outer metropolitan and rural/remote health issues in prioritisation of work.	Establishment of OxAHSC as a strategic coordination body rather than one aiming to drive large-scale health systems change reflected a conscious strategy to accommodate (rather than challenge) deeply entrenched power dynamics between organisational partners.	Despite presumptive transformative potential of the devolution context, HInM did not seek to challenge pre-existing power dynamics between organisations in GM. Power-related challenges included competitive relationships between stakeholder organisations within market-based systems.

9.3 Cross-case analytical themes

The AHC structures reproduce existing organisational silos and power dynamics, limiting their ability to drive systems change

Overcoming organisational silos between health service and academic organisations was a key part of the rationale for establishing AHCs in both countries. In Australia, AHCs were conceived as a strategy to better coordinate components of the highly fragmented health system, especially the structural separation of health services from academia and research systems.

> *"I see TAAHC as being an umbrella organisation that pulls together the capacity and capability in [each of the individual organisations] and provides a kind of overarching strategic direction for where we'd go […] I think that the whole of Queensland is experiencing issues with very similar conditions – so the more that we can have a coordinated approach to it and we can actually do larger scale projects looking at how effective are the interventions that we're actually using or implementing – would have much more of an impact than any one organisation can individually" (TAAHC, CA2).*

> *"Universities haven't traditionally seen [research translation] as their core business, and the HHSs [Hospital and Health Services] or health system hasn't necessarily seen research as its core business, so something has to fill the gap" (TAAHC, HSE12).*

> *"Particularly in a country where healthcare delivery is funded by the states at a tertiary level and by the feds [federal government] at a primary level, universities are funded federally, MRIs [Medical Research Institutes] are funded both at state and federal level […] so it's quite an unconnected system. That's okay for a number of areas like bioscience et cetera, but if you are actually trying to influence and improve health outcomes and healthcare delivery, then to have hospitals and universities and MRIs not connected is a problem" (SA Centre, UE1).*

Similarly, in the UK context, the AHCs were intended to provide a mechanism to coordinate strategic planning and activities of the health service and academic partners.

> *"[HInM provides a] convening role of all partners, and that's a willing convening […] the one Manchester voice, the ability to convene us, the ability in some cases to say 'this is a really good idea you should all be using it, we should all be using it' – that's their mandate. What the mandate isn't, is to replicate what each sovereign organisation is doing" (HInM, HSE4).*

> *"[The purpose of OxAHSC is to] combine the institutions' individual strengths in world-class basic science, translational research, training and clinical expertise to address 21st century healthcare challenges" (Oxford University 2013).*

> *“The whole point is about system connectedness so to bring your assets together it seems to be the logical way of talking and reducing overlap and optimise your return” (HInM, HSE6).*

Collaborative governance in the AHCs, however, presented substantial challenges, which largely stemmed from the different regulative requirements, and cultures, of the health services as compared with academic (university and research institute) partners. A key challenge identified in all AHCs was that the health services in both countries overwhelmingly responded to service-related performance indicators and efficiency drivers, which created difficulties for the AHCs in driving research agendas within these organisational partners.

> *“Currently, health system KPIs are structured around waiting lists – how are AHCs reflected in these? [The system] needs incentives for the academic side” (TAAHC, UE1).*
>
> *“[Research] isn’t seen as core business [in the NHS] and of course if it is competing with its other priorities like treating people, it's always going to lose out” (OxAHSC, UE1).*
>
> *“What matters to the health care organisations is a) saving money, and b) showing that any research that they commission leads to even more saving money and maybe patient improvement” (HInM, NCA3).*

At the same time, the academic organisations responded to competitive research environments that resulted in career-related pressures on academics to publish and access grants, which tended to drive investigator-led research in biomedical, rather than population health, directions. These largely academic, rather than societal, drivers persisted despite the introduction of new impact reporting mechanisms within the university sectors of both countries.

> *“I don’t think we necessarily have confidence that a closer association with the university is going to fix [the health issues of importance in the interviewee’s health service…] because they tend to focus on things that are sexy and generate funding for research […] there are some topics that are very easy to get funding for” (TAAHC, CA4).*
>
> *“We just get researchers doing investigator-led stuff which is basically what interests them that doesn't necessarily speak to […] societal need […] what are the big issues? I know all of us – all of our unis are trying to tackle ‘grand challenges’ and be seen to be tackling stuff that's of importance to society. However [the researchers] still just go around doing what they're doing […There are] some structural barriers within universities in terms of how research is rewarded” (SA Centre, UE2).*
>
> *“Their [i.e. universities’] currency are papers and grants. And so they write their paper up and they’ve done their very lovely experiment and they write the next grant application. They don't often think, ‘well what could we do with that? What is the next step with that? How do we pass that on?’ […] It's a really big challenge and the problem is – through no fault of*

> *their own – universities almost endorse that because it's almost like a perverse incentive in some respects – we just want you to publish your papers, bring in the next grant" (HInM, EM3).*

These differences produced tensions between: normative translational research, innovation and population health goals of the AHCs; and regulative and cultural-cognitive forces in the organisational partners that either resisted research or social impact benchmarks. Despite this, most stakeholders in the AHCs believed, or went along with the idea, that the collaborative governance infrastructure of their AHC was sufficient to drive health care, as well as broader health system and even population health, improvement. Several collaborative governance strategies had been enacted in the AHCs. These included the establishment, in all the AHCs, of formal governance infrastructure including boards (mostly representative of the partnering organisations) and operational sub-committees. Teams of varying size had also been allocated to AHC operational roles (full or part - time, fully-funded by the AHC or in kind by one of the partners) to operationalise the AHCs' vision and goals, and these individuals were all "hosted" (directly employed) in one or more of the partnering organisations.

In addition, TAAHC and the SA Centre in Australia, and OxAHSC in the UK, had all moved to establish legal structures. In TAAHC, the board had agreed to create a company limited by guarantee, the SA Centre board had agreed to establish an unincorporated joint venture, and the OxAHSC board had approved the creation of a charitable entity. The reasons for the establishment of the legal structures in the Australian AHCs were largely the same: to clarify the responsibilities and expectations of member organisations. OxAHSC, meanwhile, was establishing the legal structure to enable it to make the partnership more inclusive of primary care, social care, and public health organisations in the Oxfordshire region. HInM had not determined a need for a legal structure. A comparative analysis of the operational outcomes of these different structures was not possible however, because they were all still in the process of being implemented at the time of data collection. Nonetheless, the intent behind their establishment provided some insights into the goals and priorities of the AHCs (TAAHC and the SA Centre aimed to strengthen their collaborations; OxAHSC aimed to give greater effect to local health improvement aspirations through enabling an extension to its membership base).

Regardless of these collaborative governance strategies, the AHCs largely relied on shared goals and commitments among organisational executives to underpin the collaboration (supporting processes of cooperation) rather than cultural-cognitive alignment or regulative enforcement mechanisms to systematically enable coordination of activities towards population health aspirations. This meant that normative aspirations (the shared vision about *what ought to be done*) largely provided the "glue" for collaborative working, rather than the regulative or cultural-cognitive elements which tended to pull the AHCs away from population health -related aspirations. This reliance on cooperation alone to underpin the AHCs meant not only that processes of coordination were not effectively enabled, but also that the institutional legitimacy of AHCs was weak. Improving cooperation between the partnering organisations had proved to be a major challenge in the AHCs, with all four of them having experienced difficulties in managing relationships between the partners. Both OxAHSC (England) and TAAHC (Australia) had failed in their initial designation attempts, largely as a result of collaboration issues, including high-level disagreements between organisational leaders and perceived insufficiency of collaborative governance infrastructure by designation application assessors. Following their initial failure, both AHCs had undergone processes of self-reflection and had identified a way to structure the AHCs to respond to the challenges; or to at least package the relationships and structures in ways that responded to a need to appear (to the assessors) to have done so.

> *"When you come to a panel meeting and fall out in public, as a prestigious academic institution, and a large teaching hospital, it's not a good thing. And so you don't get your badge. And so you've got to re-stock – you've got to step back and think – what have you got to do? So a lot of realignment went on […] There was lots of work done […] to try and educate the partners around how you create one of these things [an AHSC] – but Oxford is Oxford, and doesn't really partner as well as the others" (OxAHSC, EM1).*
>
> *"The relationships [between the partners] were at various levels of maturity, and there was an assumption [at the time of the first designation application] that everybody would just get on board with it because it was such a good idea" (TAAHC, HSE5).*

OxAHSC responded by paring back an initially ambitious partnership agenda to become a high-level strategic coordination body with a "light touch" governance infrastructure (OxAHSC, EM2); while TAAHC responded by crafting a stronger legal basis to the relationship and offering "distributed" leadership and governance models which emphasised equitable resourcing and benefits among the different partners. While these approaches were designed to achieve relational harmony between the partners and strengthening of strategic collaboration infrastructure (as required by designation), they were seen by some to have come at the expense of their initial strategic goals to improve coordination – at least in the short term.

> *"The re-bid arguably – and I'll be very critical here – it was very well done it was very impressive it did the trick – it got the designation, but it hasn't done the things that I think an AHSC needs to do in terms of its primary objective. Having said that they've set up some exciting programs attracted the international panel. But in a way it was about avoiding the too difficult-to-do" (OxAHSC, UE2).*

> *"It does concern me that at the moment we're just talking about TAAHC as a theoretical concept with some broad areas of vague ideas that these might be of relevance and interest without much more than that, and we seem to be a little bit stuck on setting ourselves up and how it would work rather than the actuality of what it might do" (TAAHC, HSE9).*

Although successful in its first designation application, the SA Centre, too, had engaged in an internal review and had sought to re-adjust governance infrastructure in response to findings about an unwieldy governance infrastructure, which included establishing a legal agreement and introducing a skills-based advisory group. Similarly, the very establishment of HInM responded to previous perceived failures in collaborative working among health service and university organisations across Greater Manchester.

However, because none of the AHCs sought to challenge or address pre-existing accountability arrangements or power dynamics in their broader health system contexts, they replicated, through their governance and funding structures, the very health system silos they were established to overcome. Power differentials between the organisational partners in the AHCs included a perceived knowledge-based dominance of universities in the partnership, as well as dominance of city-based organisations and priorities that reflected the bigger budgets, networking capabilities and greater political influence of these organisations compared with the outer-city and rurally based organisations.

> *"I think the [rural and remote] voice is there [in the SA Centre], but it's not being heard" (SA Centre, HSE4).*
>
> *"I think in developing […] the Translation Centre […] that we have to be extremely mindful of the catchment we all serve, and that's the State [of South Australia]. It's something that we need to be mindful of and we all need to be kept accountable to all of our catchments, not just the CBD there" (SA Centre, HSE1).*
>
> *"The parochial attitudes and traditional rivalries that are historical and well-known in northern Queensland continue to play a role in slowing the progress towards establishing TAAHC. In general, this was manifest as a low level of trust between the TAAHC member organisations" (TAAHC Review Report, 2017).*
>
> *"I think [the TAAHC message] got hijacked by a notion that it was a JCU [James Cook University] money-grab. And some of the cynicism was, you know, the big bold universities trying to take the money off the health services" (TAAHC, HSE5).*

In addition, competitiveness between the separate health care organisations and universities within regulative market-based systems created tensions between AHC partners and incentivised duplication of services rather than coordination of efforts.

> *"As a [NHS] Trust we are an independent organisation to the one down the road […] we can compete for patients […because] the more activity, the more [funding] we get […] you end up replicating stuff that doesn't need replicating" (HInM, CA2).*

This inability of the AHCs to challenge pre-existing accountability relationships and relational dynamics between the partners severely limited the capacity of the AHCs to enact any kind of large-scale systems change, let alone impact population health. This was compounded by their limited operational budgets which contributed to perceptions that the AHCs were little more than a useful brand, or at best a forum for the organisational leaders to talk and engage in high-level planning.

> *"Without funding, without a resource, they [AHSCs] have not got a mandate to be something more than they are; they are just a bash. And you're not going to get that mandate in Oxford for sure, or any time soon" (OxAHSC, EM1).*

Although the AHCs accessed funding through partners' subscriptions, these contributions were only enough to support small teams of operational staff and small project-based funding rounds. HInM and the SA Centre also accessed government grants (HInM accessed NHS England funding for the GM AHSN, and the SA Centre access funding from the Medical Research Future Fund (MRFF)), but these were tied to time-limited projects that reflected specific funder-determined priorities and deliverables. This context of substantive (untied) operational resource scarcity tightly bound the activities of the AHCs to the expectations of partnering organisations and other funders, which, as described earlier, often conflicted with population health goals. Rather than following a coherent and consistent population health strategy, therefore, the AHCs were required, by operational necessity, to continually respond to misaligned and shifting external priorities.

> *"We need to be mindful about how we craft a strategy and way of working that complements everybody's needs […] we're trying to keep everyone happy and 'oh that's a good idea we must do that' and 'oh that's a good idea we must do that as well', and there's 10 million good ideas we must do something about. And there's only finite time, resource to do the ten million things" (HInM, EM3).*

> *"It [the SA Centre] hasn't really delivered to date, purely because it hasn't really been funded, it's been a vehicle by name, and it hasn't had the resources to do anything. It's had aspiration, don't get me wrong, we've got lots of projects we could do. But it's herding the cats to be able to get it underway" (SA Centre, HSE2).*

> *"The question of prioritisation [of the work of the SA Centre] is really germane and it's because the funding is coming from the MRFF and there has been this overlay of the MRFF setting priorities that are out of the blue, off the cuff" (SA Centre, UE2).*

Moreover, the limited operational funding meant that leaders within the partnering organisations tended not to afford the initiatives much time or effort.

> *"They [AHSCs] have not been properly funded – until they're properly funded, people don't take it seriously. And until you say 'here's the budget for the AHSC', people end up doing it on the side as opposed to their main job" (OxAHSC, UE2).*

Without a sufficient, untied operational budget or distinctly separate mandate (from their partners), therefore, the AHCs had very little capacity to challenge organisational silos, most notably in relation to the structural separation of health care organisations from each other and from academic and research organisations. Because of this, a small number of interviewees expressed serious doubts about whether the AHCs in their current form could ever effect any real change in health system operations unless they were restructured to adopt more functionally integrated governance models.

> *"It is good that [Australia] has decided to look at these structures [AHCs], but the fallacy is that people think that, by building a structure, automatically it means that processes and behaviour has changed and they don't – you just basically reconstitute a power hegemony that is just going to keep everything as status quo" (SA Centre, UE3).*

> *"So you have more or less an existing structure onto which a new additional layer of hierarchy is imposed […] Because it [i.e. the devolution infrastructure, including HInM] does not replace the existing structures, it complements existing structures, because no one is abolishing CCGs [Clinical Commissioning Groups] right now, no one is abolishing providers, because these are hospital service providers. […] it [i.e. devolution, including HInM] is an attempt to create something that resembles a system to give the policymakers some rhetorical devices – to create an illusion of something being accomplished, instead of solving societal problems" (HInM, NCA3).*

Nonetheless, the strength of the normative aspirations of the stakeholders in the AHCs indicated that there was a strong will, particularly among organisational leaders, to implement strategies to overcome organisational silos in pursuit of shared goals. The findings of the case studies indicated, however, that the direction of this collaborative work and intent was not towards population health ends – as demonstrated in the themes below.

The terms "translation" and "innovation" are interpreted too narrowly to enable enactment of population health roles

The terms "translation" and "innovation" represented the key operational concepts in the AHCs; as the vehicles with which the AHCs would deliver patient and population health impact goals. The terms were present in the vision and purpose statements of all four AHCs and were also in the titles of two of the AHCs (the South Australia Academic Health Science and Translation Centre and

Health Innovation Manchester). The terms also featured in the titles of the Australian designation programs: Advanced Health Research and Translation Centres (AHRTCs) and Centres for Innovation in Regional Health (CIRHs). However, neither "translation" nor "innovation" were clearly defined in documentation and tended to be interpreted narrowly among stakeholders. These narrow conceptions had material consequences for the way that the AHCs were structured and their activities operationalised.

Although interviewees' conceptions were not mutually exclusive, **Table 22** groups the five main usages and interpretations of the terms identified in interviews and documentation, with illustrative quotes used to show both the dominant discourse in each grouping and counterpoint arguments from the cases. Despite their apparent differences, all conceptions were ostensibly about health service optimisation rather than population health improvement, with differences between them and counterpoints highlighting different perspectives among stakeholders on approaches and implementation challenges within this overarching focus on health service optimisation. While the *health systems and population health* conceptions seemingly reflected a broader population health focus, investigation "below the surface" (by asking *how* such aspirations are to be operationalised) revealed an assumption that improving health care leads unproblematically, even autonomically, to improved population health. As such, within the AHCs demonstrating these broader conceptions, a stated focus on population-level health outcome distributions and the social determinants of health was largely misleading, potentially masking their "true" or substantive focus on health care issues, whether at the frontline of clinical care or in health care policy.

Table 22: Five different conceptions of "innovation" and "translation" in the AHCs with illustrative examples (author's emphases in quotes)

1. **Linear pipeline conceptions**	
Dominant discourse: Translation and innovation are represented on a pipeline – from lab-based discoveries to clinical care, often involving (big pharma) industry engagement. *"[AHSCs] are focused on how you* ***translate*** *the strengths of research excellence and translation in the world's leading universities in the UK into practice" (OxAHSC, CA1).* *"OxAHSC is embedded within the recently designated Oxford Academic Health Science Network. This will enable the swift uptake,*	**Counterpoints:** Translation of research into clinical practice involves complex interactions between contexts and outcomes (i.e. is not always linear) and multiple types of evidence. *"I would say that the people who are more or less setting these systems [AHCs] up are very much on this notion that knowledge* ***translation*** *is a pipeline. So you've got different stages and different gaps and quite simplistically, the notion is, oh right well we've done the primary research, it's really*

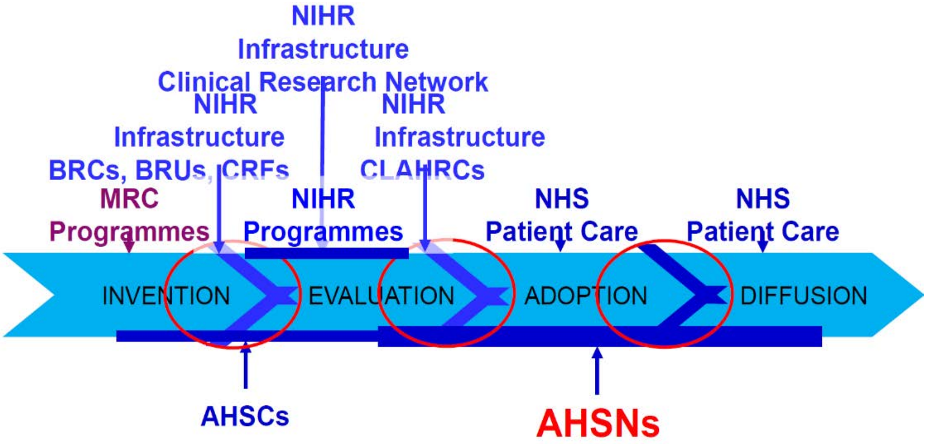
*adoption and **translation** of research outcomes, **innovations** and improvements in healthcare practice across this wider geography" (University of Oxford media release 2013).* *"I guess **innovation** is about technology and it's about engagement with industry and about new drugs and therapeutics and devices" (OxAHSC, NCA4).*	*good. We've done […] trials so now we have to get it into the clinical application. So all we do is we write some guidelines and then we give it to the medics and then they implement it. Case closed" (SA Centre, UE3).*
2. Conceptions that foreground disruption and transformation	
Dominant discourse: Innovation is a new and transformative way of delivering health care, which often involves disruptive new technologies and ways of working, and industry (medical/digital technology company) engagement. *"The conversation needs to be about how to do things differently, not just implementing a new device into a health care setting […] disruptive **innovation** is brilliant, because it is disruptive" (HInM, HSE2).* *"If all we focus on is health service improvement, that is not enough […] Where we really challenge ourselves is to look for the way that things are being done differently and better, must be better, than we are doing now" (HInM, HSE4).* *"**Innovation** to me only works if someone buys a product or does something different. And normally to do something different something has to be bought […] **Innovation** requires a change to the pathway – that will either be a new product or a service. Whether that service is provided by the NHS or a company, doesn't matter. **Innovation** equals change" (HInM, HSE1).*	**Counterpoints:** Innovation should include notions of health care improvement and respond to basic health care needs and priorities rather than pursue disruptive change and technology as ends in themselves. *"Those people who have a narrow definition say that health systems improvement or improvements to models of care that allow, for example, better access of an elderly patient to a GP Clinic – is not **innovation** that's just health service improvement, so we don't care about that" (OxAHSC, NCA4).* *"I think that if you look at the NHS at the moment, it's big issue is not that we haven't got enough wizzy special things to do – the problem is not that we're not adopting new ways of doing things: the problem is that we're not doing the basics well enough. If you wanted to improve the NHS across Greater Manchester, you would not be talking about 'accelerating **innovation**'" (HInM, CA1).* *"Some of the **innovations** seem to be so technology-driven and they're not about 'we need to improve the experience of people'" (HInM, CA5).*
3. Clinician-led research conceptions	

Dominant discourse: Innovation and translation refer to health care improvement based on evidence, involving a questioning mindset and culture among clinicians. *"**Translational** research is much more difficult [than laboratory research] and it's new really […] you have to have a research mindset in service of a service delivery mindset" (TAAHC, HSE6).* *"I firmly believe that if your health service providers are not embedded in a culture of **innovation**, their health service provision will be not as good as it should be" (TAAHC, UE4).* *"I would see service improvement and **innovation** as actually doing something, changing something, in the health service […] which I think should be based on evidence" (HInM, NCA2).*	**Counterpoints:** Implementation science/knowledge mobilisation methodologies and expertise are not well understood or valued and are often lacking in strategic decision-making structures and translation teams. *"There's actually no awareness that – no understanding of, health services research, no understanding of implementation science as a growing discourse. No understanding of the psychology of change. No real appreciation of improvement science or safety" (SA Centre, UE3).* *"They [the clinician researchers] are saying you know 'we're already **translational** and we're about practice', and actually they're not really. Well they are, but not in terms of the research they do" (HInM, NCA4).*
4. Health systems and population health conceptions	
Dominant discourse: In addition to clinical practice change, translation and innovation are about informing health policy and achieving broad health systems and population health goals. *"We know that if we do nothing things will get worse, with an ageing population, increasing incidence of disease and escalating costs of healthcare. To improve requires **innovation**" (HInM Business Plan 2018).* *"Health Innovation Manchester is a GM system-wide organisation which actually drives **innovation** into delivery for the benefit of the local population" (HInM, EM8).* *"The SA Centre is effectively placed to accelerate **translation** in disease areas, drive education, **innovation** and evidence based practice in clinical*	**Counterpoints:** Strategies and mechanisms supporting pathways to implementation of grand aspirations are not clearly articulated. Gaps in implementation capacity of population health goals evident in the lack of responsiveness of translation and innovation activity to the social determinants of health. *"I harbour doubts about – how to put this – I think there's a lot of overpromising going on, you know that the academic [health] centre's going to solve all of these problems and Indigenous health is going to get better and we're going to eliminate diseases […] you know the sheer scale of the problems" (TAAHC, CA4).*

care and to tackle the grand challenges in health to achieve a high-quality sustainable health system and improve patient health care" (SA Centre Discussion Paper February 2018).	
5. All-encompassing conceptions	
Dominant discourse: Definitions of innovation and translation aim to be inclusive of all conceptions. *"So in some people's minds, **innovation** is discovering a new biomarker of disease, for others it's about pathway redesign. And they're all – for me they're all **innovation**. They come in at different places around my cycle. New pathways, new drugs, new technologies – it's all **innovation**. So actually, getting everybody to recognise, getting your basic **translational** research scientists to recognise, that that's **innovation** – that's part of the jigsaw" (HInM, EM8).*	**Counterpoints:** These broad conceptions, often articulated in documentation and by AHC executives, do not address confusion about the terms among stakeholders. *"People go, we do **innovation**. What exactly does that mean? I think it's a term that – anyone who uses it should then define it after they use the word, because it means so many different things to different people" (HInM, HSE1).*

In the UK, multiple translation- and innovation -focussed initiatives were conceptualised as co-existing on a pipeline from biomedical research (exemplified by the National Institute of Health Research Biomedical Research Centres (NIHR BRCs)) through to adoption and diffusion into broader health services and patient care (as delivered by Academic Health Science Networks (AHSNs)) (NIHR 2015). This entire pipeline reflected and legitimised *linear, disruptive* and *clinician-led research* conceptions of translation and innovation (conceptions 1-3 in the table above). **Figure 23** shows the "research and innovation landscape" as conceptualised by the NIHR in the UK, which was a diagram developed to explain how the NIHR infrastructure (including BRCs and Collaborations for Leadership in Applied Health Research and Care (NIHR CLAHRCs)) was situated alongside AHSCs and AHSNs. Initiatives towards the "invention" end are more biomedically-oriented (concerned with linear pathways between laboratory discovery and development of new treatments and diagnostics), while initiatives further to the right of the pipeline are concerned with improvements (disruptive or otherwise) to patient care in the NHS.

Figure 23: AHSNs, AHSCs and the research and innovation landscape in the UK



Source: NIHR, reported by Oxford AHSN (2013)

Designation criteria for AHSCs (including OxAHSC and MAHSC – a component of HInM), and funding criteria for the AHSNs (including the GM AHSN – also a component of HInM), reflected their positions on the pipeline, which helped to reinforce the normative identities of both OxAHSC and HInM. While OxAHSC was positioned by stakeholders on the more invention end of the pipeline as indicated on the diagram, HInM was conceptualised by stakeholders as representing the whole pipeline – from invention (or discovery) to diffusion into the NHS. The pipeline, as reported in the HInM Business Plan, incorporated the following elements: “discover” (enable research excellence), “develop” (develop and evaluate treatments and services), and “deploy” (create pathways for adoption of new technologies and treatments) (2018).

> *“That’s what an academic health centre should do. To create that environment to pull those ideas up from everywhere, internally and externally. And allow you to nurture and develop and then push out to the AHSNs” (OxAHSC, EM1).*
>
> *“We're wanting to accelerate the pipeline from discovery through innovation into service” (HInM, UE1).*
>
> *“Health Innovation Manchester – it's really trying to span the whole thing [pipeline] as an umbrella organisation for Manchester, so they hopefully have sight of what we're doing, what these guys are doing, what these guys are doing – and saying we want to make Manchester ready for this innovation to be exploited” (HInM, EM5).*

The complexity of the translation and innovation landscape in the UK, which the diagram exemplified, was a source of frustration among multiple UK stakeholders. Moreover, the diagram itself was problematic because it gave the impression of a joined-up system of initiatives that interacted with each other, when it was actually a post-hoc rationalisation of entirely separate programs.

> *"The NIHR diagram is something which I would love to be removed from the history books. Linear innovation is a fallacy […The NIHR] is not a system, it's just a bunch of funding initiatives under one umbrella. And they don't link up and they don't pull through effectively. So it is not possible to say that the scaling factors are there. You can't necessarily scale from a project to a program to a BRC to a CLARHC to an AHSC to an AHSN. That's the theoretical framework. And it would be awesome if it worked that way. But in reality it's in and out of each one all the time" (OxAHSC, EM1).*

From a population health perspective, the designation and funding schema of each of the initiatives, as well as their multiplicity and the existence of the pipeline itself, strongly reinforced a health care improvement, rather than population health, orientation of the AHCs. While the Australian context did not demonstrate the same multiplicity of programs, the designation criteria of the AHRTCs and CIRHs similarly reinforced a health care (rather than population health) focus which drove their structural compositions (addressed in the theme below).

As well as informing their establishment, the different (though all health-care oriented) conceptions of the key operational terms framed the activities of the AHCs and the roles of key actors. Within all four AHCs, *linear* conceptions of translation and innovation (conception 1 in **Table 22**) drove expectations about the respective roles of academics and clinicians in enacting translation and innovation work. There was a sense among some university-based researchers and academics, for example, that the university/research institute -based researchers were responsible for generating knowledge while clinicians and administrators in the health services bore entirely separate responsibility for using the outputs from this research in practice, by driving and overseeing its application to real health care priorities and challenges.

> *"Is it the role of the academics to solve the [NHS's] problems? Absolutely not. Because we spend 145 billion pounds a year on the NHS, and if I even began to think that part of my role [as an academic] is sorting out [health service] practice, I would fail in absolutely everything […] because these are macro issues over which I have very little influence or control (OxAHSC, UE1).*

These role distinctions were also reflected in the language used by some university/research institute -based and health service interviewees ("we" and "they"), which positioned academics as holders of technical and scientific expertise and health service actors as the recipients of this expertise.

> *"**We** want to inform the health care system how it can do its job better" (author's emphasis; SA Centre, UE4).*

> *"The health system thinks that* ***they*** *should determine the research priorities that are then implemented […] but if these are people who don't understand research or how you articulate working things out, then that might not be very sensible" (author's emphasis; OxAHSC, UE1).*

> *"I think the Translation Centre would be – I think it would be great if* ***they*** *could support whatever evidence or findings* ***they*** *produce to be more transparent and easier reading" (author's emphasis; SA Centre, HSE1).*

The *clinician-led research* conceptions (conception 3 in **Table 22**), by contrast, emphasised the need to develop research capabilities of clinicians and to empower them to lead research activity with direct relevance to clinical priorities; although these conceptions still operated within the dominant health care optimisation paradigm. The focus of TAAHC on research capacity building among clinicians in the health service partners exemplified this conception. Similarly, despite their emphasis on large-scale change, conceptions that foregrounded *disruption and transformation* (conception 2 in **Table 22**) were predominantly concerned with step changes relating to clinical care, effected within existing organisational boundaries. More relational notions of disruption, wherein power dynamics between partnering organisations might be challenged (or disrupted) to achieve broader population health goals, were seemingly out of scope in this conception. As such, there was an overall absence of translation and innovation activities in the AHCs that challenged major systems-level barriers to improving population health, such as financial and structural impediments to inter-sectoral working or implementing comprehensive primary health care.

Attempts to integrate the different conceptions by introducing *all-encompassing* definitions of the terms (conception 5) only served to compound a sense of confusion among stakeholders about the role of the AHCs. Some interviewees directly described the ongoing ambiguity of these terms as a problem that needed to be addressed locally, or even nationally, to improve public understanding and accountability of AHCs.

> *"Success [of the SA Centre] for me would be, certainly in the Australian context, that there would be a high-level meeting of all of the Translation Centres to actually agree a definition of what 'translation science' looks like and actually acknowledge that for the different types of translation, because there are multiple points where translation happens" (SA Centre, UE3).*

> *"I think innovation is a particularly unhelpful word. Well, it's unquantifiable. Politicians like it, but it's stupid. Actually it's not good for them either because people can go back and say well, 'what did you do to innovate?' And then you can say 'well, we did this, we did that', and then someone else can say well, actually that's not [innovation]" (SA Centre, CA1).*

The ambiguity of the key operational terms also served to accommodate the myriad, sometimes conflicting, impact goals in the AHCs and contributed to obscuring operational pathways (described further below). As such, the uncertainty about, and narrow conceptions of, the terms undermined the accountability of the AHCs to their stated goals, including any relating to population health.

The AHCs are oriented more towards improving health care rather than population health

Normative population health values, linked to local population health needs, were strongly articulated in the establishment rationales of three of the four cases: TAAHC and the SA Centre in Australia, and HInM in the UK. The leaders of HInM had made the links between the Greater Manchester population context and the role of HInM especially clear, ensuring that it featured in its organisational vision statement.

> *"[The vision of HInM is] to be a recognised international leader in accelerating innovation to improve the health and wellbeing of our 2.8 million citizens" (HInM Business Plan (2018).*

A key driver of the population focus in HInM was its establishment within the broader "devolution" project underway in Greater Manchester. The devolution project placed a strong emphasis on the social determinants of health and prevention (GMCA Population Health Plan 2017-2).

In the Australian AHCs, a widespread expectation among interviewees was that their AHC would similarly address longstanding population health disparities in their geographic regions, including by improving Aboriginal and Torres Strait Islander health outcomes through research.

> *"That's our key driver, that's why we're doing it [establishing TAAHC] – it's about equity, and improving health outcomes" (TAAHC; HSE8).*

> *"We want to make sure that Aboriginal health is front and centre of any large-scale reform agendas that occur in Australia. We want to make sure that the health care system is delivering equitable outcomes to all people in need, depending on that need. We clearly have a focus on Aboriginal interests because they're the most disadvantaged in society, certainly from my view. So, we want to see more equitable outcomes for Aboriginal people" (SA Centre; UE4).*

Local population health needs in the Australian AHCs were also reflected in their research and translation priorities. A focus on Aboriginal, and Torres Strait Islander, health and prevention of chronic diseases, for example, both featured. While research themes had not yet been developed in HInM, executives and other stakeholders instead sought to emphasise HInM's enabling role within the devolution project in Greater Manchester, which aspired to improve population health outcomes.

> *"So the key to make [devolution in GM] work is Health Innovation Manchester, because they sit at the interface between academia and the health and social care system" (NCA1).*

The dominant, though implicit, assumption in these AHCs was that population health improvement would automatically follow improvements to clinical care alone, which omitted recognition of the need to address the social determinants of health in the regions in which the AHCs were located. A small number of stakeholders in the AHCs directly recognised this omission and expressed uncertainty about how their AHC would be able to achieve broad population health aims through a largely clinical approach.

> *"I think it [the SA Centre] needs to incorporate all the social and economic determinants of health in its narrative […] so that it has permission to think about the impact of housing, and education, and town planning, and environmental matters, and everything else in its mission" (SA Centre, HSE7).*

An emphasis on *health care* optimisation rather than population health improvement was also evident in the specific aims both of the Australian AHCs (TAAHC and the SA Centre), despite the clear references to local population health needs in their establishment rationales. For example, the social determinants of health did not feature in the high-level vision and purpose statements of TAAHC and the SA Centre, which instead emphasised improving "health care" and "clinical care".

> *"Purpose: To improve the health of the northern Queensland population and grow prosperity in the tropical region through an alliance that enhances collective capability in* ***health care****, health and medical research, and workforce development" (author's emphasis; TAAHC, 2020).*

> *"The SA Centre's vision is to continuously enhance the rate of translation of research into* ***health care*** *in order to create a self-improving and high-quality health system, which is also sustainable" (author's emphasis; SA Centre Discussion Paper, February 2018).*

Although TAAHC's research priorities were still being negotiated and developed at the time of data collection (inhibiting exploration of how they were being operationalised), work was underway within the SA Centre to operationalise its research and translation themes. This occurred mainly through discrete, time-limited "projects" that targeted various locally responsive health care issues and priorities, such as prevention of pre-term birth and establishment of a registry of evidence to improve care for older South Australians (SA Centre project reports, 2018).

A dominant focus on improving *health care*, rather than population health, was similarly identified in the activities of HInM, with the HInM Business Plan referring to "frontline care" as the main target for HInM's innovation work (2018). In addition, all projects underway at the time of data collection were about clinical issues (HInM Status Dashboard, May 2018; 2016/17 MAHSC Annual Report).

Like the other AHCs, OxAHSC was focussed on improving health care in clinical settings as its foremost translation aim, but this focus was less responsive to its local population context than to a global one, emphasising excellent science wherever it could be applied in clinical practice. As such, OxAHSC themes reflected a combination of disease-focussed areas and more cross-cutting enabling themes (e.g. big data and clinical informatics) that reflected global clinical priorities and challenges.

> *"We exist to cluster the excellent science that might be applied in Blackpool, maybe it will be applied in Zimbabwe" (OxAHSC, EM1).*

Local health needs in the OxAHSC region were only mentioned by a small number of interviewees who thought the initiative should be more responsive to these needs. The OxAHSC board had also recently determined a need to increase the focus of OxAHSC on the health service priorities of the partners (Away Day Report, 2018).

> *"Part of the thing that it [OxAHSC] could focus on is how you engage social care with NHS care for example. I don't think they [the AHSC] are doing that […] people could say, 'what would be the most remarkable innovation?' It would be to sort that out. How do we deal with old people who don't need to be in hospital? And how do we care for them in the community? All that sort of stuff" (OxAHSC, NCA4).*
>
> *"Do we have a bit of responsibility, since we work within the UK and are partly publicly funded, to try and work out how best to produce desirable change for health systems? Of course we do. And part of that is partnership working, and part of it is: can we come up with a sense of the way that we prioritise things better than we currently do?" (OxAHSC, UE1).*

The operationalisation of health care improvement goals in OxAHSC was led by research teams based in the partnering organisations, with the OxAHSC infrastructure, including a very small operational team, functioning primarily to coordinate high level strategic planning between the partners. This "light touch" approach to OxAHSC governance (OxAHSC, EM2), and its arms-length influence on actual research and translation activity, leveraged the historical strengths of the Oxford partners which included investigator-led world-leading research, particularly in biomedical sciences. As such, population health aims and activities in OxAHSC were reflected only insofar as investigator-led processes drove this focus within the university partners.

> *"[OxAHSC] is more about coordination and information flow between the four big organisations so it's a question of making sure everybody knows what's going on and what's important […] in terms of everything – in terms of master planning of estates in terms of – in fact it doesn't really impact on the research agenda [...] It can be anything. It can be to improve services, to develop strategic plans around where you're going to put buildings and*

> *organise transport, or lab research engagement and interaction […] the AHSC coordinated that but we didn't actually do any of the work, everybody else did the work" (OxAHSC, EM2).*

Reinforcing the emphasis identified in the UK AHCs on improving health care (rather than population health) through excellent research was the designation criteria of AHSCs in the UK, which reflected the traditional "tripartite mission" of AHCs. For example, designated AHSCs, which included OxAHSC and the Manchester Academic Health Science Centre (MAHSC – a component of HInM), reported annually about how they were:

> *"aligning the strategic objectives of the NHS provider(s) and university(ies) in order to harness and integrate world-class research, excellence in health education and excellence in patient care" (OxAHSC Annual Report 2017-18).*

The inclusion of the Greater Manchester Academic Health Science Network (GM AHSN) in HInM also drove a focus on NHS England health care priorities.

> *"They [the AHSNs] are run very much from an NHS perspective" (HInM, CA4).*

> *"We've got sort of a legacy which is that, you know, the Academic Health Science Networks have been very clinically-oriented, very treatment-oriented, would be the best way of putting it" (HInM, HSE6).*

In Australia, the designation criteria for AHRTCs and CIRHs similarly reflected the clinically oriented tripartite mission in requiring applicants to demonstrate research "excellence", "outstanding" clinical care and strong integration with education programs (NHMRC, 2018).

Reflecting these criteria, the types of core partners in TAAHC, the SA Centre, OxAHSC and MAHSC (as a component of HInM) were broadly similar, combining one or more universities and/or research institutes, as well as two or more government-funded health care organisations in a geographically defined region. Although some of the AHC partners had primary or social care mandates, most of the health service partners were responsible for secondary or tertiary care service delivery with an emphasis on hospital-based services. As such, because the AHCs had not sought to engage organisations as partners that were capable of enabling cross-sectoral work targeting the social determinants of health outside of health care, such as housing, employment, education, food, transport and early life, their very compositions supported a health care, mostly hospital-oriented, focus while mediating against a broader population health role. One possible exception to this was the SA Centre, which incorporated the Aboriginal Health Council of South Australia as an organisational partner. The large number of partners involved in the SA Centre, however, meant that the proportional influence of any one organisation was limited within the representative SA Centre board.

Compared to the other AHCs, the SA Centre also demonstrated a slight difference in emphasis in its focus and activity: while still responding predominantly to a health care (rather than population health) agenda, the goals of the SA Centre demonstrated a much more policy-oriented focus than the UK AHCs. This was most evident in the activities of the *South Australian Aboriginal Chronic Disease Consortium* which was part of the SA Centre governance infrastructure. At the time of data collection in August 2018, the Consortium was in the process of developing a policy "Roadmap for Action" targeting various health system organisations to collectively deliver on strategic priorities for diabetes, cancer and stroke across South Australia (Chronic Disease Consortium, 2018). The SA Centre had also commenced a role to provide policy evaluation services and advice to policymakers in the health system, which was articulated in documentation as one of its goals:

> *"The goals of the Centre are to: […] Provide evidence-based and evaluation-oriented strategic advice to the SA Health System" (SA Centre Discussion Paper, February 2018).*

Furthermore, the SA Centre delivered some policy-oriented projects with a national remit such as a project on national Aboriginal health workforce development, as influenced by the SA Centre's default membership (by virtue of its designated AHRTC status) of the Australian Health Research Alliance (AHRA).

Impact endpoints in the AHCs are wide-ranging and assumed to be linked despite little attention to impact pathways

Within the four AHCs, a wide range of indicators were identified in reported impacts and in aspirational endpoints (with stakeholders reflecting on what "success" looks like for their AHC), which framed multiple groups and organisations, either explicitly or implicitly, as intended beneficiaries (**Table 23**). There was an intent in all four AHCs to deliver impact across all Canadian Academy of Health Sciences (CAHS 2009) impact categories, although different emphases were apparent in the different AHCs. Across the AHCs, expectations and assumptions were identified about the *linkages* between the impact types. Chief among these assumptions was that:

- Research, enabled through collaborative governance structures, will improve clinical practice (*research-to-practice*);
- Clinical practice improvement will improve population health (*health care-to-health*);
- Research will improve population health (*research-to-health*)
- Growing the life sciences sector through "industry" (big pharma, medical/digital technology company) engagement will improve population health (*wealth-to-health*); and
- Improving health services efficiency will improve patient and population health (*efficiency-to-health*).

Hypotheses regarding impact pathways were primarily evident in relation to the *research-to-practice* linkage assumption, with some enactment of linkage strategies evident in the AHCs. There was comparatively little attention given to the other assumed pathways, however, either in the form of hypothesised pathways or evidence of enactment of linkage strategies.

Table 23: Consolidated impact indicator types and intended beneficiaries identified in the four cases

Impact categories **(CAHS, 2009)**	**Types of indicators suggested in the case studies and intended beneficiaries**
Advancing knowledge	*Benefits to: universities and research institutes, academics, general body of knowledge* • Research grants, publication counts • University rankings • Other specific research outputs
Building capacity	*Benefits to: partnering organisations, clinicians, academics, "industry"* • Staff and student recruitment and retention in partners • Health workforce: research capabilities of clinical staff including capacity in methodologies relevant to research translation and implementation • Nature and extent of collaboration between partnering organisations • Reputation of the partnering organisations • Establishment of research-enabling infrastructure • Investments in translational and implementation science research • Access to financial resources for strategic initiatives, such as ability to create unified bids for major funds • Linkage and accessibility of clinical data for research • Platforms for patient-focussed research • Creation of new collaborative initiatives • "Industry" (big pharma, medical/digital technology company) engagement
Informing decision-making	*Benefits to: health service organisations, patients, policy-makers* • Evidence-informed changes to clinical practice guidelines and clinical outcome measures and targets • Evaluative and implementation research addressing local health and service issues • Active linkages between research efforts, and practice and policy change • Alignment of research endeavour with health needs and health system priorities • Clinically-oriented impact pathways apparent in projects • Mechanisms to drive, influence and implement public policy nationally or internationally • How the public and competitors respond to outputs of the AHC • Deployment of new programs into the health system
Health	*Benefits to: patients and populations located locally and/or globally* • Patient health locally and globally • Health and wellbeing of local and global populations
Broader socio-economic	*Benefits to: governments, private industry, populations, broader economy* • Development and growth of new life sciences industries • Quantifiable productivity and efficiency returns to health services and systems • Strategic collaboration with international organisations • Commercialisation pathways and support • Job creation

Reflecting the dominant health care optimisation focus (as described in the theme above), many stakeholders in the AHCs were interested in effecting clinical practice improvement though research, as facilitated by the AHC collaborative governance infrastructure. As such, all AHCs emphasised indicators in the *informing decision making* impact category (which included indicators about evidence-informed clinical practice change) while de-emphasising more academic indicators such as publications and grants (in the *advancing knowledge* category), reflecting a clear intent among stakeholders to improve linkages between research and health care practice through the AHC.

In the Australian AHCs, a hypothesised impact pathway was that embedding research capacity within the health service organisations would increase research capabilities among clinicians, who would then conduct their own research and thereby drive evidence-based clinical practice.

> *"I can't stress enough how important it is to have an environment where researchers and clinicians can work closely together. That in itself is improving outcomes" (TAAHC, HSE4).*
>
> *"[Success is] a robust and contemporary evidence and research qualified health system in South Australia" (SA Centre, HSE6).*

In the SA Centre, another *research-to-practice* linkage strategy being employed was co-design with end users within SA Centre -funded and -auspiced projects, which aimed to bring policy, health system, and research community stakeholders together to inform processes across the research stages. This approach was also evident in the SA Centre at a strategic planning level through the establishment of a *Stakeholder Forum* that aimed to "engage interested parties (individuals and organisational representatives), who are not financial partners, to enable contribution to strategic directions and priority setting" of the SA Centre (SA Centre Discussion Paper, May 2018). TAAHC, which was at an earlier establishment stage, had not yet commenced operationalising its *research-to-practice* impact pathway outside of establishing the TAAHC governance infrastructure.

In the UK, HInM (largely through the GM AHSN) employed a sizeable project management team to oversee a raft of clinically-oriented "innovation" programs, and had established high-level strategic planning and coordination bodies to effect *research-to-practice* linkages. These included an Innovation Prioritisation and Monitoring Committee to oversee and prioritise HInM's work programme, and a Research and Education Committee to enable dialogue between devolution stakeholders and academics in Greater Manchester about finding solutions to health service problems through research. In addition, prior to the establishment of HInM, the Manchester Academic Health Science Centre (which became a component of HInM) had organised regular meetings between biomedical scientists and clinicians to identify ways of working collaboratively, although these meetings had reduced in frequency in recent years and their future was uncertain in HInM.

In contrast to the other AHCs, the approach to operationalising the *research-to-practice* pathway in OxAHSC was deliberately at arm's length from practice and research -level planning and implementation. Instead, OxAHSC's aims relating to translating lab-based discoveries into clinical practice were intentionally investigator-led by research teams outside of the AHC, rather than facilitated directly through the AHC, with the OxAHSC board functioning instead to facilitate high-level strategic planning.

> *"[The role of OxAHSC is to be] the bridge between basic research and early proof of principle, proof of effect in the clinic […] the model we've landed on is to use Oxford's convening power – it's more of a facilitating AHSC than anything else. And so the Board is able to say 'we want this to happen, let's go and make it happen'. We don't insist on it or route things through departments" (OxAHSC, EM1).*

A goal had been identified by the OxAHSC board, however, to undertake more detailed planning about pathways and resourcing of "implementation of innovation" through OxAHSC in the future (Away Day Report, 2018).

Despite these strategies being adopted in the AHCs to enable *research-to-practice* linkages, however, expertise in knowledge mobilisation methodologies was a gap in all four AHCs. This gap was apparent in the composition of AHC boards and strategic committees (which were representative of the partners rather than skills-based), and in the omission of implementation science concepts and theories within AHC documentation. The gap was also described directly by some stakeholders in the SA Centre who identified a need for implementation science training among clinicians, academics and policymakers to deliver on translational research goals. Some stakeholders described their perception of gaps in implementation science expertise Australia-wide, which potentially inhibited the AHCs' responsiveness to emerging evidence in this field.

> *"I think Australia's nowhere as good as some of our international collaborators in implementation science and health systems research. So, I think there's that. I think we have a skills shortage in that expertise, which we should seek to overcome. That should be an agenda that we build on" (SA Centre, UE4).*

> *"So if you think of most people who are now sitting on the boards of Translation Centres will be trained trialists or biomedical researchers who believe that randomised controlled trial is the gold standard to generate knowledge […] There's actually no awareness that – no understanding of, health services research, no understanding of implementation science as a growing discourse. No understanding of the psychology of change. No real appreciation of improvement science or safety. So there's such blinkered views of the world that unless we bust this thing open, we're just going to waste a whole pile more money. So what will happen,*

> *is that we'll just end up doing less robust science and call it 'translation science' and then that gives translation science a bad name" (SA Centre, UE3).*

Regardless, health care optimisation alone is not enough to improve broader population health (as noted earlier), contradicting the second main assumption – that clinical practice improvement will improve population health. The way that the *research-to-health* assumption was being operationalised in the AHCs can be critiqued in a similar way: although population health -oriented research themes had been established in some of the AHCs, the way that these were being operationalised was predominantly through projects focussed on effecting clinical practice change.

Similarly, the *wealth-to-health* and *efficiency-to-health* assumptions were that population health improvement would follow improved health services efficiency and life sciences industry growth, but details about hypothesised impact pathways were not apparent against either of these. The *wealth-to-health* assumption manifested in an expressed intent in all four AHCs to build local and national economies and create jobs through facilitating the growth of life sciences industries and commercial pathways. The UK AHCs emphasised this intent more strongly than the Australian AHCs and had demonstrated substantial activity to engage private industry, including pharmaceutical and medical/digital technology companies, in commercialisation and product development. OxAHSC, for example, reported the creation of spin-out biotechnology companies, while HInM had signed a memorandum of understanding with the Association of British Pharmaceutical Industries to "bring forward a pipeline of innovations for rapid adoption" within GM (HInM presentation, 2018).

> *"The partners have contributed significantly to the interface with industry, using novel approaches to engage and support economic growth in the Life Sciences" (OxAHSC, 2014-15 Annual Report).*

This focus on private industry and commercialisation pathways reflected broader government policy in the UK which had championed a *health and wealth* pairing in the establishment of AHSCs and AHSNs (Department of Health 2011), and which was also reflected in the AHSC designation criteria.

> *"[There's a] very strong sense of health and wealth, [that these] are strongly inter-connected. And the university and the academic partnership with the NHS is potentially a hugely useful tool to attract inward investment into GM to improve, provide higher quality jobs and employment and increase the economic wellbeing of the city region" (HInM, NCA1).*
>
> *"Through partnering with industry a key component of Health Innovation Manchester, the improvement of the health and wellbeing of GM citizens, can be achieved" (HInM presentation March 2018).*

> *“Oxford is more focussed on improving wealth, and through that you improve health […] Oxford’s line is we are very good at innovation – through that we create jobs and improve the region’s health” (OxAHSC, NCA7).*

Life sciences industry job creation and a general sense that broad economic growth (at regional or national levels) would improve health were broadly taken-for-granted as key elements of the of the *wealth-to-health* pathway, yet these elements, reflecting a “trickledown” mentality, represented (at best) a very indirect route to population health improvement. This assumption was directly challenged by a small number of interviewees who argued that financial motives did not necessarily align with social goals.

> “*Bringing in pounds is a million miles away from being socially responsible […a wealth focus is a] very different framing to ‘how are we going to help ageing populations who can’t access health care?’” (OxAHSC, NCA7).*

The devolution context of HInM reinforced this combined health and wealth agenda while at the same time driving health services “efficiency” goals in HInM.

> *“Efficiency and improving health go hand in hand. [This is something we] must do, due to 2-billion-pound deficit [in the broader devolution project]” (HInM, EM1).*

This efficiency agenda was also apparent in TAAHC; but in both AHCs, the hypothesised *efficiency-to-health* pathway, however, was unclear. At best, greater health services efficiency might improve health care quality (e.g. by reducing unnecessary procedures, incentivising streamlined practices and referral pathways and freeing up resources for more needed services), but at worst, financial efficiency as a framing concept might compound health care challenges (e.g. by increasing workload pressures). Indeed, some UK stakeholders reflected that stringent efficiency measures in the health services as implemented over several years were in fact a *contributor* to poor health outcomes, rather than a strategy to address them. In the years preceding the establishment of the AHCs, sustained efficiency drivers in the NHS had led to severely stretched service capacity which implied reductions in quality of care over time.

> *“Unless the government spends more money on the NHS nothing will change. Because it's a severely underfunded system which has been underfunded for nearly a decade” (HInM, NCA3).*

> *“I think that the NHS is grossly underfunded, and I think that that is a big issue. So I think that the so-called 6 billion [pounds] which is actually – because it's not held at the Greater Manchester level, it is distributed to all the statutory organisations within Greater Manchester – I think that it is it's not enough, and that makes it very difficult, but it means that the system*

> *is forever firefighting […and] the funding for social care has dropped off a cliff" (HInM, CA1).*

Either way, activity to promote greater efficiency at a health service level, especially within fragmented service contexts employing activity-based funding models, was a long way removed from efforts to improve population health by, for example, addressing social determinants of health and implementing comprehensive primary health care.

The assumed, rather than explicitly defined, hypothesised and evidenced, linkages between the varied impact goals in the AHCs demonstrated that operational pathways to population health goals in the AHCs were opaque at best and spurious at worst, though not intentionally. The assumptions relating to population health reflected genuine good intentions among those leading the AHCs but were given licence to emerge without scrutiny. Despite being required to report impacts as part of designation requirements, none of the AHCs used a detailed set of indicators or other internal evaluation mechanisms to aid impact evaluation. The lack of clear indicators and details about impact pathways also meant that transparency and answerability mechanisms in the AHCs were weak, demonstrating an urgent need for clearer accountability frameworks to support development and enactment of population health roles.

9.4 Summary of cross-case findings

Cross-case analysis of findings from the four in-case studies resulted in the identification of four inductive cross-case themes that respond to the original study aim to explore the role of AHCs in improving population health. These themes are framed as propositions:

- The AHC structures reproduce existing organisational silos and power dynamics, limiting their ability to effect systems change;
- The terms "translation" and "innovation" are interpreted too narrowly to enable enactment of population health roles;
- The AHCs are oriented more towards improving health care rather than population health; and
- Impact goals in the AHCs are wide-ranging and are assumed to be linked despite little attention to impact pathways.

First, the AHCs did not seek to disrupt or challenge existing accountability relationships or power dynamics between their partnering organisations, and reproduced organisational silos through their representative governance structures (involving leaders of the partnering organisations on the AHC boards) and funding arrangements. Because they were wholly reliant on funding from the partners and (in some AHCs) programmatic government grants for their operations, the AHCs were beholden to these stakeholders' expectations and requirements which diminished their capacity to challenge existing health system structures and relationships. Related, the capacity of AHCs to drive change towards population health ends was constrained by their composition, because most of the organisational partners were academic (universities and/or research institutes) or health care organisations that held secondary or tertiary care -level service obligations. This composition drove a dominant focus in the AHCs on academic, clinical, income-generation and efficiency-related priorities rather than on population health, which require intersectoral approaches and clearly-defined, outcomes-focussed goals.

Second, the designation criteria of the AHCs reflected narrow conceptions of the key operational terms “translation” and “innovation”, which then played out in the AHCs themselves. These conceptions drove a health care-focussed orientation in the AHCs by informing their organisational composition (as noted above) and limiting the extent of “translation” and “innovation” ideas and activity to clinically oriented, linear pipelines and pathways from: discovery science and research, to implementation and scale up in clinical practice. As such, even if they were structured to enact them, none of the AHCs actually held specific aims relating to population health, despite broad population health -oriented sentiments expressed in their establishment rationales (and, in some AHCs, their organisational vision statements). Instead, the specific aims, and activities, of the AHCs centred around health care optimisation, enacted through narrow conceptions of “translation” and “innovation”.

Third, accountability of the AHCs to any population health goals was undermined by poorly conceptualised and largely unsubstantiated assumptions about links between myriad impact goals and loose evaluation frameworks. Most stakeholders made implicit conceptual leaps between clinical care optimisation and population health; seemingly unaware that improvements to clinical care, on their own, are insufficient to improve population health outcomes. Even the most widely discussed impact linkage assumption in the AHCs (that research, enabled through collaborative governance frameworks, would drive clinical practice change) was diminished by a lack of attention to knowledge mobilisation methodologies and processes. Overall, the lack of clear population-oriented indicators and details about impact pathways meant that transparency and answerability mechanisms in the AHCs were weak, demonstrating an urgent need for clearer accountability frameworks to support development and enactment of population health roles.

Taken as a whole, the four themes comprehensively demonstrate that the AHCs in their current form are neither structured, incentivised or indeed expected by core stakeholders to deliver a population health role. As such, the findings strongly contradict the stated expectations in policy documents and in the AHCs themselves that AHCs present a solution to population health inequities, or indeed even health systems issues such as service fragmentation. Nonetheless, the population health aspirations among core stakeholders, including substantial and historic intent among leaders to effect real health systems change to improve health outcomes (emblematic in the very establishment of the

AHCs), indicate an environment receptive to critical self-examination and adaptation. Such an approach is urgently needed if the AHCs are to effectively deliver a population health role.

10. Discussion

Academic Health Centres (AHCs) are defined as organisations aiming to deliver a tripartite mission to deliver excellence in clinical care, research and health professional education (French et al. 2014). Population health, as a framing concept, is a critical consideration in relation to the role of AHCs, responding to government policy expectations as well as substantial global interest in their capacity to improve health outcomes by combining functional aspects of the tripartite mission. The systematic literature review conducted for the study found a growing interest among experts worldwide on the role of AHCs in improving population health, including important equity issues such as addressing persisting health disparities and their distribution within populations, such as by directing resources and attention towards improving the social determinants of health. Although mostly expert opinion and predominantly focused on the US context, the findings of the review underscore a growing global interest in the role of AHCs in improving population health but a lack of empirical work exploring this role, supporting the aim of the study to explore the role of AHCs in improving population health.

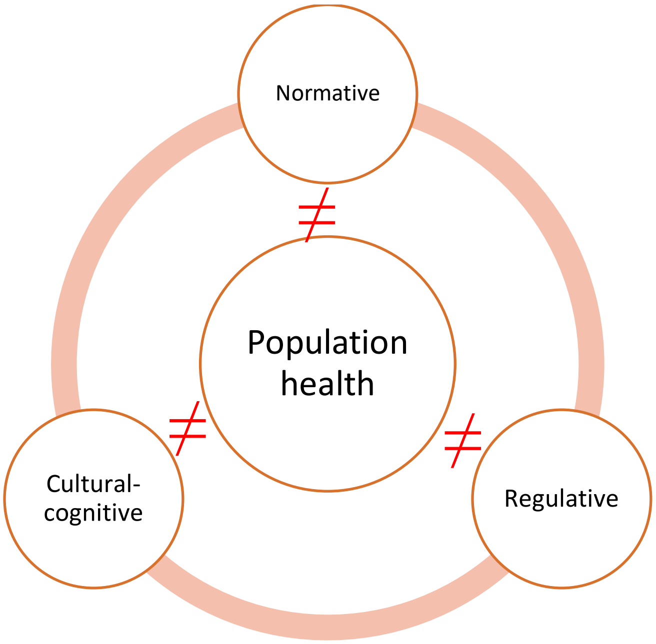
This multiple-case study project explores the population health role of four AHCs located in different geographic and health system contexts within Australia and England: the Tropical Australian Academic Health Centre (TAAHC) and the South Australian Health Research and Translation Centre (SA Centre) in Australia; and the Oxford Academic Health Science Centre (OxAHSC) and Health Innovation Manchester (HInM) in England. Australia and England were selected as contexts of interest for the study because similar AHC establishment approaches have been enacted in both countries and, by adopting a most similar/most different approach to case study selection, the project offers both within- and cross -country analysis and comparison. Formally designated AHCs, adopting varying nomenclature, were established in Australia and England in 2014 and 2009 respectively, involving government accreditation of collaborating health care and academic (university and research institute) organisations that have established governance infrastructure to support enactment of the tripartite AHC mission. Policy expectations of AHCs in both countries highlight their potential to improve, through collaboration, the integration of research, professional education and patient care, and to accelerate research translation and innovation to improve the health of patients and populations (NHMRC 2019; Darzi 2008).

The study used an adapted institutional theory framework (Scott 2014) to explore the normative, regulative and cultural-cognitive forces shaping a population health role in the case study AHCs. This approach enabled exploration not only of observable elements (e.g. participants' perceptions, organisational goals and governance infrastructure of the AHCs) but also of underlying structures, dynamics and processes influencing the way that key actors operationalised AHC goals. Accordingly, the study examines the nature of knowledge translation, innovation and collaboration in the AHCs (as normative goals), and how these were mediated by accountability relationships (in the regulative pillar), and organisational cultures and power dynamics (in the cultural-cognitive pillar) at an AHC level as well as within and between the partnering organisations in the AHCs.

The findings of the study show that the four case study AHCs responded either to local (specific to the geographic location of the AHC) or to global population health needs and priorities in their establishment rationales and, in some, corresponding vision statements. These high-level strategic aspirations, however, were misaligned with other normative, regulative and cultural-cognitive forces shaping the role of the AHCs that emphasised clinical care to patients, private industry (e.g. pharmaceutical and medical/digital technology company) engagement, health services efficiency and biomedical (rather than population health -focussed) research, translation and innovation. **Figure 24** illustrates the institutional elements constituting the key barriers to the AHCs' enactment of a population health role. The findings demonstrate that the AHCs' capacity and intent to deliver a population health role was substantially inhibited by both the *nature of their organisational structures* (including governance arrangements and composition of partners), and *government requirements and expectations* (including designation criteria and funding schema). These elements overwhelmingly reflected a biomedical, rather than socioecological paradigm (de Leeuw 2017). While socioecological perspectives promote a *health view* rather than a *disease view*, incorporating a recognition that health is created by a range of health determinants that lie outside of the sphere of the health sector, a biomedical paradigm sees health as created or challenged by specific pathogens or events, foregrounding diseases and disorders (de Leeuw 2017). The socioecological paradigm commences with the premise that population health is conditional on a health-promoting societal context (Davies et al. 2014).

These key barriers to a population health role in AHCs are further discussed below. Several "if…then" statements, building on the findings from the study, are presented as potentially testable mid-range theories (Pearson et al. 2015) about how AHCs can enact a population health role. Based on the institutional elements constituting the key enablers to AHCs enacting a population health role, implications for future policy, practice and research are then presented.

Figure 24: Institutional elements constituting key barriers to AHCs enacting a population health role



- Focus on health care (not population health) in specific aims and activity.
- Assumed causal linkages: *research-practice; health care-to-population health; research-to-health; wealth-to-health; and efficiency-to-health.*

- Governance structures replicate existing power dynamics and conflicting institutional logics between partners.
- Biomedical conceptions of innovation and translation dominate (reinforced by designation criteria).

- Composition dominated by health care and academic organisations (no inter-sectoral representation).
- Reporting and performance criteria accommodate multiple, unlinked impact expectations.
- Government funding either non-existent or largely programmatic, involving imposition of external research/translation priorities and short (1-3 year) timeframes.

Organisational structures

Because the relationships between the organisational partners in the AHCs relied on consent and collaboration rather than traditional hierarchies with clear reporting lines, the four AHCs reflected “network” arrangements involving limited liabilities and horizontal governance (Ovseiko et al. 2010). This structure and approach were reflected in the theory of change in the AHCs. Theories of change are the “perceptions, assumptions or beliefs about the process or pathway through which social change can or will happen” (Pandazidou 2012, p. 15). The theory of change common to the four AHCs was that research “translation” and “innovation”, oriented towards a wide range of impact endpoints, would be facilitated through a collaborative governance framework involving health service organisations, universities, research institutes and, in the case of HInM, industry (including pharmaceutical and medical/digital technology companies). The dominant narrative in the AHCs, therefore, was of “collaborative advantage”, which in institutional theory refers to the generation of synergy in the performance of collaborations (Skelcher and Sullivan 2008, p. 759). Although there was a widespread contention among stakeholders in the AHCs that the collaborative governance approaches being pursued were well aligned with strategic goals, the effectiveness of these approaches was strongly inhibited by deeply ingrained and conflicting institutional logics between the partnering organisations, and the inability of the AHCs to overcome already entrenched power differentials in their broader health systems contexts.

The most obvious conflict between institutional logics in the AHCs was between the corporate logic common in health care organisations which emphasises financial balance and efficiency (Checkland et al. 2012); and the autonomous, utilitarian and managerial logics common in universities (and independent medical research institutes) which emphasise investigator-led research, entrepreneurialism through knowledge, and competitiveness in business-like environments (Shields and Watermeyer 2020). These conflicting logics reflected the different regulative accountabilities of the partners, which restricted the ability of these separate organisations to work outside of their regulative mandates in enacting shared population health goals. For example, the secondary and tertiary health care organisations in the AHCs responded to funding and performance requirements relating to, for example, quality, safety and efficiency of care in inpatient and outpatient settings; but not indicators relating to population health more broadly such as addressing the social determinants of health and implementation of comprehensive primary health care. This challenge of structural misalignment between separate organisations around shared goals has been identified previously as a major challenge in AHCs adopting collaborative governance models (Ovseiko et al. 2014). Such misalignment creates bifurcating accountabilities and different organisational cultures between academic and health care organisations that act as barriers to enactment of translational research (Ovseiko et al. 2014). Similar challenges are commonly experienced in inter-sectoral working across government departments within public bureaucracies (de Leeuw 2017).

In the cultural-cognitive pillar, the different institutional logics in the AHCs produced diverse stakeholder expectations about AHC roles and potential contributions. The institutional logics in the health care organisational partners drove expectations relating to improved health service efficiency, quality of care and workforce capacity, which mediated against a population health lens as well as research capacity building goals. The logics of the academic partners drove conflicting expectations relating to research excellence and academic rankings on the one hand, and broader “public good” imperatives on the other hand. Such tensions in how researchers are rewarded for academic impacts, rather than impacts that their work has on broader society, is a widely recognised problem globally (Pearce and Evans 2018). In the academic partners within the AHCs, the tensions were evident in the coexistence of: normative public good imperatives to orient research towards addressing grand social challenges and community priorities; and regulative and cultural-cognitive pressures experienced by researchers to develop their careers within competitive environments, which tended to drive biomedical orientations in research endeavour. Collectively, the institutional logics within the health care and academic organisational partners undermined a population health role in the AHCs by incentivising biomedical models and orientations of health care and research, rather than the socioecological approaches described earlier. These misalignments are also reflected in the existential challenges faced by AHCs in the US (as identified in the literature review undertaken in this study), as the traditional biomedical, fee-for-service business models of AHCs are increasingly seen to be ill-suited to broader health system reform goals with population health orientations.

In parallel, power imbalances between the organisational partners in the AHCs, primarily reflecting unequal resources, knowledge, network involvement and political influence (Pantazidou 2012; Erasmus and Gilson 2008), replicated entrenched and historical dynamics in their broader health systems and research environments. These power imbalances presented additional challenges in the enactment of collaborative governance processes in the AHCs because they produced distrust between partners and skewed prioritisation of work towards the interests and priorities of the more powerful partners. In general, and regardless of the representative board structures adopted in the AHCs, the priorities of the financially smaller, outer-urban and rural/remote partners tended to be dominated by those of the larger and more centrally-located partners, which had the effect of privileging biomedical and hospital-focussed clinical (rather than population-oriented) issues and priorities. While such power imbalances are a common problem in collaborative governance (Ansell and Gash 2007), they particularly challenge network situations wherein, like in the AHCs, collaborating entities have an intent to achieve relative equity in resources distribution and influence (Sketcher and Sullivan 2008).

In addition, the knowledge-based power of the academic partners in three of the four AHCs led to an overall deference among stakeholders to these partners over the health service partners in leading the operationalisation of AHC goals. This was reflected in largely implicit expectations about the respective roles of academics (as knowledge generators and custodians) and clinicians (as implementers of knowledge). These role-related expectations reflected linear conceptions of translation and innovation within the biomedical paradigm described earlier, which inhibited enactment of community-based participatory research approaches between researchers and knowledge users, which are essential enablers of both clinically and population -oriented research (Jull et al. 2017). The one case study that presented an exception to this finding was TAAHC, wherein academics and researchers tended to be viewed by health service stakeholders with some distrust and suspicion especially among rural and remote stakeholders, reflecting a historical disconnect between research and practice in these regions.

The conflicting logics and power-related tensions between partners in the AHCs also manifested in delays (for two AHCs) in achieving government designation, which for one of the AHCs resulted in compromises being made to its initially more transformative strategic vision (an intent to adopt a much more functionally integrated structure around the three missions of research, education and patient care). The compromises achieved appeasement of diverse stakeholder interests and a glossing over of power-related tensions between the partners (sufficient to achieve designation in a subsequent round) but also diminished the role of the AHC to a high-level strategic coordination and planning body between the separate partners. The AHCs also contended with weak commitment of some partners to the AHCs, with many stakeholders finding it challenging to understand the intended role of the AHC and needing the value proposition to be framed in such a way that responded to their organisation's priorities. A pre-occupation of some AHC boards with high level structuring and legal agreements to bind the partners (arguably demonstrating an over-emphasis on processes of *cooperation* rather than more nuts and bolts processes of *coordination* (Gulati et al. 2012)) was also a manifestation of the power-related tensions between partners. Accordingly, processes of coordination, essential for effective inter-organisational collaboration, were undermined in the AHCs by regulative and cultural-cognitive elements that tended towards maintaining the status quo (i.e. how the partnering organisations interacted prior to the establishment of the AHCs).

In addition to offering insights into the general challenges associated with collaborative governance in AHCs, the findings of this study additionally contribute insights into the specific barriers to enactment of a *population health role* through collaborative governance. Achieving population health goals requires more than effective cooperation and coordination between health care and academic partners towards clear goals, it requires multi-sectoral action targeting a broad range of health determinants and activity to support comprehensive primary health care (WHO 2008). One strategy to effect multi-sectoral action is inter-organisational collaboration between organisations from outside of health care (Beland and Katapally 2018). While access to quality health care is an important determinant of health, the burden of poor health resulting in premature loss of life arises largely because of the conditions in which people are born, grow, live, work and age (WHO 2008). The structural determinants and conditions of daily life, constituting the social determinants of health, are therefore largely responsible for health inequities between and within countries (WHO 2008).

In the four AHCs, however, the widespread – and largely unquestioned – assumption among stakeholders was that health care improvement (within a biomedical paradigm) and population health improvement were either the same or causally linked. This indicated either limited understanding among core stakeholders in the AHCs about the role of health care in population health improvement, or learned helplessness in terms of stakeholders being unable to consider or address issues perceived to be outside of their control. This unquestioned assumption manifested in a near-total lack of activity supporting high-level population health aspirations outside of activity to drive improvements to clinical care. As such, while some understanding of research-to-clinical practice pathways was emerging in the AHCs, and demonstrated in activity, there was little attention to pathways and mechanisms between research and population health goals. The most obvious omission in planning and activity was on enabling inter-sectoral approaches to improving living conditions or social policies affecting target populations. Instead, the focus of research translation and innovation work in the AHCs was almost entirely centred health care improvement, suggesting an urgent need for conceptions of translation and innovation to (also) adopt a socioecological paradigm, foregrounding the distribution of health outcomes within target populations as well as the social determinants of health. To be able to enact a population health role, therefore, AHCs should seek to involve a much broader array of organisational partners to undertake inter-sectoral work and actively incorporate the social determinants of health in translation and innovation activity.

Building on these findings relating to organisational structure (including governance arrangements and composition), three contingencies are proposed to support enactment of a population health role in AHCs. These “if…then” statements present as potentially testable mid-range theories (Pearson et al. 2015) about how AHCs can enact a population health role.

> 1) If there are tensions between collaborating partners in the AHCs owing to competing institutional logics and power imbalances, then collaborative governance is unlikely to succeed unless there is explicit recognition of the nature of the tensions and active enactment of governance mechanisms to address them.
>
> 2) If AHCs hold population health goals, then their composition and governance models need to reflect and enable inter-sectoral elements and activity beyond academia and (biomedically-oriented) health care.
>
> 3) If research “translation” and “innovation” are to be used as the key operational concepts in the AHCs, then there needs to be deliberate efforts to adopt socioecological conceptions of the terms to support operationalisation of population health goals.

Government and funders’ requirements and expectations

Despite broad population health-relevant aspirations in their establishment context and in some of the AHCs’ own vision statements, the designation, and funding, criteria for AHCs in both Australia and the UK reinforce a biomedical translation and innovation paradigm. In the UK, the designation criteria for AHSCs emphasises excellent research, patient care and partnership with industry, and AHSNs are funded by NHS England to improve health outcomes for patients and generate economic growth. The very conceptualisation of multiple, similar “translation” and “innovation” -oriented initiatives in the UK (including both AHSCs and AHSNs, as well as a raft of National Institute of Health Research -funded initiatives) on a linear pipeline (from discovery to clinical practice) frame the initiatives within a biomedical paradigm. In Australia, the designation criteria similarly emphasise excellence in research-informed clinical care. Also, funding from the Medical Research Future Fund (MRFF), accessed by designated AHRTCs and CIRHs through the Rapid Applied Research Translation initiative, disincentivises population health -oriented projects in AHCs through its short (one to three -year year) programmatic funding model that inhibits co-design with communities, and by redirecting the focus of AHCs away from locally determined priorities to those set nationally.

The pressure to satisfy the requirements and expectations of government funders and designating bodies (as well as the partnering organisations which the AHCs relied on to fund their operations via subscription models), led to a wide range of impact goals in the AHCs studied that had limited cohesion and unclear links with population health. The varied impact goals in the AHCs can be broadly categorised as: a) input-oriented indicators emphasising resources (including workforce), industry engagement and enabling factors for research and collaboration; b) health services-focussed improvements relating to quality of care improvement and efficiency; c) patient and population health outcomes indicators; and d) wealth generation indicators centred on growth of life sciences industries (although present in the Australian AHCs, this latter category was most evident in the AHCs in England). In the AHCs, the two main problems stemming from this range of impact goals, from a population health perspective, were that: 1) input-oriented, health services and wealth indicators were assumed to represent elements along a causal pathway towards both patient and population health improvement ends; and 2) the assumed “means” and “ends” were conflated in relative importance.

Relating to the first problem, there was a complete lack of evidence or even hypothesised mechanisms to support the causal assumptions between supposed means and ends; and relating to the second problem, a disproportionate emphasis was given, in both designation-related reporting and funding criteria and in the AHCs themselves, to the input-oriented indicators over the health outcomes indicators. Other authors have described a similar tendency, in public policy making and evaluation, for specific policies to become ends in themselves, divorced from their true role as “instruments of broader social change” (Erasmus and Gilson 2008, p. 367). This challenge of the “many missions” of AHCs is recognised in the literature (French et al. 2014, p. 385), with uncertainty about intended beneficiaries detracting from a clear outcomes focus in the operation of AHCs globally (Edelman et al. 2018). The key operational terms “innovation” and “translation”, as used in designation and funding criteria, reinforce the “many missions” by functioning primarily as broad discursive tools. Such terms convey a sense of purpose while at the same time accommodating a high degree of ambiguity (Skelcher and Sullivan 2008), and therefore risk becoming “meaningless container concepts” that hamper policy implementation (Marchall 2009). The causal assumptions and conflation of ends and means in AHCs therefore need to be challenged using outcomes-focussed evaluation frameworks with clearly defined terminology. Such evaluation frameworks should resist the common impetus to focus on what is easy to measure rather than what is most important.

As the biomedical orientation of designation and funding schema for AHCs reflect the traditional “tripartite mission” paradigm (research excellence, education and training, high quality health service delivery) that is considered definitional of AHCs (French et al. 2014), the findings of this study indicate an important opportunity for AHCs, and government funders and designation bodies, to push the boundaries of this definition. While an argument could be made that AHCs in Australia and the UK were *never intended* to serve a population health role and therefore a biomedical paradigm is appropriate, there are two countering arguments that warrant consideration. First, the establishment contexts of the AHCs indicate a broad intent for AHCs to improve population health outcomes, or to at least drive better integration of health systems towards health improvement goals. These sentiments were part of the rationale for their establishment, and therefore continue to legitimise their existence as public good institutions. Second, the origins of the "tripartite mission" reflect largely outdated tertiary care -oriented roles of AHCs in the US, which are increasingly being challenged. The traditional focus solely on individualised care in AHCs in the US is being challenged by the realisation that "the delivery of clinical care by academic health systems has only marginally improved the overall health status of the communities in which they are located" (Washington et al. 2016, p. 459). A gradual evolution of AHCs in the US has ensued: from aiming to improve individual patient care (referred to as the "first curve"), to broader objectives to improve health care management at a population level (the "second curve"), to a "third curve" that involves "greater emphasis on factors and influences unrelated to health care" (Washington et al. 2016, p. 459). Reflective of this shift, the review of the global literature on AHCs conducted as part of this project, which was mostly expert opinion and focussed on the US context, found substantial interest among policymakers and leading clinicians in the equity role of AHCs. As such, AHCs in the US are under pressure to develop much more systems-oriented structures that are held accountable for the health of the local and/or global populations they aim to serve (Dzau et al. 2010).

Despite these two countering arguments, AHCs in Australia and England, along with their designation and funding schemes, appear firmly embedded within either the first or the second curve described above. As publicly resourced initiatives, AHCs should actively respond to public good imperatives by at least *acknowledging* the implicit biomedical paradigm framing the structures and activities of AHCs in Australia and England (and reject statements suggesting that they respond to a population health agenda), or preferably, by undergoing a fundamental reorientation to adopt socioecological frameworks foregrounding population health goals. The countering arguments suggest that it is time to break the mould. If AHCs really are to transform health systems and improve population health outcomes, then a major re-conceptualisation is needed within government policy to align designation and funding schema with population health goals and evidence-informed operational pillars. A refreshed definition of AHCs should ensue.

Building on these findings relating to government and funders' requirements and expectations (including designation criteria and funding schema), three additional contingencies ("if…then" statements) are proposed to enact a population health role in AHCs:

> 4) If designation criteria for AHCs are to support a population health role, then they need to position population health improvement as the overarching goal, with subsidiary indicators clearly linked to a theory of change about impact pathways.

5) If funding schema for AHCs are to support a population health role, then they need to enable the AHCs to operationalise their own, locally determined population health agendas over realistic timeframes.

6) If AHCs are to respond to growing expectations that they adopt a population health role, then the “tripartite mission” considered definitional of AHCs needs to be challenged and extended to reflect their focus on issues outside of clinical care.

Implications for future practice, policy and research

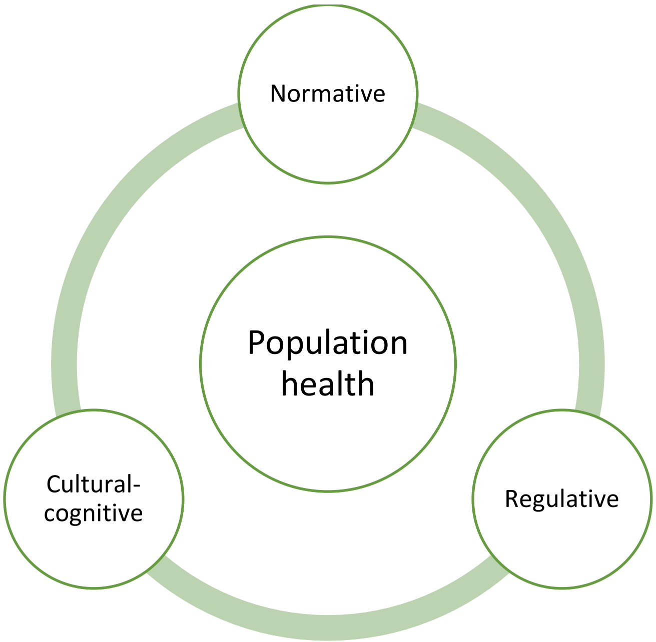
The findings from this study suggest some clear implications for policymakers and future research. If AHCs are to enact a population health role, then there is a need for action to address the barriers described earlier relating to organisational structures, and government and funders’ requirements and expectations. Possible actions, based on the findings from this research, are presented against the three institutional pillars (regulative, normative and cultural-cognitive (Scott 2014)) in **Figure 25**, which illustrates an alignment of institutional elements in the AHCs consonant with a population health role. The cultural-cognitive elements (taken-for-granted assumptions and dynamics) in the AHCs, as expressed in governance arrangements and understanding of key operational terms, inform and are informed by the regulative elements (obligations) relating to designation and funding schema. Normative expressions (what ought to be done and how) follow in the form of goals, operational plans and activity in the AHCs, which also reinforce the cultural-cognitive and regulative elements. To support operationalisation of the findings, evidence from the literature is outlined against the six contingencies below.

The findings of this research offer some important insights about the role of AHCs, including their potential to act as vehicles for implementation of systems-level reform towards population health goals. Future research should support evaluation processes in AHCs that embrace complexity and seek to strengthen the evidence base on strategies to overcome the key barriers identified in the study. There are many prescient gaps in the literature, framed by an overarching need for more research and scholarship on the science of governance, policy and “implementation instrumentation” (i.e. “the toolbox of government”) within the field of public health (de Leeuw 2017, p. 344). In the context of the findings from this study, such research might include active testing of strategies in different contexts (such as inter-sectoral governance approaches and testing of alternate financing models), and involve co-production methods with researchers and end-users, including clinicians, policymakers, and community. Work to further explore, test and operationalise the six contingencies will help AHCs, with such intent, to deliver a population health role by improving the alignment of population health aspirations with activities that deliver population health outcomes.

Evident in all AHCs was the presence of health system and academic leaders with strong commitments to effecting real health systems change to improve health outcomes, which was emblematic in the very establishment of the AHCs. Despite the barriers identified in this study, this alignment of transformational intent signals a historic opportunity for AHC leaders and governments to engage in self-reflection and re-orient AHCs towards improving population health.

Figure 25: Institutional elements needed for AHCs to enact a population health role

- Outcomes-focussed strategic goals addressing distribution of health outcomes in target population.
- Operational plans and activity clearly aligned with strategic goals.
- Explicit articulation of intended beneficiaries and impact pathways.



- Active management of misaligned cultural (and regulative) forces at an early stage through collaborative governance mechanisms & incentive systems.
- Understanding of power dynamics between partners.
- Conscious expansion of “translation” and “innovation” to include population-oriented conceptions (incentivised by designation processes).

- Intersectoral (beyond health care) composition of partners aligned to strategic goals.
- Embedded and ongoing evaluation processes utilising clear and unambiguous performance indicators that embrace complexity and link to locally determined goals and priorities.
- Ongoing, operational government funding provided to AHCs to deliver their own, local population-focused agendas over longer timeframes (5+ years).

1) If there are tensions between collaborating partners in the AHCs owing to competing institutional logics and power imbalances, then collaborative governance is unlikely to succeed unless there is explicit recognition of the nature of the tensions and active enactment of governance mechanisms, and broader advocacy processes, to address them.

The study findings suggest a need to address the clear tensions within the collaborative governance models adopted by the AHCs to support enactment of their strategic goals. The literature on collaborative governance offers insights into common challenges and success factors, which could be usefully examined to identify and test different strategies. Roussos and Fawcett (2000, p. 394), for example, identify several enablers of the success of collaborative partnerships, which commonly centre around:

- Engaging those who most experience the focal issue or community concern, often those with relatively little money or status;
- Collaborating with community leaders in sectors outside the professional field of the lead organisation in a partnership;
- Sharing risks, resources, and responsibilities among participating people and organisations;
- Confronting and overcoming conflict within and outside the partnership; and
- Maintaining adequate resources and continuity of leadership long enough to make a difference.

The literature on collaborative governance also offers some specific pointers in enactment of processes to address power imbalances and other tensions. Ansell and Gash (2007) demonstrate a need for explicit strategies to be enacted that empower meaningful engagement of under-powered groups. Such strategies include face-to-face dialogue, trust building, and the development of commitment and shared understanding (Ansell and Gash 2007). Achievement of “intermediate outcomes that produce small wins” is another strategy that is particularly important in situations where long-term commitment to trust-building between historically competitive partners (like in the AHCs) is necessary (Ansell and Gash 2007, p. 561).

2) If AHCs hold population health goals, then their composition and governance models need to reflect and enable inter-sectoral elements and activity beyond academia and (biomedically-oriented) health care.

Achieving population health goals requires multi-sectoral action targeting a broad range of health determinants and activity to support comprehensive primary health care (WHO 2008). Comprehensive primary health care models, in contrast to biomedical models of health care, align promotive and preventive activities with rehabilitative and curative activities and incorporate linkages with other (non-health) sectors (Baum et al. 2017). Indeed, a central strategy to effect multi-sectoral action is inter-organisational collaboration between organisations from outside of health care (Beland and Katapally 2018). AHCs could seek to enact intersectoral arrangements through introducing a broader array of organisations as partners, facilitating existing partners with population health mandates to adopt a more leading role, or through pursuing intersectoral arrangements at a project or strategic theme level.

Although successful inter-sectoral collaboration is hard to enact in practice, there are a range of enabling strategies explored in the literature. For example, to achieve consensus across sectors on how to address complex issues, Okeyo et al. (2020, p. 11) underscore the need for principled engagement processes to enable diverse stakeholders to arrive at "joint determinations or definitions of goals" and active surfacing of problem definitions through the course of implementation. To improve population health, biomedical frames of meaning (that "tend towards specific technical solutions") need to be recognised and challenged in order for socioeconomic frames (foregrounding the social determinants of health) to be enacted (Okeyo et al. 2020, p. 12). Bennett et al. (2018, p. 1) similarly highlight the importance of achieving "common understanding across actors about the problem" in enacting multisectoral action.

3) If research "translation" and "innovation" are to be used as the key operational concepts in the AHCs, then there needs to be deliberate efforts to adopt socioecological conceptions of the terms to support operationalisation of population health goals.

To deliver effectively on health care improvement goals, AHCs should engage with the burgeoning body of literature on models that facilitate linkages between knowledge and practice, which contrasts with narrow, biomedical approaches traditionally associated with the term "translation" (Greenhalgh and Wieringa 2011). Efforts to incorporate this field in AHCs might include research to integrate and contextualise the emerging evidence base on knowledge mobilisation for AHCs adopting collaborative governance models. Rycroft-Malone et al. (2016), for example, report several strategies that are likely to make inter-organisational collaboration for knowledge translation (into clinical practice) more successful (p. 4):

- Attention to communication mechanisms;
- Setting intermediate outcomes/goals;
- Adequate time and space for development and implementation of plans;
- Choice of topic with resonance and relevance;
- Close physical proximity between partners;
- Re-balancing and sharing power; and
- Allowing time to develop mutual trust and respect.

Looking beyond health care optimisation, "innovation", as a key operational concept in AHCs, needs to be contextualised within a population health framing. The field of "responsible innovation in health" (RIH) offers a set of principles and tools to link innovation with health systems need, including equity and sustainability concerns (Lehoux et al. 2019), which are likely to be helpful in orienting the operational concept of "innovation" toward population health goals in AHCs. Pacifico Silva et al. (2018) define RIH as:

> *"a collaborative endeavour wherein stakeholders are committed to clarify and meet a set of ethical, economic, social and environmental principles, values and requirements when they*

> *design, finance, produce, distribute, use and discard sociotechnical solutions to address the needs and challenges of health systems in a sustainable way" (p. 5).*

The historical evolution of innovations (and systems of innovation) alongside medical practice development has driven innovation towards what is "medically required" rather than on improving population health (Lehoux et al. 2020, p. 45). As such, unintended consequences include that innovations often exacerbate health inequities between and within countries by increasing health care costs (Lehoux et al. 2019). As such, RIH responds to growing social and ethical concerns among policymakers about the rise of new health technologies (e.g. devices, medicines, vaccines, procedures and systems, including new information technologies) which present substantial governance challenges in health systems (Lehoux et al. 2019; Pacifico Silva et al. 2018).

To better align health innovation with system-level challenges and improve health, Lehoux et al. (2019, p. 73) suggest a need for "reflexivity and responsiveness in innovation governance mechanisms" to ensure alignment of the innovation with a set of pre-determined values and principles. A population health value framework is proposed by Pacifico Silva et al (2018, p. 6), who suggest that policymakers should address the following questions:

- Health relevance: Does the innovation address a relevant health problem?
- Ethical, legal and social issues: Was the innovation developed by seeking to mitigate its ethical, legal or social issues?
- Health equity: In what ways does the innovation promote health equity?

4) If designation criteria for AHCs are to support a population health role, then they need to position population health improvement as the overarching goal, with subsidiary indicators clearly linked to a theory of change about impact pathways.

The study findings suggest that designation programs for AHCs in Australia and the UK need to undergo review to ensure that they incentivise a population health role. Designation criteria, and supporting evaluation processes in AHCs (whether developed internally by actors in the AHCs themselves or by external (government) bodies), should be used to support linkages between goals, activities and impacts, rather than reassert imprecise concepts ("innovation" and "translation") without clear definitions, or conversely, restrict the focus and activity of AHCs to externally driven notions of what an AHC should do ("tripartite mission").

A logical approach to health systems planning is to ensure that form follows function by foregrounding the intended function of the health system and then working backwards to determine the form most suitable to that function (Grumbach 2009). By adopting a population health framing, designation and supporting evaluation processes are more likely to link mid-way goals with ultimate intended impacts. Designation should require that evaluation processes be embedded in the infrastructure of AHCs and be undertaken on an ongoing basis using clear performance indicators that embrace complexity and clearly link to locally determined population health goals and priorities. As one planning and evaluation strategy, ongoing revision and renewal of theories of change can help stakeholders involved in implementation to reflect on and make assumptions about their models and interventions explicit (Paina et al. 2017).

5) If funding schema for AHCs are to support a population health role, then they need to enable the AHCs to operationalise their own, locally determined population health agendas over realistic timeframes.

Responsiveness to local health needs and priorities is a hallmark of place-based policy approaches and requires deep understanding of social, cultural, economic, and environmental conditions that influence causal relationships between interventions and consequences (Tan et al. 2019). Such responsiveness is underpinned by co-production methods which are often time-consuming yet critical to achieving population health goals (Tan et al. 2019). To effectively deliver on locally determined population health priorities, therefore, there is a need first for a clear and unambiguous strategic agenda in AHCs that defines intended beneficiaries, and second for operational resources that support, rather than diminish, this agenda.

Programmatic funding can challenge coherence of health systems policy if it is not well aligned with strategic goals and plans (WHO 2020). As such, if they are to support a population health role in AHCs, funding schema should enable longer timeframes and operational freedom in AHCs to pursue clearly defined, local goals. When enacting public policy towards population health goals, changes in outcomes may not be detectable for many years, requiring timeframes of between three to 10 years, or even generational timeframes for some equity indicators (Roussos and Fawcett 2000). The findings from this study suggest that a single, long-term funding stream and reporting relationship, linked directly to locally determined goals rather than externally imposed priorities, is needed to enable place-based co-production of research and policy with local communities and other cross-sectoral stakeholders.

6) If AHCs are to respond to growing expectations that they adopt a population health role, then the “tripartite mission” considered definitional of AHCs needs to be challenged and extended to reflect the focus of AHCs on issues outside of clinical care.

There is strong international interest in the role of AHCs in improving health outcomes locally and globally (Edelman et al. 2018; Dzau 2010). The traditional “tripartite mission” of AHCs, emphasising patient care, is insufficient to support this role. If AHCs are to deliver a population health role, therefore, the social determinants of health need to be built into this mission by adding a fourth element: population health. A new “quadruple mission” – excellent research, health professional education, patient care and population health – would retain the biomedically-oriented elements while also employing a socioecological population health lens as the overarching frame. Others have proposed similar extensions/refinement to the tripartite mission: Borden et al. (2015) suggest the addition of the dimensions of *health*, *innovation*, *community* and *policy* to the tripartite mission; and Smitherman et al. (2019) argue that a new, fourth mission of *social accountability* is needed to encourage efforts in AHCs to engage in comprehensive community engagement towards the goal of improving the health status of defined populations.

In addition, a shift in terminology from “centres” to “systems” has been proposed to reflect the gradual departure of AHCs from their tertiary care-oriented origins that foregrounded “discovery-oriented investigation” over broader public health strategies (Dzau 2010, p. 951). The establishment of Academic Health Science *Networks* (AHSNs) in the UK is an example of how this broader mantle has been adopted in practice to drive adoption and diffusion functions across a large number of organisations in a defined geography (Ovseiko et al. 2014). Health Innovation Manchester, one of the four cases in this study, represents one of the first attempts in England to adopt the “system” nomenclature by bringing together both an Academic Health Science Centre (AHSC) and AHSN into the same organisational structure. This study has shown, however, that the “network” and “system” nomenclature, as operationalised in practice, can also be used to reinforce a biomedical model of health care. Whatever terminology is used, there needs to be a clear definition of population health orientations in ensuing vision statements and operational plans.

Strengths and limitations

This study is likely to be the first to empirically explore the population health role of AHCs as unique organisational forms in Australia andEngland. As such, the study contributes critical new knowledge about the role of AHCs and responds to growing interest among global experts in their health equity role (Edelman et al. 2018), as well as expectations of policymakers about their expected societal contributions. The contribution of this research is timely from a policy perspective, considering very recent efforts by Australian and UK governments to review and reflect on the roles of AHCs, with policy relevance and applicability of the research enhanced by the presentation of pragmatic findings and implications.

The multiple case study design adopted in the study enabled comparison of four AHCs both within and between two countries that have established AHCs as relatively new organisational forms within the past 12 years. This design enabled in depth analysis and detailed comparison of regulative, normative and cultural-cognitive elements that shaped the roles of the four AHCs, resulting in the study identifying commonalities and differences in how these elements enabled or inhibited population health -related work and investment. The study design also resulted in the generation of a set of theoretical propositions (in the form of “if…then” statements) enabling analytic generalisability of the study findings to other AHCs outside of the four case studies (Yin 2014). The quality and rigour of the research was enhanced by the enactment of several established strategies in qualitative and case study research, including data triangulation, respondent validation, and peer debriefing (Yin 2014; Gilson 2012).

A common limitation of multiple case study research is that resource limitations can reduce the depth of analysis in each case, with limited information inhibiting the value of some case study research (Creswell and Poth 2018). This risk of lack of depth was minimised in the study by the use of clear definitions of the boundaries of each case and of purposive sampling methods, which enabled the broad types and quantity of data to be replicated in each case study. It was not possible, however, to collect exactly the same amount and type of data from each case study due to differences in the cases and the parallel use of theoretical (as well as purposive) sampling methods in the cases. As such, despite the resultant quantity and quality of data from each case being roughly equivalent, supporting in depth analysis and comparison, one case study (OxAHSC) had slightly fewer interviewees overall and very little representation of executive and board-level health service interviewees when compared with the other cases, which may have influenced the findings from that case. Another methodological challenge that the researcher navigated was their prior, in-depth knowledge of one of the cases, which involved a risk that assumptions would be made based on this prior knowledge. This risk was minimised through the strategies employed to improve the quality and rigour of the research, as well as through enacting researcher reflexivity throughout the research process (**Appendix A**).

A final limitation is presented by the institutional theory framework used to guide the analysis (Scott 2014), which involves analytic separation of three pillars. In reality, the pillars include very closely related and connected elements making the task of separating the analysis of normative, regulative and cultural cognitive forces within each case challenging. While not a limitation *per se*, the use of institutional theory to frame the in-case analyses did limit the depth of analysis of power dynamics which is not well catered for in the three pillars framework. Others have addressed this limitation by including, alongside the pillars framework, analysis of both actors and their agency as additional analytical elements (Javanparast et al. 2018). Although this limitation did not weaken the conclusions of the study, which are robust, meaningful and novel, future analysis might seek to explore power dynamics influencing enactment of population health roles in AHCs in further depth.

Strengths of the literature review conducted as part of the project include its use of systematic methods to synthesise and critically appraise the literature on the phenomenon of AHCs using a health equity lens. Other strengths of the review include the use of PRISMA guidelines and the equity extension, and JBI Levels of Evidence and critical appraisal tools. Limitations of the review were that the search of the literature was restricted to published documentation in the English language, and as such the review may have omitted unpublished documentation of possible relevance to the review questions and non-English studies. Also, while various forms of relationships exist between health service organisations and organisations delivering health and medical education and research in many countries, these relationships are not always described in institutional terms (Davies, 2002). A potential additional limitation of the review is therefore that the search keywords may have led to the omission of activity of organisations that may fulfil an objective definition of an AHC but that do not use this nomenclature. To go some way towards addressing this, the review used a range of keywords and Medical Subject Headings in database searches, broadening the field of included papers beyond institutions described as AHCs. However, the protocol-driven search strategy adopted in this review, wherein the search parameters were largely defined at the outset of the study, may still have led to the omission of some studies despite the broad search parameters (Greenhalgh and Peacock, 2005). As the purpose of the review was interpretive explanation and not prediction, the inclusion of additional papers may not have added to the range of concepts that were derived from those that were included (Thomas and Harden, 2008). Nonetheless, to address some of the limitations described, future globally-focussed reviews of the literature on AHCs should seek to achieve greater representation of contexts outside of the US by adopting a purposive selection process, which should involve a greater emphasis on informal selection approaches such as browsing library shelves and approaching a larger number of experts in a wide selection of countries (Greenhalgh and Peacock, 2005). Finally, the results of the review are also limited by the study designs of included papers, which are mostly expert opinion.

11. Conclusion

There is substantial, global interest in the population health role of AHCs. The literature on AHCs, although dominated by expert opinion and primarily reflective of the US context, indicates that population health, encompassing a moral imperative to address population health disparities within their catchments and beyond, should be an overarching goal of AHCs. As a framing concept, population health is clearly visible in the goals of the case study AHCs selected for analysis in Australia and England. However, despite some population health -oriented activity in some of the AHCs, the findings of this study demonstrate that the four AHCs included were not structured, funded, incentivised or even expected by core stakeholders to deliver on population health goals and related policy expectations. The challenges of structuring, funding and incentivising encountered in the four cases are likely to have relevance to other AHCs in Australia and England, whether they directly (and explicitly) adopt population health -related aspirations or embody this role implicitly as embedded components of broader health systems.

The key barriers to enactment of a population health role in AHCs, identified in the study as cross-case propositions, are that, firstly, the AHC structures reproduce existing organisational silos and power dynamics, limiting their ability to effect systems change. The AHCs reproduced organisational silos through their representative governance structures and funding arrangements, and as such did not seek to disrupt or challenge existing accountability relationships within their broader health systems. Because the AHCs were constrained by their composition and funding arrangements, they replicated the biomedical models of healthcare predominating in their health system contexts. This meant that the enactment of population health -oriented goals in the AHCs was hampered by the inability of the AHCs to challenge existing structures and ways of working within their broader health systems.

Second, the terms “translation” and “innovation” are interpreted too narrowly to enable enactment of population health roles. These were key operational terms in the AHCs, featuring strongly in policy contexts framing their establishment, and in the expectations of core AHC stakeholders that enactment of translation and innovation activity was the key to achieving health system (and population health) impact through research. Within the AHCs, however, these key terms were interpreted and enacted primarily through a biomedical framing. This meant that “translation” and “innovation” activities in the AHCs were limited primarily to clinically oriented, linear pipelines and pathways from: discovery science and research, to implementation and scale up in clinical practice. While potentially useful for driving clinical care improvements, the biomedical framing meant that opportunities to develop ideas and activities in service to broader population health goals were largely overshadowed and obscured in the AHCs.

Third, the AHCs are oriented more towards improving health care rather than population health. The biomedical framing of the role and activities of the AHCs was overwhelming and there was very little recognition among core stakeholders in the AHCs that population health improvements require cross-sectoral actions and collaboration to address a range of social, environmental and political determinants of health. Despite broad population health sentiments expressed in vision statements and establishment rationales, the social determinants of health and inter-sectoral approaches to health care policy did not feature strongly in the focus and activities of the AHCs. This focus on health care improvement (rather than population health) also drove the organisational compositions of the AHCs, entrenching this focus structurally.

Finally, impact goals in the AHCs are wide-ranging, meaning that a large and diverse set of stakeholders are identified as beneficiaries of their work. Moreover, the co-existing impact goals are assumed to be linked (causal) despite little attention to impact pathways – i.e. mechanisms by which one type of impact may lead to another. The assumed impact pathways were that: research, enabled through collaborative governance structures, will improve clinical practice; clinical practice improvement will improve population health; research will improve population health; growing the life sciences sector through “industry” (big pharma, medical/digital technology company) engagement will improve population health; and improving health services efficiency will improve patient and population health. These assumed and largely unquestioned impact pathways arose and were implicitly sustained in an environment in which clear accountability and performance frameworks were largely absent.

A series of mid-range theories, presented as “if…then” statements build on the findings of the study to articulate the relationships between key enablers/barriers and outcomes, and present a useful and important starting point for further research in the field. Accordingly, the new knowledge presented in this thesis, identifying barriers to the realisation of population health goals in AHCs, establishes a basis for future theory-driven work to test the validity of the mid-range theories presented.

This study is likely to be the first to empirically explore the population health role of AHCs as unique organisational forms in Australia and England. As such, the study contributes critical new knowledge about the role of AHCs and responds to growing interest among global experts in their population health role. The context of ongoing government investment in and review of AHCs in both Australia and England highlights the relevance of the study findings to current policy debates about the role of AHCs, and particularly the development of appropriate impact evaluation frameworks. The findings, and comparison with the global literature on AHCs which strongly emphasises their potential to improve health outcomes, supports a greater focus in future policy in Australia and England on how a population health role can be strengthened in AHCs.

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13. Appendices

List of appendices:

- Appendix A: Researcher’s reflexive statement
- Appendix B: Data collection protocol for Case Study 1
- Appendix C: Case study interview guide (all cases)
- Appendix D: Interview participant information sheet and consent form
- Appendix E: Study information flyer – Oxford and Manchester
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- Appendix G: Peer-reviewed publication – literature review protocol
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- Appendix I: Peer-reviewed publication – Findings from Case Study 1

Appendix A: Researcher’s Reflexive Statement

The reflexive process adopted in this research followed the *Guide to Reflexivity for Qualitative Researchers in Education* (Ramani et al. 2018). This guide underscores the need for engagement in reflexivity at all stages of the research process: from the approach to knowledge generation, to sampling strategies, data sources and collection and data analysis and interpretation, and finally to the way that the findings and story may be influenced by preconceptions, beliefs, values and assumptions. This reflexive statement addresses these different elements of the guide.

Approach to knowledge generation

My interest in AHCs stemmed from my previous policy, project and management roles within the Division of Tropical Health and Medicine at James Cook University where I was involved in the establishment of TAAHC between 2014 to 2017. As part of these roles, I attended a study tour to the UK in 2015 with senior health system colleagues, the aim of which was to investigate models of AHCs and apply relevant learnings to the northern Queensland approach. The experiences I had leading the development of a comprehensive consensus report from the study tour, and subsequently becoming familiar with the literature on AHCs through a fellowship opportunity, inspired me to further investigate these relatively new and under-explored organisational forms.

My decision to adopt a population health framing had a clear policy-based rationale, but also reflected my own personal and professional background in rural and remote northern Western Australia and northern Queensland, which experience substantial health inequities and chronic health system resource shortages. Growing up in the Kimberley region of WA, and living and working across the north, has exposed me not only to population health disadvantage but also to the depths of cultural connection to place and the power of impassioned leadership and community-led governance in improving peoples’ lives.

In designing the ensuing project, I adopted a realist ontology to accept the idea of an independent social reality, while acknowledging the role of actors and contexts in shaping this reality. This approach fit well with my pragmatic public policy background and my ongoing professional interest in understanding how policies are operationalised for impact in real life settings.

Sampling strategies

The processes of selection of cases, and data from the cases, is documented in the methodology section, but as a general approach, I aimed to explore different perspectives and contexts relevant to my research question. As noted in the methodology, the selection of cases was also influenced by feasibility factors. Feasibility was strongly influenced by my existing networks and contacts: I had been closely involved in the establishment of TAAHC for several years; one of my advisors was closely involved with the OxAHSC initiative; I had links with MAHSC (a component of HInM) from the study tour to the UK in 2015; and I had academic contacts with individuals in the SA Centre. These existing relationships helped me to access data in the cases and also meant that I had some prior knowledge of the cases, which I carefully managed in data collection and analysis phases (addressed further below). My professional background also likely aided my access to senior individuals within the case study organisations who saw my insights and experiences in northern Queensland as being of interest to their own work.

Data sources and collection: questions to ask

Having been closely involved in TAAHC for several years leading up to the study, I had existing in-depth knowledge of its structure and activities, and the interviewees in the case study were people with whom I had worked professionally. This conveyed a base level of knowledge of TAAHC and relationships with stakeholders that were not completely replicable in the other cases, despite attempts to familiarise myself with each of the other cases (through web searches and conversations with professional contacts) prior to commencing data collection. The effect of this pre-existing knowledge on the study findings was mitigated by the processes I used to ensure quality and rigour in all phases of the research project. In the data collection phase, for example, I used the same purposive sampling framework in TAAHC as in all cases and carefully followed the same literature-informed interview guide, ensuring that no questions were skipped because of assumed prior knowledge. Processes adopted in analysis of data are discussed further below.

Data analysis and interpretation

I employed a wide range of strategies (including data triangulation, inductive coding, use of memos to document assumptions and observations, use of theory, and member checking; as described in the methodology) in the TAAHC and other cases to ensure that my interpretations and findings were grounded the data rather than any pre-held beliefs stemming from previous roles or relationships. I experienced some challenges, however, in operationalising the goals of member-checking and use of theory.

In relation to member-checking, I initially aimed to send interviewees summaries of the data rather than verbatim transcripts (unless interviewees requested the transcripts specifically, which meant that I sent both); this was a decision I made early in the project based on my expectation that summaries would be easier (than verbatim transcripts) for interviewees to comment on meaningfully. However, as there was substantial delay in developing these summaries, and in the meantime the AHC cases had continued to evolve, I found it difficult to package the summaries in a way that would enable respondent validation without inconveniencing interviewees. Despite this, responding to the stated interest of all interviewees in the study to continue to be updated and involved, I received a surprising number of helpful responses to the summaries I sent, nearly all of which verified the emerging findings. Several interviewees, however, found it difficult to comment on what was somewhat outdated information and simply reflected that things had changed a lot since the interview was conducted, or had left their roles entirely in the intervening time. In all, these responses (and even non-responses) provided additional information about the nature of AHCs that I was able to incorporate into my analysis.

Linking the emerging findings with relevant theory was an integral part of the sense-making process, with the development and use of the conceptual framework in the study helping me to make the conceptual leaps necessary to answer my research questions. However, I found this process challenging because it involved a very different thought process to what I was used to in my policy and project work. The first major challenge was the development of the conceptual framework itself, which involved an understanding of both the literature on AHCs and theories and concepts within several broad fields that related to the aim of the study. Developing the framework took a great deal of time and was undertaken in parallel to the inductive coding processes and initial drafting of in-case results. Therefore, applying the framework in the in-case chapters required subsequent re-visitation of the draft in-case summaries to analyse the inductive categories against the new framework, followed by extensive redrafting of all in-case chapters. The resultant analysis, however, was substantially strengthened because the application of published theory and concepts to the data from the cases enabled me to make sense of the complexity of the AHCs and better orient the focus of the analysis towards the study aim.

Findings and story

The semi-structured nature of interviews allowed flexibility in the flow of discussions, which helped me to capture the unique perspectives and voice of each interviewee. The discussions often involved comparisons being made between the Australian and UK experiences in establishing and operating AHCs, which drew from my own experiences in establishing TAAHC. This flexible approach helped in building rapport with interviewees who expressed genuine interest in my study, and also helped me to explore the substantial differences between the country contexts of the AHCs. In the presentation of results, I used participants’ voices to illuminate the inner workings of AHCs in the different contexts.

Reflections on the research journey

The research journey was influenced by my increasing research skills and confidence, which built over the course of the project. This ongoing learning process meant that the experience was not linear: I found myself going back to the literature at multiple points to look for new sources of information and conceptual angles that I had not initially considered, or which took on a different significance in light of the data I was collecting. What I found in these sojourns led me to slightly adapt my overall research focus (from “equity” initially to “population health”, incorporating equity principles). This followed my increasing understanding from the literature and interviewees that population health, as a concept, was more widely used and better understood in relation to the role of AHCs.

The research journey was also influenced by my involvement in a range of other research projects during the period of my candidature which contributed to my growing skills; many of these were in fields closely linked to my PhD. As the research progressed, my awareness that my findings were likely to challenge the status quo increased and I began to experience some resistance to my emerging findings at conferences and events (in addition to overwhelming support and encouragement). The experience of this resistance was an important part of the research journey and has served to strengthen my commitment to continue to use the tools of research to improve understanding of complex issues and drive real outcomes.

The following peer-reviewed papers were published during my PhD, with those reporting PhD findings indicated in bold (note that details about the three PhD-related publications are in the Appendices below):

- Edelman, A, Grundy, J, Larkins, S, Topp, S, Atkinson, D, Patel, B, Strivens, E, Moodley, N, Whittaker, M 2020, 'Health service delivery and workforce in northern Australia: a scoping review', *Rural Remote Health Online*, [in press, accepted 21/9/20].
- Edelman, A, Clay-Williams, R, Fischer, M, Kislov, R, Kitson, A, McLoughlin, I, Skouteris, H and Harvey, G. 2020, 'Academic Health Science Centres as vehicles for knowledge mobilisation and impact? A qualitative study', *International Journal of Health Policy and Planning*, [in press, accepted 25/8/2020].
- Edelman, A, Brown, A, Pain, T, Larkins, S, Harvey, G. (2020). Evaluating research investment and impact at a regional Australian Hospital and Health Service: a programme theory and conceptual framework. *BMC Health Research Policy and Systems*, vol. 18, no. 1, p. 30.
- **Edelman, A, Taylor, J, Ovseiko, P, Topp, S 2018, "'Academic' is a dirty word": intended impact pathways of an emerging academic health centre in tropical regional Australia', *The International Journal of Health Planning and Management*, vol. 34, no. 1.**
- **Edelman, A, Taylor, J, Ovseiko, P, Topp, SM 2018, The role of academic health centres in improving health equity: a systematic review. *Journal of Health Organisation and Management*, vol. 32, no. 2.**
- Topp, SM, Edelman, A, Taylor, S 2018, '"We are everything to everyone": a systematic review of factors influencing the accountability relationships of Aboriginal and Torres Strait Islander Health Workers (AHWs) in the Australian health system', *International Journal for Equity in Health*, vol. 17, no. 67.

- **Edelman, A, Taylor, J, Ovseiko, P, Topp, SM 2017, 'The role of academic health centres in building equitable health systems: a systematic review protocol',** ***BMJ Open*****, vol. 7, no 5.**

I also presented at several local, national and international conferences and events. The following presentations were given during the period of the project, with those linked to PhD findings indicated in bold text:

- **"Operationalising the concepts of 'innovation' and 'translation' for population health: insights from an empirical cross-case analysis", 5 December 2019, Health Service Research Australia and New Zealand Conference, Auckland.**
- "An evaluation of research investment and impact at a regional Australian Hospital and Health Service", 4 December 2019, Health Service Research Australia and New Zealand Conference, Auckland.
- "Developing the multi-professional clinical academic workforce in Australia and New Zealand: a scoping review", 5 December 2019, Health Service Research Australia and New Zealand Conference, Auckland.
- **"'We're not here to expand Professor So-and-So's career': how a new Australian academic health centre is engaging with a health equity agenda", October 2018, Fifth Global Symposium on Health Systems Research, Liverpool, UK (poster presentation).**
- **"Academic health centres in the United Kingdom and Australia: insights from three case studies", 25 July 2018, invited expert to present to Medical Research Future Fund Project Leads based at the South Australian Institute of Health and Medical Research (SAHMRI), Adelaide (oral presentation).**
- **"'It takes too long to get research to the patient': the drivers of and barriers to establishing a northern Queensland-based academic health centre", 18 July 2018, JCU Cohort Doctoral Studies Program Student Conference 2018, Townsville (oral presentation).**
- **"The role of academic health centres in contributing to equitable health systems: a systematic review and the case of the Tropical Australian Academic Health Centre", 3 November 2017, HSRAANZ 2017: 10th Health Services and Policy Research Conference, Gold Coast (poster presentation).**
- **"A hospital, a university and a research institute walk into a bar..." 1 November 2017, HSRAANZ 2017: 10th Health Services and Policy Research Conference, Gold Coast (3MT competition)**
- **"Improving health system capacity to address healthcare disparities: a systematic review of the role of academic health centres in contributing to equitable health systems",**

October 2017, 10th European Congress on Tropical Medicine and International Health, Antwerp (interactive poster presentation delivered on my behalf by my primary advisor).

- **The role of academic health centres in building equitable health systems: a systematic review", 5 September 2017, Townsville Health Research Showcase, Townsville (oral presentation).**
- **"A hospital, a university and a research institute walk into a bar..." 1 September 2017, College of Public Health, Medical and Veterinary Sciences 3MT Competition, James Cook University, Townsville (3MT Finalist).**
- **"The role of academic health centres through a health equity lens: a systematic review of the literature" 27 July 2017, Menzies Emerging Health Policy Research Conference, University of Sydney (oral presentation).**

Appendix B: Data Collection Protocol for Case Study 1

DATA COLLECTION PROTOCOL

TROPICAL AUSTRALIAN ACADEMIC HEALTH CENTRE (CASE 1)

September 2017

This protocol is a standardised agenda for data collection within the Tropical Australian Academic Health Centre that will be replicated within a further three case studies. These four case studies are part of a broader multi-case cross-country comparative study on the role of academic health centres in improving health equity.

1. Overview of the Case Study

1.1 The Tropical Australian Academic Health Centre

The Tropical Australian Academic Health Centre (TAAHC) is a developing collaboration between five Hospital and Health Services (HHSs), the northern Queensland Primary Health Care Network, and James Cook University (JCU), which includes the Australian Institute of Tropical Health and Medicine, all located in northern Queensland. The five collaborating HHSs are:

- Cairns and Hinterland HHS
- Mackay HHS
- North West HHS
- Torres and Cape HHS
- Townsville HHS

1.2 Mission, vision and goals, and stated equity focus

The stated aim of TAAHC to improve quality and efficiency of health care, enhance recruitment and retention of professionals in the region and encourage greater investment in the north through embedding research into health service delivery.

The stated equity focus of TAAHC is on tropical health, Aboriginal and Torres Strait Islander health and the provision of services in regional, rural and remote settings.

1.3 Theoretical framework

This research considers the phenomenon of academic health centres (AHCs) using a health equity lens. The study is situated within the emerging field of health policy and systems research, is exploratory, and will adopt realist-informed evaluation methods to identify patterns to develop a theory about what works, for whom and in which conditions.

2. Data Collection Procedures

2.1 Names of contact persons for doing fieldwork

Data collection will be undertaken by Ms Alex Edelman (James Cook University), Principal Investigator for the multi-case study. Email: Alexandra.edelman@jcu.edu.au Phone:

Co-investigators are:

Dr Stephanie Topp	(Phone)	(Email)	James Cook University
Dr Judy Taylor	(Phone)	(Email)	James Cook University
Dr Pavel Ovseiko	(Phone)	(Email)	Oxford University

2.2 Ethical and site-specific approval

Multi-site ethics approval was received by the Townsville Hospital and Health Service Human Research Ethics Committee on 12 July 2017 (Reference number HREC/17/QTHS/81), and reciprocal acknowledgement of this approval was received from the JCU Human Research Ethics Committee in September 2017.

Site specific approval was received from the following organisations on the following dates:

- Cairns and Hinterland HHS – 7 September 2017
- Mackay HHS – 28 July 2017
- North West HHS – 31 July 2017
- Torres and Cape HHS – 9 September 2017
- Townsville HHS – September 2017

Student collaboration agreements were executed between JCU and each of these organisations between the months of July and September 2017.

2.3 Location and access considerations

Data collection for the TAAHC case study will be undertaken within the following locations:

Organisation	Locations	Cities
James Cook University	Townsville and Cairns campuses, and the Mount Isa Centre of Rural and Remote Health	Townsville, Cairns, Mount Isa
Cairns and Hinterland Hospital and Health Service	Executive Offices in the Cairns CBD and at the Cairns Hospital	Cairns
Mackay Hospital and Health Service	Mackay Hospital (Executive Offices)	Mackay
Northern Queensland Primary Healthcare Network	Executive Offices	Cairns
North West Hospital and Health Service	Mount Isa Hospital (Executive Offices)	Mount Isa
Torres and Cape Hospital and Health Service	Executive Offices in Cairns and at Thursday Island Hospital	Cairns and Thursday Island
Townsville Hospital and Health Service	Townsville Hospital (Executive Offices)	Townsville

The Principal Investigator is based in Townsville and will travel to each of the other locations for a collective duration of around 10-15 days. A quiet space within each location will be requested to write notes and memos.

2.4 Data collection plan

Data collection will employ the following data collection methods:

- Interviews
- Direct observation
- Document analysis

2.4.1 Interviews

Interviews will be undertaken with members of the TAAHC governance and management structures, who are the individuals driving, shaping and implementing the AHC direction, structures and its activities. Interviewees will be selected with reference to achieving:

- Diversity by discipline/profession area, level of seniority, and position on a research translation ‘spectrum’;
- Representation from each TAAHC partner organisation, with an aim of avoiding ‘clustering’ of types of professionals interviewed at any one organisation (e.g. interviewing the Board Chair and CEO of the same organisation);
- To the extent possible, an equivalent gender representation in the composition of interviewees.

Interviews will be sought with at least one individual from the leadership/executive of TAAHC as well as at least one individual from the leadership/executive of each of the partner organisations. Interviews will also be sought with key joint clinical-academic appointees, researchers at various levels and with different research foci, with at least one junior clinician and with at least one additional person occupying a role of interest unique to the TAAHC case study.

The estimated number of interviewees in TAAHC by professional group/position are shown below:

Broad professional group	**Examples of individuals or groups within TAAHC**	**Approximate number of interviews**
Leadership/executive of the AHC	Chair/Deputy Chair of the TAAHC Board	1-2
Leadership/executive of the health service delivery partner/s	HHS and NQPHN Chief Executive/Board Chair, Executive Director of Medical /Nursing/Allied Health/Research Services	5-10
Leadership/executive of the university partner/s	JCU Deputy Vice Chancellor, JCU College Dean	1-2
Leadership/executive of the research institute partner/s	AITHM Chair/Director/Deputy Director	1-2
Key health service/academic joint appointments	HHS/JCU Director of Clinical Research, HHS/JCU Professor of Medicine, HHS/JCU Clinical Dean	3-6
Researchers (selection of junior to senior, basic to translational)	HHS/AITHM researchers	2-4
Junior clinicians	HHS junior doctor/s	1-2
Other key roles of interest	Director of a northern Queensland Public Health Unit, community engagement officer	1-2
Estimated total number of interviewees:		*Between 16 and 32*

As the selection of participants will follow the method of theoretical sampling, whereby data is collected based on concepts derived from the data, the final number of interviewees is not yet determined. However, it is anticipated that approximately 20 individuals will be initially approached for interview with at least 5 additional individuals approached following the theoretical sampling approach.

The recruitment process for selected individuals will involve initial contact by email outlining the objectives of the study and requesting a time and location for an interview, and liaison with relevant staff to diarise the appointments where required. A phone call, or single follow-up email will be issued if no response to the initial email is received. It is expected that the recruitment process will take between 2-4 weeks, to allow for replies to initial and follow-up emails.

Once interviewees have been recruited, a meeting room at a convenient location will be booked and interviews undertaken for a maximum time of one hour. To ensure participants are well informed, a brief information sheet and consent form will be provided in advance of the interviews and discussed at the start of each meeting, with a signature sought from the interviewee. To address any privacy concerns, the consent form enables participants to indicate whether they would like the data collected to be de-identified. Any individual unable or unwilling to provide written informed consent will be excluded from the study.

The interviewees will also be asked if they would be amenable to follow up by email to clarify any points raised or to seek additional information, and to review summaries of the data/findings. Interviewees will not be compensated for their participation.

2.4.2 Direct observation

Direct observation will involve the researcher's attendance as an observer at TAAHC meetings, workshops and other conversations and events, where these address issues such as strategic planning, operationalising the vision and mission, dissemination of research findings, and stakeholder consultation. Approval from the TAAHC Chair/other responsible officer will be sought prior to this attendance. Based on factors identified in the literature review as enhancing/inhibiting a health equity focus and capacity of AHCs, a particular focus in this observation will be on the nature and structures of communications processes, and on the culture and dynamics that influence collaboration between the partner organisations.

Memos will be developed by the researcher to record key reflections and emerging themes arising from the observations.

2.4.3 Document analysis

Initial requests for documentation relevant to the study will be made of the TAAHC Chair and/or CEO/Director, and all interviewees will be queried about whether they recommend seeking access to any other documents. Documentation sought will include minutes from meetings, reports, policy papers, grant proposals, procedural documentation and strategic plans. Approval will be sought from the TAAHC Chair before these documents are accessed.

2.5 Expected preparation prior to fieldwork

Specific information that will be reviewed prior to commencement of fieldwork will be all documentation about TAAHC that is publicly available via website searching. Collection of data will consider this information as well as the findings of the systematic literature review that was undertaken for the broader research topic.

Schedules for each location will be developed based on the availability of interviewees and the dates of key meetings and events for which access for the researcher as an observer has been approved by the Chair or other responsible officer. Provision for an extra two days in each location other than Townsville will be factored into the scheduling to allow for any interviews with additional people (identified through the theoretical sampling process) and/or attendance at additional meetings or events.

2.6 Data management

The researcher will undertake all data collection for this study. Where indicated by the interviewee on the consent form, interviews will be recorded using a digital voice recorder, otherwise interviews will be recorded using handwritten notes. Transcripts of interviews, notes and memo data will be transcribed to Microsoft Word in separate files. The researcher will transcribe a minimum of 50% of the interviews. Professional transcription services may be employed to assist depending on the quantity of data obtained.

Names will be removed from these files where requested by the interviewee on the consent form and a unique numerical identifier will be allocated to the data. The data will be re-identifiable only to members of the research team during the data analysis phase. The data will be de-identified for publication/presentation of final results, which will report a whole-of-TAAHC perspective and use only generic descriptors (e.g. ‘senior management’ or ‘clinical researchers’). All data will be stored on a password-protected laptop, with backups undertaken twice per week to two separate password-protected hard drives.

The NVivo software package will be utilised for coding and analysis. Emerging codes and themes will be verified by the Co-Investigators. All data will be retained at a central JCU repository for five years.

3. Data collection questions

A question guide for the study which was reviewed and approved by the Townsville HHS Human Research Ethics Committee on 12 July 2017. The guide will be piloted with other researchers at JCU prior to commencement of interviews.

In addition to the questions asked of participants, the following questions will be asked of the individual case by the researcher:

How is health equity characterised or described within TAAHC?
- Is TAAHC interested in, and/or perceived to have, a health equity role?

How is the concept of health equity operationalised by TAAHC activities?
- Does TAAHC conduct activities that align with/match its stated or expected health equity goals?

What are the drivers, barriers and facilitators of TAAHC activity relevant to health equity?
- Are the drivers, barriers and facilitators of a health equity focus within TAAHC influenced by its broader health system context?

4. Guide for the Case Study Report

4.1 Audience(s) for the report and stylistic preferences for communicating with the audience

The audiences for the report are likely to be policymakers within governments and leaders within AHCs who are interested in the phenomenon of AHCs and their contributions to broader health system goals. The report therefore needs to clearly articulate not only implications of the findings on future research and enquiry about AHCs, but to also articulate clear policy implications.

4.2 Characteristics of TAAHC

This section will be descriptive and provide a very broad overview of TAAHC and its key features.

4.3 Equity focus and activity of TAAHC

This section will also be descriptive but focussed specifically on how health equity is characterised and described within TAAHC, and how health equity concepts or objectives are being operationalised through TAAHC activity.

4.4 Drivers, barriers and facilitators of a health equity focus within TAAHC

This section will analyse the findings described in the previous two chapters and identify the factors shaping the equity focus and activity of TAAHC. This analysis will support identification of the health equity role of TAAHC, and any policy implications that arise from this.

4.5 Researcher reflexivity

This section will reflect on the position of the researcher as embedded within TAAHC and the processes used to recognise and minimise the effect of prior knowledge on collection of data and interpretation of results.

Appendix C: Case Study Interview Guide

Interviewee name, date and location of interview

Introduction

- Current project overview

Key questions to ask

Individual background/role

1. What is your role within your organisation?
2. What is your role within [AHC]?

Structure, composition, purpose and activity of [AHC]

3. Who are the [AHC] partners?
    a. Are there different membership classes (e.g. full and affiliates)?
    b. Do they have different decision-making capacity/voting rights?
4. Briefly, what is the governance structure of [AHC]?
    a. How frequently do these groups meet?
    b. Does the organisation have a signed members agreement/MOU?
    c. What is its incorporation status?
        i. If not incorporated, is there a hosting organisation? If so, which one is it?
5. How is [AHC] funded?
    a. Are there membership fees?
6. How does [AHC] report on its performance? (accountability arrangements)
7. What is the purpose of [AHC]?
    a. Why is it being established?
    b. What is driving its establishment?
8. How do you see [AHC] interfacing with your own organisation?
    a. What does it do or plan to do within your organisation?
    b. Which areas does it affect?

Inter-institutional communication

9. What are the mechanisms of communication between the partners of [AHC], apart from the governance structure? (or what do you hear about [AHC]/how does news come to you?)
10. What sorts of issues are communicated through these mechanisms?
    a. Do concepts of equity (addressing health disparities and determinants) come up in these communications?

    b. How do the partners relate to each other in these communications (including in gov structures)?

Health system priorities

11. What do you see as being the key challenges and opportunities facing the health system in the region?
12. What in your view are the top priorities in service delivery in your region? Research? Education?
13. What are the major health concerns of your region's populations?

Role of the AHC

14. Based on your experience, is [AHC] helping/poised to help the health system to deliver on these priorities?
    a. If so, how?
    b. If not, should it?
        i. If so, how should it? If not, what is its role?
15. How would you define the 'success' of [AHC]?
16. Are there any (other) barriers to [AHC] being 'successful'? What are they?
17. Do you have any additional ideas or recommendations about the future activities and role of [AHC]?

Conclusion

Provide verbal summary/overview of information heard in the interview and seek clarification/endorsement of key points; Ask about any documentation that might be relevant to the study, that the interviewee could share or that could be sought elsewhere; Outline follow-up possibilities and timeframes; Thank interviewee for their time.

Appendix D: Interviewee participant information sheet and consent form (Australian cases)

Participant information sheet

Participant Information Sheet for staff members of the partner organisations of the [AHC] who we are inviting to participate in the research project titled 'The Role of Academic Health Centres in Building Equitable Health Systems: A Multi-Centre Cross-Country Comparative Case Study'

Principal Investigator: Alexandra Edelman, PhD student, James Cook University

Ethical approval information: Townsville Hospital and Health Service ethics approval number: HREC/17/QTHS/81; Aboriginal Health Research Ethics Committee (SA): AHREC Protocol #: 04-18-754.

Introduction

I am part of a small team at James Cook University researching academic health centres, which are new health systems structures in Australia. Academic health centres are well established or becoming established in other countries such as the United States and United Kingdom. I am going to give you information and invite you to be part of this research.

Purpose of the research

Academic health centres bring together health service providers with universities and research institutes to improve the health of their patients and communities. They aim to improve health by making it easier for health professionals to conduct research on issues that are important to their patients and their health service. They also help to translate the evidence from research into clinical practice in different locations. Academic health centres also help to coordinate evidence-based care and the education and training of health professionals across different organisations and health services.

My research team and I want to find out how and why academic health centres are being established in Australia and other countries and what they aim to deliver for their communities. We are selecting approximately four AHCs from Australia and internationally, which are at different stages of institutional development (e.g. still developing versus well established). We want to better understand what factors influence AHCs' selection of aims, and how these aims are put into practice.

Part of this research project involves looking at the [AHC] as a case study. We believe that you can help us by telling us about your role within [AHC], within your own organisation/s, and about your reflections on the health system in the region.

Type of Research Intervention

We invite you to participate in an interview that will take around 45 minutes in a location and at a time convenient to you.

Participant Selection

You have been invited to take part in this research because your experience driving, shaping and/or implementing [AHC] activities could contribute to our understanding and knowledge of how [AHC] functions and relevant contextual issues.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. The choice that you make will have no bearing on your job or any work-related evaluations or reports. You may change your mind later and stop participating even if you agreed earlier.

Procedures

We are asking you to help us learn more about [AHC]. I will give you an opportunity at the end of the interview/discussion to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly. You will also be contacted by email following the interview to check the content of an initial report about the findings of the project. A follow-up interview may be requested if more detail on some of the issues is needed.

In the interview, you will be asked questions about:

- your role within your organisation;
- your role within [AHC];
- the structures, objectives and activities of [AHC] from your perspective;
- the key features of the health/research system that you are part of;
- your views on the key challenges and opportunities facing the health system in the region;
- any general ideas or recommendations you have about the future activities and role of [AHC];
- any documentation you have that might be relevant to understanding [AHC] vision or activities, that you can share.

Duration

The research on [AHC] will take place over five to six months. During this time, I will interview a number of people from key health service, research and university locations across the [AHC location], and I will also attend some meetings as an observer during this time.

The duration of your interview will be around 45 minutes. Follow-up (checking an initial interview report, and a possible second interview) will take place between one to four months after your initial interview.

Risks

There are few risks. There is a small risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the topics. However, we do not wish for this to happen. You do not have to answer any question or take part in the interview if you feel the questions are too personal or if talking about them makes you uncomfortable.

The burden on your time will be minimal, with interviews planned to not exceed a maximum time of one hour. The interviews will also be scheduled to take place in a location convenient for you.

Benefits

There will be no direct benefit to you, but your participation will help us identify the key features and direction of [AHC] in the context of the region's health system. This is likely to be of interest to your organisations, state and federal governments and academic health centres both in Australia and overseas.

Reimbursements

You will not be provided any incentive to take part in the research.

Confidentiality

We will not be sharing information about you to anyone outside of the research team. The information that we collect from this research project will be kept private. You will be asked if you would like the information collected in the interview to be de-identified. This will involve any information provided to us by you during your interview having your name removed. Only the researchers in the research team will know who provided this information.

We will also seek your permission for this interview to be recorded using a digital voice recorder. If this permission is provided, the information recorded will be confidential and kept in a password-protected computer at James Cook University, and no one except my research team and I will have access to the recording. The recording will be destroyed after five years. If you do not wish for the interview to be recorded, I will only take handwritten notes during the interview. Please note that an external person who is not connected with the project may be employed to assist with transcription of recorded interviews.

Sharing the Results

Nothing that you tell us during the interview will be shared with anybody outside the research team, and nothing will be attributed to you by name if you wish to be de-identified. The knowledge that we get from this research will be shared with you and your community before it is made widely available to the public. Each participant will receive a summary of the results. Following analysis of the information collected, we will publish the results and present these at conferences so that other interested people may learn from the research.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact me on:

Alexandra.edelman@jcu.edu.au

(mobile number)

This proposal has been reviewed and approved by the Townsville Hospital and Health Service (THHS) Human Research Ethics Committee, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about this approval process, contact: [ethics contact information].

Consent form

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has been removed

Appendix E: Study information flyer – Oxford and Manchester

April-August 2018

JAMES COOK UNIVERSITY
AUSTRALIA

The role of academic health centres in improving health equity: a multi-centre cross-country comparative study

STUDY INVESTIGATORS:

Ms Alexandra Edelman, Principal Investigator and PhD Candidate, College of Public Health, Medical and Veterinary Sciences, James Cook University

Dr Stephanie Topp, Senior Lecturer - Global Health (Primary Advisor and Co-Investigator), College of Public Health, Medical and Veterinary Sciences, James Cook University

Dr Judy Taylor, Adjunct Associate Professor, College of Medicine and Dentistry (Secondary Advisor and Co-Investigator), James Cook University

Dr Pavel Ovseiko, Senior Research Fellow in Health Policy and Management (External Advisor and Co-Investigator), Oxford University

RESEARCH ETHICS AND GOVERNANCE:

This project has been reviewed and approved by two human research ethics committees in northern Queensland and South Australia: *Queensland Health HREC/17/QTHS/81* and *AHREC Protocol #: 04-18-754*.

FOR FURTHER INFORMATION PLEASE CONTACT:

Alex Edelman:
Alexandra.edelman@jcu.edu.au

[1] Alexandra Edelman, Judy Taylor, Pavel V. Ovseiko, Stephanie M. Topp, (2018) "The role of academic health centres in improving health equity: a systematic review", Journal of Health Organization and Management, https://doi.org/10.1108/JHOM-09-2017-0255

UNIVERSITY OF
OXFORD

There is an expectation that academic health centres (AHCs) will direct their work in patient care, research and education towards addressing unfair and unjust health disparities and their determinants, such as by meeting the health needs of vulnerable populations.[1] To empirically examine the health equity role of AHCs, this research project utilises a multi- case-study methodology to analyse the equity-related aims and activity of four AHCs in two countries.

AHCs exist in various organisational forms around the world and are often defined by their "tripartite" mission to deliver high-quality and evidence-informed health care to patients, undertake health and medical research, and train the next generation of health professionals. To deliver this mission, AHCs combine higher education institutions delivering health professional education with one or more affiliated or owned teaching hospitals or health systems.

There is a global interest in, and an aspiration to improve, the health equity focus of AHCs.[1] However, the contemporary empirical evidence base on the equity role of AHCs is very limited. By analysing four case study AHCs in Australia and the United Kingdom, this project aims to empirically identify:

- How health equity is characterised and described within AHCs;
- How health equity goals are being operationalised within AHCs; and
- What are the key drivers, barriers and facilitators of AHC activity relevant to health equity.

The four case studies, selected for their documented focus on health systems equity, are: the Tropical Australian Academic Health Centre and the South Australian Academic Health Science and Translation Centre in Australia; and the Oxford and Manchester Academic Health Science Centres and Networks in the United Kingdom.

Within each case, interviews are being undertaken with members of the AHC governance and management structures – the individuals who are driving, shaping and implementing the AHC direction, structures and its activities. The research also involves direct observation of AHC activities including selected meetings and events, and analysis of documentation about each case study AHC and their health system context.

Analysis of the data is involving both in-case and cross-case analysis with the ultimate aim of generating a theory about how AHCs in both countries are positioned to contribute to equitable health systems. The research is expected to inform policy on the activities and development of AHCs and on addressing health system inequities.

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Cairns
Singapore
Townsville

Appendix F: Observation template

Date:

Location:

Time notes taken:

List of people/documents involved:

Nature of activity:

Characteristics of location (space):

Goals (of people involved or organisational):

Communication processes used:

Collaboration processes used:

Researcher interpretations/reflections:

Appendix G: Peer-reviewed publication – literature review protocol

Edelman, A, Taylor, J, Ovseiko, P, Topp, SM 2017, ‘The role of academic health centres in building equitable health systems: a systematic review protocol’, *BMJ Open*, vol. 7, no 5: doi.org/10.1136/bmjopen-2016-015435

Statement on the contribution of others:

AE conceptualised and developed the protocol, and drafted and revised the manuscript. JT, PVO and ST reviewed and provided comments on manuscript drafts.

Abstract:

Introduction

Academic health centres (AHCs) are complex organisations often defined by their ‘tripartite’ mission: to achieve high standards of clinical care, undertake clinical and laboratory research and educate health professionals. In the last decade, AHCs have moved away from what was a dominant focus on high impact (clinical) interventions for individuals, towards a more population-oriented paradigm requiring networked institutions and responsiveness to a range of issues including distribution of health outcomes and health determinants. Reflective of this paradigm shift is a growing interest in the role of AHCs in addressing health disparities and improving health system equity. This protocol outlines a systematic review that seeks to synthesise and critically appraise the current state of evidence on the role of AHCs in contributing to equitable health systems locally and globally.

Methods and analysis

Electronic searches will be conducted on a pilot list of bibliographic databases, including Google Scholar, Scopus, MEDLINE, PsycInfo, CINAHL, ERIC, ProQuest Dissertations & Theses, Cochrane Library, Evidence Based Medicine Reviews, Campbell Library and A+ Education, from 1 January 2000 to 31 December 2016. Apart from studies reporting clinical interventions or trials, all types of published peer-reviewed and grey literature will be included in the review. The single screening method will be employed in selecting studies, with two additional reviewers consulted where allocation is unclear. Quality and relevance appraisal utilising Joanna Briggs Institute critical appraisal tools will follow data extraction to a pre-prepared template. Thematic synthesis will be undertaken to develop descriptive themes and inform analysis.

Ethics and dissemination

As the review is focused on the analysis of secondary data, it does not require ethics approval. The results of the study will be disseminated through articles in peer-reviewed journals and trade

publications as well as presentations at relevant national and international conferences. Results will be further disseminated through networks and associations of AHCs.

Protocol registration

International Prospective Register for Systematic Reviews (PROSPERO) number CRD42016051802.

Appendix H: Peer-reviewed publication – literature review

Edelman, A, Taylor, J, Ovseiko, P, Topp, SM 2018, The role of academic health centres in improving health equity: a systematic review. *Journal of Health Organisation and Management*, vol. 32, no. 2: doi.org/10.1108/JHOM-09-2017-0255.

Statement on the contribution of others:

AE conceptualised and designed the review, conducted all searches, data extraction and analysis, and drafted and revised the manuscript. JT, PVO and ST examined full text records where eligibility was unclear and reviewed and provided comments on manuscript drafts.

Abstract:

Purpose

Academic health centres (AHCs) are organisations that pursue a "tripartite" mission to deliver high-quality care to patients, undertake clinical and laboratory research, and train future health professionals. The last decade has seen a global spread of AHC models and a growing interest in the role of AHCs in addressing health system equity. The purpose of this paper is to synthesise and critically appraise the evidence on the role of AHCs in improving health equity.

Design/methodology/approach

Peer-reviewed and grey literature published in English between 2000 and 2016 were searched. Articles that identified AHCs as the primary unit of analysis and that also addressed health equity concepts in relation to the AHC's activity or role were included.

Findings

In total, 103 publications met the inclusion criteria of which 80 per cent were expert opinion. Eight descriptive themes were identified through which health equity concepts in relation to AHCs were characterised, described and operationalised: population health, addressing health disparities, social determinants of health, community engagement, global health, health system reform, value-based and accountable financing models, and role clarification/recalibration. There was consensus that AHCs can and should address health disparities, but there is a lack of empirical evidence to show that AHCs have a capacity to contribute to health equity goals or are demonstrating this contribution.

Originality/value

This review highlights the relevance of health equity concepts in discussions about the role and missions of AHCs. Future research should improve the quality of the evidence base by empirically examining health equity strategies and interventions of AHCs in multiple countries and contexts.

Appendix I: Peer-reviewed publication – findings from Case Study 1

Edelman, A, Taylor, J, Ovseiko, P, Topp, S 2018, "'Academic' is a dirty word": intended impact pathways of an emerging academic health centre in tropical regional Australia', *The International Journal of Health Planning and Management*, vol. 34, no. 1: doi.org/10.1002/hpm.2681.

Statement on the contribution of others:

AE conceptualised and designed the study, undertook all data collection and analysis, and drafted and revised the manuscript. JT, PVO and ST reviewed and provided comments on manuscript drafts.

Abstract:

Background

The Tropical Australian Academic Health Centre (TAAHC) is being established in northern Queensland across a vast rural geography. The study aim is to identify intended impact pathways and beneficiaries of TAAHC as well as experienced and anticipated challenges.

Methodology

The study is an empirical case study nested within a comparative multi-case study on academic health centres (AHCs). Data were collected from documents, observation, and interviews with 24 health system and university stakeholders. Intended impact pathways were identified abductively from analysis of aspirations and challenges.

Results

Aspirations of TAAHC reflect an ultimate aim to improve the health of the northern Queensland population. Challenges were trust and communication, understanding value and return on investment, health system receptiveness to building a research culture, prioritising and influencing the research agenda, and structure of the health system.

Discussion

The study identifies three interdependent transitions that comprise the main intended impact pathway in TAAHC. Stakeholders expected TAAHC to effect health systems change and improvement rather than drive discovery-oriented academic research associated with AHCs elsewhere.

Conclusion

The findings contribute to the empirical evidence base on the role of AHCs internationally and to ongoing initiatives to establish and resource AHCs in Australia.

Keywords: Australia; academic health centre; health systems; regional; research translation.