



# The population health role of academic health centres: a multiple-case exploratory study in Australia and England

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## ABSTRACT

**Background:** Academic health centres (AHCs) are organisations that aim to mobilise knowledge into practice by improving the responsiveness of health systems to emerging evidence. This study aims to explore the population health role of AHCs in Australia and England, where AHCs represent novel organisational forms.

**Methods:** A multiple-case study design using qualitative methods was used to explore population health goals and activities in four discrete AHCs in both countries during 2017 and 2018. Data from 85 interviews with AHC leaders, clinicians and researchers, direct observation, and documentation were analysed within and across the cases.

**Results:** Comparison across cases produced four cross-case themes: health care rather than population health; incremental rather than major health system change; different conceptions of “translation” and “innovation”; and unclear pathways to impact. The ability of the AHCs to define and enact a population health role was hindered during the study period by gaps in knowledge mobilisation strategies at a health system and policy level, the biomedical orientation of government designation schemes for AHCs in Australia and England, and competing expectations of the sovereign partner organisations in AHCs against a backdrop of limited operational resources.

**Discussion:** The study identifies several institutional elements that are likely to be needed for AHCs in Australia and England to deliver on both internal and external expectations of their population health role.

## 1. Introduction

Academic health centres (AHCs) are organisations that aim to mobilise knowledge into practice by improving the responsiveness of health systems to emerging evidence.[1,2] The term “AHC” and variants, such as academic health science centre and academic health science network, are becoming more widely used.[2] Organisational forms of AHCs in Australia and England, United Kingdom (UK), typically involve collaborations between geographically clustered health care organisations, universities, research institutes and other health system organisations. Though the focus of knowledge mobilisation goals and activities varies between national policy contexts and individual AHCs, a common reported aim is to improve strategic and operational connectivity between health care, education and research functions and capabilities.[1]

There is renewed interest in the population health role of AHCs. Traditionally, AHCs, along with the field of academic medicine, have

been characterised by their “tripartite mission”: improving health care, educating health professionals and conducting excellent research.[2,3] Academic medicine can be defined as “the capacity of a healthcare system to think, study, research discover, evaluate, teach, learn, and improve”[4] with a unifying purpose to “advance a healthier future for all”. [3] Although historically interested in serving disadvantaged communities, academic medicine (and AHCs as organisational forms in the field) has faced some criticism in the recent decade that it is failing to contribute to global health challenges and persisting population health inequities.[4,5] Recognising the limitations of “bench to bedside” translation in addressing health system challenges such as rising rates of non-communicable diseases, population ageing and persisting health inequities, some experts have called for an expansion to the role and orientation of AHCs away from individual patient care (as reflected in the health care-oriented tripartite mission) towards population health. [6–8] For example, to position AHCs at the forefront of addressing the drivers of poor health at a population level, Smitherman *et al.* [8] assert

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that a new, fourth mission of “social accountability” should be added.

Formal establishment of AHCs in England preceded their establishment in Australia (Table 1) and followed the publication of a series of government-commissioned reports championing the need for better research integration and alignment within the National Health Service (NHS).[9,10] In Australia, the 2013 Strategic Review of Health and Medical Research[11] recommended establishment of AHCs (termed *Integrated Health Research Centres* in the Review) to catalyse translation of research into healthcare. In both Australia and England, formal designation schemes were established between 2008 and 2014. Designation, meaning government accreditation, publicly recognises clusters of collaborating organisations that seek to deliver the tripartite mission and that can demonstrate a level of performance against competitive designation criteria, although such designation does not necessarily come with direct funding. Designated AHCs in Australia are termed *Advanced Health Research and Translation Centres (AHRTCs)* and *Centres for Innovation in Regional Health (CIRHs)*. [12] Several parallel AHC designation and funding schemes in England include *Academic Health Science Centres (AHSCs)*, *Biomedical Research Centres*, *Academic Health Science Networks*, and *Applied Research Collaborations* (previously *Collaborations for Leadership in Applied Health Research and Care*). [10] The designation criteria for the AHSC scheme (England) and AHRTC/CIRH schemes (Australia) are shown in Table 2. Reflecting the “tripartite mission” and emphasis on knowledge mobilisation in health care, the designation criteria for these schemes reward excellence in research and health education, evidence-informed clinical care, and effective collaboration between partnering organisations.

Despite their existence as new hubs of research excellence within health systems in Australia and England, little is known about how AHCs support health equity goals,[5] or how they enact knowledge mobilisation processes to achieve health system impacts.[1,13] There have been recent calls for more comparative analyses of AHCs across countries to build the knowledge base on AHCs in Australia, England and elsewhere.[14,15] This cross-country exploratory study of the population health role of AHCs in Australia and England contributes to addressing these knowledge gaps by answering 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?

**Table 1**  
Policy timeline in the formal establishment of AHCs in Australia and England, 2006–2020.

| Year      | Australia  | Year      | England  |
|-----------|--|-----------|--|
| 2006–2010 | <ul style="list-style-type: none"> <li>• National Health and Medical Research Centre (NHMRC) publishes discussion paper in 2010 putting forward a vision to establish <i>Advanced Health Research Centres</i>.</li> </ul>  | 2006–2010 | <ul style="list-style-type: none"> <li>• 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.</li> </ul>   |
| 2011–2015 | <ul style="list-style-type: none"> <li>• Strategic Review of Health and Medical Research report, released in 2013, recommended the establishment of <i>Integrated Health Research Centres</i>.</li> <li>• NHMRC opened the first round of designation for <i>Advanced Health Research and Translation Centres (AHRTCs)</i> in 2014, resulting in four AHRTCs becoming designated in 2015 for five years.</li> <li>• The Australia Health Research Alliance was (AHRA) established to facilitate collaboration between designated centres.</li> </ul> |           | <ul style="list-style-type: none"> <li>• Department of Health formulates Best Research for Best Health 2006–2010, a national health research strategy that consolidated research and development investment within the NHS into the National Institute of Health Research (NIHR).</li> <li>• NIHR launched designation and funding process for <i>Biomedical Research Centres</i> and <i>Collaborations for Leadership in Applied Health Research and Care</i> in 2006 and 2007 respectively.</li> </ul> |
| 2016–2020 | <ul style="list-style-type: none"> <li>• NHMRC opened the first round of designation for <i>Centres for Innovation in Regional Health (CIRHs)</i> in 2016, at the same time as the second designation round for AHRTCs. Three additional AHRTCs and two CIRHs were designated in 2017.</li> <li>• First formal review of AHRTCs and CIRHs commenced in 2018.</li> <li>• NHMRC opens third round of designation for AHRTCs in 2018, and second designation round for CIRHs. One additional CIRH designated in 2019.</li> </ul>                        | 2011–2015 | <ul style="list-style-type: none"> <li>• A strategic review of the NHS (High Quality Care for All: NHS Next Stage Review) released in 2008, recommended adoption of <i>Academic Health Science Centres (AHSCs)</i> as national policy.</li> <li>• Department of Health launched the first designation round of <i>Academic Health Science Centres (AHSCs)</i> in 2008, resulting in five AHSCs in England becoming designated in 2009 for five years.</li> </ul>   |
|           |  | 2016–2020 | <ul style="list-style-type: none"> <li>• Second AHSC designation round opens in 2014, leading to one additional AHSC established and five re-designations.</li> <li>• <i>Academic Health Science Networks (AHSNs)</i> established across England in 2013.</li> <li>• Third round of AHSC designations commences in 2019. Two additional AHSCs were established in 2020, and six re-designated.</li> </ul>  |

In England, the AHSC designation scheme was selected for comparison with the Australian AHRTCs/CIRHs due to their connected origins (the origin stories of both schemes reference exemplars in North America), embodiment of the “tripartite mission” considered definitional of AHCs,[2] and similarities in designation criteria and competitive assessment processes. The term “AHC” in this paper is used hereon to refer to the wide range of initiatives that aim to deliver the tripartite mission and to mobilise knowledge into practice, except where reference to a specific scheme is needed for clarity (in which case the schemes are italicised). In the study, population health is defined as a social model of health that is concerned with both aggregate health improvements and their equitable distribution.[16]

## 2. Materials and methods

### 2.1. Study design

The project adopted an exploratory, multiple-case study design to investigate AHCs in depth within their real-world contexts. Case studies are especially useful when the boundaries between contemporary phenomena and contexts (like in AHCs) are unclear.[17] Multiple-case study designs, wherein more than one case study is selected for investigation concurrently, allow comparisons to be made across several cases enabling analytic generalisability of the findings.[17]

### 2.2. Case selection

Case selection employed a most similar/most different selection approach[18] involving selection of two AHCs within two health system contexts (Australia and England) and comparison of AHC goals, activities and other relevant features both within and between them. Most AHCs in these two countries employ collaborative governance arrangements among public sector organisations, and government designation processes adopted for AHCs in Australia were informed by those developed several years earlier in England.

An attempt was made within each country to select cases that demonstrate characteristics 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. [19] In England, one AHC selected was in an area of much higher relative population health disadvantage compared with the other AHC. Pragmatic factors such as capacity of the researcher to gain access to

**Table 2**  
Criteria used in designation of *AHRTCs* (Australia) and *AHSCs* (England) in 2014 and 2013.

| Category (authors' categories)   | Australia - Designation criteria for <i>AHRTCs</i> *<br>According to the National Health and Medical Research Council, submitting collaborations should provide evidence of:   | England - Designation criteria for <i>AHSCs</i><br>According to Department of Health, submitting collaborations should provide evidence of:   |
|--|--|---|
| <b>Collaboration and governance</b>  | <ul style="list-style-type: none"> <li>Strong collaboration amongst the research, translation, patient care and education programs.</li> </ul>   | <ul style="list-style-type: none"> <li>Strategic alignment of NHS provider and university objectives.</li> <li>Strong partnership governance.</li> </ul>  |
| <b>Research excellence</b>   | <ul style="list-style-type: none"> <li>Excellence in innovative biomedical, clinical, public health and health services research.</li> </ul>   | <ul style="list-style-type: none"> <li>Highest volume critical mass and world class excellence in basic medical research.</li> </ul>  |
| <b>Translation into health care</b>  | <ul style="list-style-type: none"> <li>Leadership in outstanding research- and evidence-based clinical care, including for the most difficult clinical conditions.</li> <li>Health professional leaders who ensure that research knowledge is translated into policies and practices locally, nationally and internationally.</li> <li>Programs and activities to accelerate research findings into health care and ways of bringing health care problems to the researchers.</li> </ul> | <ul style="list-style-type: none"> <li>Strong clinical informatics platform to underpin delivery of AHSC objectives.</li> <li>The ability to translate scientific advances into patient benefit, in order to improve patient care and healthcare delivery.</li> <li>Excellence in patient care.</li> <li>Strong patient and public involvement and engagement.</li> </ul> |
| <b>Health professional education</b><br><b>Life sciences industry engagement and economic growth</b> | <ul style="list-style-type: none"> <li>Research-infused education and training.</li> </ul>   | <ul style="list-style-type: none"> <li>Excellence in health education.</li> <li>Strong track record of, and capacity for, productive research collaborations with the life sciences industry and contribution to economic growth.</li> </ul>  |

\*Note: Regionally focussed AHRTCs are termed Centres for Innovation in Regional Health (CIRHs). The designation criteria for CIRHs were introduced in 2016 and are largely identical to those for AHRTCs except for an emphasis in the CIRH criteria on leadership and research to improve health care in “regional and remote Australia”.

senior individuals in the AHC were also considered in case selection.

Cases were defined to include the governance infrastructure established as part of the AHC entity and aspirations and activity branded under the AHC name. In addition, cases included the activity of, and relationships and interactions between, people employed within the AHC or member (i.e., partnering) organisations who were in positions to drive, shape and implement the AHC direction, structures, and activities (AHC 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 contexts. The case contexts also included population and organisational stakeholders at regional, state, national and international levels.

**2.3. Data collection**

Three qualitative data collection methods were used to enable data triangulation: interviews, observation, and document analysis. Semi-structured interviews were conducted by the first author with 85 AHC stakeholders. Purposive selection aimed to achieve representation of different perspectives with reference to seniority level and job type (e.g.,

board member of the AHC, clinician or university-based researcher), representation from the partnering organisations to the AHC, and gender representation. Following web-based searching and initial contact with senior AHC leaders to develop lists of potential interviewees, the recruitment process for 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. A snowballing method was used to identify additional potential interviewees up to a maximum of around 20 interviewees per AHC. A question guide was used in all four case studies (Appendix 1). Interviews were recorded digitally or in handwritten notes with interviewees' consent, and member checking of summaries of the data involved the first author seeking comments and feedback, which were incorporated into final case reports.

Interviews were supplemented by document review of 43 strategic documents including governance documentation, major reports, grant submissions, meeting minutes, procedural documentation and communications material relating to the AHCs. Direct, non-participant observation was also undertaken within the AHCs for a period of at least two weeks at each case study site (or major hubs thereof) involving immersion by the first author in office-based settings constituting AHC operating environments, resulting in 18 observation memos. Table 3 provides a summary of data sources in each case study. All data collection was undertaken between October 2017 and August 2018.

**2.4. Data analysis**

Transcripts and observation memos were read and coded inductively by the first author 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.[20] A conceptual framework (Fig. 1) was developed to guide data analysis for each of the case studies enabling organisation of case study findings under deductive themes. The framework draws from three institutional pillars (regulative, normative, and cultural-cognitive) described by Scott et al.[21] to explore: goals and activities of AHCs in the normative pillar; formal rules

**Table 3**  
Summary of data sources used in each case study.

|  | Northern Queensland AHC   | South Australia AHC | Oxford AHC      | Manchester AHC   |
|--|---------------------------|---------------------|-----------------|------------------|
| <b>Data collection dates</b>                                 | October 2017 – March 2018 | July – August 2018  | May – June 2018 | April – May 2018 |
| <b>Interviews (number of interviewees)</b>                   | <b>24</b>                 | <b>20</b>           | <b>16</b>       | <b>25</b>        |
| 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                |
| <b>Observation memos (number of memos)</b>                   | <b>5</b>                  | <b>3</b>            | <b>4</b>        | <b>6</b>         |
| <b>Documentation (number of documents)</b>                   | <b>8</b>                  | <b>13</b>           | <b>8</b>        | <b>14</b>        |

\*At the time of data collection there were no individuals occupying executive, director, manager or project officer positions in the Northern Queensland AHC.

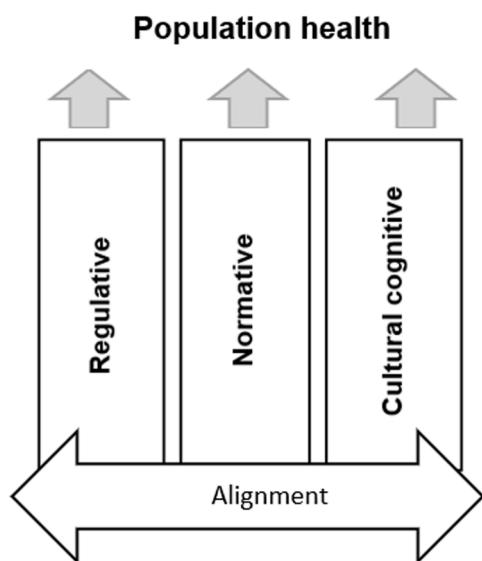


Fig. 1. Conceptual framework informing analysis of AHCs in the study.

and incentive systems in the regulative pillar; and taken-for-granted conceptions about social reality in the cultural-cognitive pillar. The study examined the degree of alignment of these elements to explore the forces shaping a population health role of the four case study AHCs.

The cross-case analysis involved examining key patterns across the cases commencing with the creation of a matrix to display the findings from each of the cases.[17] Cases were first compared within each country, then compared across countries. Four inductive themes were developed to capture key patterns in the findings across the cases. Preliminary summaries of the data and emerging in-case and cross-case analyses were developed throughout this process for review by the other members of the research team.

2.5. Ethical approval

Human research ethics approval was 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 (AHREC Protocol #: 04-18-754; 1 March 2018). Reciprocal acknowledgement of THHS HREC approval was received from the James Cook University Human Research

Table 4  
The four case studies selected in Australia and England, UK

|   | Northern Queensland AHC   | South Australia AHC  | Oxford AHC  | Manchester AHC   |
|---|---|--|---|--|
| <b>Country</b>                            | Australia   | Australia  | England, UK   | England, UK  |
| <b>Composition</b>                        | 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.  | Collaboration between: South Australia Health, including five Local Health Networks; the two Primary Health Networks (PHNs) in South Australia; the South Australian Health and Medical Research Institute; Flinders University; The University of Adelaide; University of South Australia; the Aboriginal Health Council of South Australia; and the SA Health Consumer's Alliance. | Collaboration between: Oxford University, Oxford Brookes University, Oxford Health NHS Foundation Trust, and Oxford University Hospitals NHS Trust.   | HinM incorporates the Manchester AHSC and the Greater Manchester AHSN. The Manchester AHSC 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 NHS Foundation Trust. |
| <b>Governance</b>                         | Company limited by guarantee with a representative board and sub-committees.  | Unincorporated joint venture with a representative board, advisory group and sub-committees.   | Unincorporated entity with a representative board and sub-committees.   | Unincorporated entity with board and sub-committees.   |
| <b>Government designation status</b>      | Applying for designation as a <i>Centre for Innovation in Regional Health</i> at the time of data collection (subsequently designated in 2019).   | Designated as a state-wide <i>Advanced Health Research and Translation Centre</i> in 2014.   | Designated as an <i>Academic Health Science Centre</i> in 2014.   | Includes a designated <i>Academic Health Science Centre</i> (designated in 2008) and an <i>Academic Health Science Network</i> (established in 2015).  |
| <b>Funding</b>                            | Co-contributions (subscriptions) from member organisations.   | Co-contributions (subscriptions) from member organisations. Programmatic funding also received from the Medical Research Future Fund through the Rapid Applied Research Translation Initiative.  | Co-contributions (subscriptions) from member organisations.   | Co-contributions (subscriptions) from Manchester AHSC member organisations and NHS England funding for the Greater Manchester AHSN.  |
| <b>Population and geographic features</b> | Regional, rural, and remote location and orientation. Northern Queensland population: approx. 700,000. Area: approx. 750,000 km <sup>2</sup> .  | Largely urban orientation, with state-wide remit (South Australia). Population: approx. 1.7 million (1.3 million in Greater Adelaide region). Area: approx. 1 million km <sup>2</sup> .  | Located in an area of relative population health advantage (Oxfordshire). Population: approx. 700,000. Area: approx. 2,600 km <sup>2</sup> .  | Located in an area of relative population health disadvantage (Greater Manchester). Population: approx. 2.8 million. Area: approx. 1,300 km <sup>2</sup> .   |
| <b>Aims</b>                               | 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, is also a focus in relation to strategic cooperation and life sciences industry development. Research and 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. | 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 days of life; stroke; and diabetes.   | 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. 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. | Creation of an innovation system to improve the health of populations in Greater Manchester, improve health service efficiency and generate wealth through growing the life sciences industry. Had no specific themes at the time of data collection.  |

Ethics Committee (JCU HREC) in September 2017. For the case studies in England, Australian research ethics and governance approval certification was provided to AHC leaders prior to commencement of data collection.

### 3. Results

The four AHCs selected as case studies were the Tropical Australian Academic Health Centre (TAAHC); South Australia Academic Health Science and Translation Centre (SA Centre; re-named Health Translation South Australia in 2019); Oxford Academic Health Science Centre (OxAHSC; renamed Oxford Academic Health Partners in 2020); and Health Innovation Manchester (HInM). A summary of the characteristics of these AHCs and relevant contextual features is presented in Table 4. For clarity, the four case study AHCs are referred to in this paper as: Northern Queensland AHC, South Australia AHC, Oxford AHC, and Manchester AHC, respectively. All four AHCs took the form of collaborations, mainly between sovereign health care and academic (e.g., university and research) organisations, supported by a board linking the partners as a vehicle to strengthen collaboration. The four AHCs also demonstrated an intent (considered definitional of AHCs)[2] to improve strategic and operational connectivity between health care, workforce education and research functions and capabilities with a focus on knowledge translation.

#### 3.1. Study setting and context

In Australia, the Northern Queensland AHC is located in regional, rural and remote northern Queensland, and the South Australia AHC was designated as a state-wide AHRTC in the state of South Australia. At the time of data collection (2017), the Northern Queensland AHC was still undergoing establishment and was later designated as a CIRH in 2019. A Northern Queensland AHC Steering Committee comprising representatives from each member organisation was meeting periodically either in person or by virtual meeting platform, and several sub-committees had been convened for specific activities. A new governance structure was being implemented in the South Australia AHC at the time of data collection (2018) which included a representative Board of Partners and executive group.

Within Australia's health system, state-funded health services in Queensland (Hospital and Health Services) and South Australia (Local Health Networks) operate as localised autonomous organisations responsible for public hospital services and other health services within their boundaries, as negotiated and determined with state governments. Although the states deliver some primary care services, primary care is predominantly provided by private general practices and Aboriginal Community Controlled Health Organisations which operate as non-government organisations.[22] As separate quasi-government entities, Primary Health Networks aim to deliver coordination, planning and commissioning for primary care services nationally.[22] Demographically, Aboriginal and Torres Strait Islander people, and people living in rural and remote parts of Queensland and South Australia, experience higher rates of risk factors for chronic disease and poorer access to health services than people living in metropolitan centres.[19]

In England, the Oxford AHC was designated as an AHSC in Oxfordshire, a county in South East England, in 2014. In the North West of England, the Manchester AHC was officially launched in 2017 as an “academic health science system” in Greater Manchester. The Manchester AHC integrated the previously separate initiatives of the Manchester AHSC and the Greater Manchester Academic Health Science Network (AHSN) under a combined governance structure overseen by a Board and several committees. The Manchester AHSC was first designated in 2009, achieving re-designation for a further five-year period in 2013, and the Greater Manchester AHSN existed as one of 15 AHSNs established by NHS England across the country. In the Oxford AHC, a Strategic Partnership Board comprising representatives from the

member organisations and an executive group were responsible for overseeing the operation and implementation of AHC objectives. Life expectancy in the Oxfordshire county is higher than the England average for both men and women, but there are pockets of disadvantage and the population is ageing.[23] The Greater Manchester population experiences significant health inequities, including lower life expectancy, compared with national averages.[24]

In the UK, the NHS is a publicly funded healthcare system that provides primary, secondary, tertiary, and social care services. NHS Trusts in England operate hospitals and specialised health centres while primary and social care services are provided by separate practices and authorities.[10] Although public universities in both England and Australia are funded and administered separately from health care organisations, public hospitals and health services often function as clinical training sites for medical and other health professionals. The history of collaboration between co-located universities and health services that were partners in the four AHCs differed both between the AHCs and between the individual partners in the AHCs.

#### 3.2. Theme 1) Health care, rather than population health

Within both Australian AHCs and the Manchester AHC in England, interview data and documents demonstrated a clear intent to improve population health within the local geographical regions of the AHCs. This intent was unambiguous within the organisational vision statement of the Manchester AHC:

*“[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 contextual determinant of this population focus in the Manchester AHC was a broader “devolution” initiative underway in Greater Manchester which aimed to give local health authorities accountability over the health budget, within which HInM had been launched. A key policy instrument of devolution, the Greater Manchester Combined Authority Population Health Plan 2017–21, outlined goals to promote early intervention and prevent disadvantage across the life course to address persistent health inequities in the Greater Manchester region.

Recognition among AHC leaders of population health disparities in northern Queensland and South Australia shaped a similar, high-level intent within the Australian AHCs to improve population health, especially Aboriginal, and Torres Strait Islander, health. Several participants in these AHCs described widely held expectations that the AHCs would improve health equity.

*“That’s our key driver, that’s why we’re doing it [establishing TAAHC] – it’s about equity, and improving health outcomes” (TAAHC; Health Service Executive 8).*

*“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; University Executive 4).*

However, the plans and activities of the Australian AHCs and the Manchester AHC demonstrated an operational focus on health care improvement, rather than population health; indicating a widespread assumption that population health improvement will automatically follow improvements to clinical care. The Manchester AHC Business Plan (2018) referred to “frontline care” as its operational focus, and the projects underway at the time of data collection were clinically oriented. A similar operational emphasis on health care was evident in the high-level vision and purpose statements of the Australian AHCs.

*“[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” (TAAHC Business Case, 2017).

“*[Vision:] 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).

Oxford AHC documentation and participant accounts indicated a similar interest in improving health care practice but, unlike in the other AHCs, this was not normatively linked to population health goals or local health system priorities. Instead, Oxford AHC documents and participants described a geographically agnostic aim to deliver “excellent science” wherever this could be applied in practice. This approach reflected the Academic Health Science Centre designation scheme aim to recognise collaborating entities that conducted the “highest volume critical mass and world class excellence in basic medical research” and drive “excellence in patient care”.

“*We exist to cluster the excellent science that might be applied in Blackpool, maybe it will be applied in Zimbabwe*” (OxAHSC; AHC Executive/Manager 1).

Structurally, health care organisations with secondary or tertiary care service accountabilities and universities dominated the composition of organisational partners in the four AHCs. This meant that most organisational partners were neither focused on, nor mandated to invest in, cross-sectoral work targeting critical determinants of population health outside of health care, such as housing, employment, education, food, transport, and early life. The organisational focus of the individual members in turn reinforced the operational focus in all four AHCs on health care, rather than population health.

### 3.3. Theme 2) Incremental rather than major health system change

In both countries, participants reported that the rationale for establishing AHCs included a perceived need among local health system leaders for major health system change. Participants in all AHCs described their own and others’ expectations that the AHCs would substantially improve collaboration between structurally separate health service and academic organisations, with some participants in the Australian cases additionally reflecting that the AHCs promised better coordination of a fragmented health system.

“*[Australia is] 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 [...] it’s quite an unconnected system. That’s okay for a number of areas like bioscience etcetera, 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; University Executive 1).

The ability of the AHCs to drive health system change, however, was challenged by the different organisational mandates of the health services as compared with the academic (university and research institute) partners. A key impediment was that the health services in both countries were accountable to service-related performance indicators in contexts of relative resource scarcity, which de-valued investments in activities outside of immediate clinical responsibilities.

“*Currently, health system KPIs [key performance indicators] are structured around waiting lists – how are AHCs reflected in these? [The system] needs incentives for the academic side*” (TAAHC; University Executive 1).

“*[Research] isn’t seen as core business [in the National Health Service] and of course if it is competing with its other priorities like treating people, it’s always going to lose out*” (OxAHSC; University Executive 1).

Concurrently, the academic partners within the AHCs responded to competitive research environments that incentivised traditional academic metrics such as publications and grants, which involved an overlay of funder-determined research priorities. Participants reflected that these incentives tended to drive “investigator-led” research in biomedical, rather than population health, directions despite the introduction of new impact reporting schemes for universities by governments in both Australia and England.

“*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*” (SA Centre; University Executive 2).

The AHCs also had limited operational budgets with which to determine and operationalise their goals as distinct from the mandates of their large, sovereign organisational partners. Although the AHCs accessed funding through partners’ subscriptions, these contributions were only enough to support small teams of cross-organisational operational staff and small project-based funding rounds. The Manchester AHC and South Australia AHC also accessed government grants (the Manchester AHC accessed NHS England funding for the Greater Manchester AHSN, and the South Australia AHC accessed funding from the Medical Research Future Fund), but these were tied to time-limited, discrete, and often clinically oriented projects. This context of substantive operational resource scarcity meant that the activities of the AHCs were heavily influenced by the normative expectations and regulative requirements of individual partnering organisations and other funders.

“*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; AHC Executive/Manager 3).

“*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 [Medical Research Future Fund] and there has been this overlay of the MRFF setting priorities that are out of the blue, off the cuff*” (SA Centre; University Executive 2).

Rather than leading coherent health system reform, therefore, the AHCs were driven by operational necessity towards delivering incremental change in the form of discrete projects and initiatives to meet myriad, often misaligned expectations of organisational partners, government-determined priorities, and individual researchers. This pressure to compromise on system change goals was demonstrated most clearly within the Oxford AHC, which had initially pursued an integrated governance model requiring substantial buy-in (structurally and financially) by the organisational partners. Because this approach was not universally supported and had led to friction among the organisational leaders, the AHC failed to achieve government designation as an AHSC in the first designation round. The initial failure led to the second Oxford AHC designation attempt reflecting a more “light touch” governance approach than was originally proposed eventuating in successful designation – but at a cost. The health system change ambitions that characterised the previous bid were diluted to appease the organisational partners.

“*The re-bid [for AHSC designation] arguably [...] 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 that attracted the international panel. But in a way, it was about avoiding the too difficult-to-do*” (OxAHSC; University Executive 2).

In the other AHCs, a small number of participants expressed doubts about the capacity of the AHCs in their current form to drive major health system reform without more functionally integrated governance models, adequate resourcing, and clear mandates.

*“It is good that [Australia] has decided to look at these structures [i.e., 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; University Executive 3).*

*“So you have more or less an existing structure onto which a new additional layer of hierarchy is imposed [...]” (HInM; Non-Clinical Academic 3).*

Yet, despite the evidenced barriers, most participants in the Australia AHCs and Manchester AHC expressed confidence that the collaborative governance infrastructure and normative commitments of their AHC were sufficient to drive major health care and system-level change. That this dominant narrative among interviewees was only challenged by very few participants despite the evident impediments suggested that key AHC stakeholders were naively optimistic about how to effect health systems change.

### 3.4. Theme 3) Different conceptions of “translation” and “innovation”

Normatively, the terms “translation” and “innovation” were key operational concepts in the AHCs and were constantly used by participants and appeared in documents to convey conceptual linkages between research, changes to health care practice, and patient and population health improvement. The terms were present in the vision and purpose statements of all four AHCs, were in the titles of two of the AHCs, and featured in the titles of the Australian designation program. Yet, clear, operational definitions of the terms were absent from AHC documentation; although Manchester AHC executives had made comparatively extensive efforts to explain the “innovation” concept in broad terms.

In the absence of explicit operational definitions, participants in the study interpreted and operationalised “translation” and “innovation” differently, and in ways that sometimes conflicted. Different conceptions of the terms were apparent between AHCs and between stakeholder groups within the AHCs. Some AHC stakeholders in England described “translation” and “innovation” as a linear pipeline from biomedical research through to adoption and diffusion into broader health services and patient care, reflecting a post-hoc rationalisation (in diagram form) of the multiple co-existing AHC initiatives by the National Institute of Health Research. The linear pipeline schematic framed an assumption among some university-based researchers and academics in the Oxford AHC that generating knowledge was a separate endeavour to implementing knowledge in practice, and that clinicians and health service administrators were less capable of leading knowledge generation.

*“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 [...] 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” (OxAHSC; University Executive 1).*

In contrast, the Australian AHRTC/CIRH designation schemes emphasised the role of “health professional leaders” in translation as well as “ways of bringing health care problems to the researchers”; reflecting this, participants in the Australian AHCs tended to interpret “translation” and “innovation” as being dependent on growing the research capacity and leadership of clinicians in the health services.

*“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; Health Service Executive 6).*

There were opposing views in the Manchester AHC. Business theory ideas about “disruptive” innovation, against the backdrop of the devolution initiative, were reflected in many participants’ comments; but some participants, especially clinicians, described a tendency for these ideas to be removed from patients’ basic health care needs and priorities.

*“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; Health Service Executive 2).*

*“I think that if you look at the NHS at the moment, it’s big issue is not that we haven’t got enough whizzy 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; Clinical Academic 1).*

Some participants described the perceived ambiguity of these terms in their AHCs 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” (SA Centre; University Executive 3).*

*“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; Health Service Executive 1).*

These findings suggest that “translation” and “innovation” had limited utility as operational concepts in the AHCs. Yet AHC leaders and policymakers (responsible for designation schemes) generally assumed, as demonstrated in the liberal and largely unqualified use of these terms in documents and interviews, that AHC stakeholders implicitly understood the concepts and their value.

### 3.5. Theme 4) Unclear pathways to impact

Participants in the four AHCs reflected on what “success” looks like for their AHC, and a wide range of aspirational indicators were identified, some of which were accompanied by evidence of impact (such as changes to clinical practice, and establishment of collaborative governance infrastructure). Four important expectations and assumptions about the presumed relationships between types of impact were identified from participant accounts and documentation. However, data from interviews, documents and observation indicated little attention in the AHCs to impact pathways, either in the form of aspirational pathways or evidence of enactment of linkage strategies.

The first assumption – ‘research-to-practice’ – presumed that research enabled through collaborative governance structures will lead uncomplicatedly to improved clinical practice. Evidence of this assumption was found in the emphasis in AHC documents and in interviews on “translation” and “innovation” which implied this linkage (see above). Of the four AHCs, the South Australia AHC and Manchester AHC most clearly demonstrated activity in which changes to practice and/or health care policy had been made involving collaborating researchers and clinicians. However, systematic knowledge mobilisation strategies were not described in documents or by interviewees, and gaps in knowledge mobilisation methodology expertise was identified as a gap, and described by some participants, in the AHCs. For instance, the

composition of AHC boards and strategic committees prioritised representation of partner organisations and biomedical and clinical expertise rather than health services research skills, and AHC documentation lacked clear descriptions of implementation science concepts and theories.

The second assumption – ‘healthcare-to-health’ – presumed that changes to health care practice will automatically, even unproblematically, lead to improved population health; this assumption is addressed in Theme 1. Similarly, ‘wealth-to-health’ and ‘efficiency-to-health’ assumptions implied that population health improvement would follow improved life sciences industry growth and health services efficiency. The ‘wealth-to-health’ assumption manifested in a documented 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 participants and documents in the AHCs in England emphasised this intent more strongly than those in the Australian AHCs, and described activity to engage private industry, including pharmaceutical and medical/digital technology companies, in commercialisation and product development. Oxford AHC participants, for example, reported the creation of spin-out biotechnology companies, while a 2018 Manchester AHC presentation described that the AHC had recently signed a memorandum of understanding with the Association of British Pharmaceutical Industries to “bring forward a pipeline of innovations for rapid adoption” within Greater Manchester. This focus on private industry and commercialisation pathways in England followed an emphasis in key national policy documents on a health and wealth pairing.[25] This pairing 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; Non-Clinical Academic 1).*

*“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; Non-Clinical Academic 7).*

Life sciences industry job creation and a general belief that regional or national-level economic growth would improve health were assumptions expressed by many participants as key elements of the of a ‘wealth-to-health’ impact pathway. Yet, these elements were 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; Non-Clinical Academic 7).*

The devolution context of the Manchester AHC reinforced this combined health and wealth pairing while at the same time driving health services “efficiency” goals.

*“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; Executive/Manager1).*

An efficiency agenda was also identified in documentation in the northern Queensland AHC; but in both the northern Queensland AHC and Manchester AHC the hypothesised ‘efficiency-to-health’ impact pathway was not made explicit. Some participants in England even reflected that stringent efficiency measures in the health services, as had

been implemented over several years, contributed to (rather than addressed) poor population health outcomes.

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. Despite being required to report on 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 a need for clearer accountability frameworks to support development and successful operationalisation of AHC goals.

#### 4. Discussion

Improving the health of populations is an integral component of the “triple aim” of health systems – to improve patient experience, improve the health of populations, and reduce the costs of health care.[26] As AHCs in Australia and England are health system entities in the public sector, there is an *a priori* rationale to consider population health alongside patient care in explorations of their role and societal value. In addition, the growing global interest in the role of AHCs in addressing persisting population health inequities[5] underscores the centrality of population health even in contexts where AHCs have traditionally been concerned with individual patient care.[6] Recent commentators have pointed to rapid changes in global health system contexts, such as the rise of “big data” and disruptions produced by the COVID-19 pandemic, as grounds for pivoting AHCs away from complex medical problems towards population health and systems issues.[6] In the north American context, Dzau *et al.*[6] have championed the need for re-orientation of AHCs towards *systems* that integrate discovery science, translation of knowledge to clinical care, and contributions outside of clinical care to promote health and wellbeing locally and globally; while in the UK the establishment of *Academic Health Science Networks* was intended to expedite the adoption and diffusion of new discoveries into clinical care for geographically-bounded populations.[10] These developments signify growing interest among experts and policymakers in new ways to institutionalise knowledge mobilisation to improve health; yet the findings of the current study demonstrate that, at least in the Australian and UK contexts, successful operationalisation of population health goals in/through AHCs is far from straightforward. The four unique AHCs in this cross-country comparative study, located in different geographic and health system contexts within Australia and England, were comprised of clinicians, researchers, managers, and leaders who were engaged in defining and operationalising the roles of their AHCs. At the time of writing, all four AHCs had been rewarded for their efforts with successful designation (government accreditation) which conveyed status and legitimacy on these AHCs. While the AHCs demonstrated varying degrees of interest in a population health role, they were hindered in their ability to define and enact a population health role by regulative, normative and cultural-cognitive forces that: drove a focus on health care rather than population health; encouraged incremental rather than major health system change; shaped different conceptions of “translation” and “innovation”; and contributed to unclear pathways to impact. Building from these findings, the study identifies several institutional elements that are likely to be needed for AHCs in Australia and England to deliver on both internal and external expectations of their role in improving population health.

First, government designation schemes should be amended, and funding introduced, to incentivise multi-sectoral collaboration and locally determined priorities over sufficient timeframes. Currently, a biomedical orientation is reflected in the designation schemes for *AHRTCs/CIRHs* in Australia, and *AHSCs* in England, which draw from the traditional “tripartite mission” paradigm that is considered definitional of AHCs. The findings of the study challenge government funders



and designation bodies to augment or extend the schemes to incentivise a population health role in AHCs, potentially by considering a definition of AHCs that includes a fourth “social accountability” mission.[8] If AHCs are to achieve expectations that they will transform health systems and improve population health outcomes, accountability mechanisms are also needed that include locally-prioritised outcome and intermediate impact indicators linked to population health goals. A recent review of *AHTRCs/CIRHs* in Australia recommended the introduction of processes to evaluate progress and impact, but also noted that the AHCs “have been hindered in their ability to deliver change by the lack of a dedicated source of funding to support their broad objectives”. [27] The findings of this study support this conclusion and underscore the need for AHCs in both Australia and England to access dedicated funding to provide the mandate and means to deliver on clear, locally defined strategic goals with sufficient timeframes to achieve population health impacts.

Second, AHCs should embrace a population health role and reflect this intent in outcomes-focussed strategic goals and operational plans specifying impact pathways. The study highlighted an assumption among key AHC stakeholders that collaboration between healthcare and academic organisations, the integration of research, professional education and patient care, and the acceleration of research translation and innovation, will collectively – somewhat automatically – improve the health of populations. Health care organisations play an important role in improving equity in health systems, and the study findings demonstrate a need for clearer elucidation of knowledge mobilisation strategies in AHCs to improve patient care; as others have also demonstrated in the Australian context.[13] However, improving population health is not the same as improving patient care. Systems oriented towards population health are concerned with prevention of ill health and promotion of wellbeing – with a key focus on equity – rather than with diagnosing and treating illness.[28] Whereas a disease view within a biomedical paradigm sees health as created or challenged by specific pathogens or events and foregrounds diseases and disorders, socioecological perspectives promote a health view incorporating a recognition that health is created by a range of determinants that lie outside of the sphere of the health sector.[29]

To operationalise population-oriented strategic goals, unambiguous, and population health -oriented, operational definitions of “translation” and “innovation” are needed. The study findings demonstrate few, if any, conceptions of these terms in the case study AHCs that encompassed pathways to population health impact through research and collaboration, revealing a critical gap in knowledge mobilisation strategies at a health system and policy level, and even awareness of the need for such strategies. Further research should explore how the co-option of terms and ideas such as “translation” and “innovation” may reflect a tactical or strategic choice by certain actors in support of specific interests. Historians of science have previously demonstrated the variable uses of such apparently objective terms.[30] An important question that needs to be addressed by AHC leaders is therefore: how can AHCs drive policy as well practice impacts through research? Others have queried whether a population health framing has implications for the research approaches and forms of evidence that are prioritised in AHCs.[14] There is clear need and opportunity for future work to develop knowledge mobilisation tools and strategies to help AHCs drive evidence integration in policymaking for population health, which could draw from the burgeoning literature on learning health systems.[31]

Finally, AHCs should pursue initiatives aimed at improving cross-organisational collaboration between organisational partners including addressing misaligned incentives. The ability of the AHCs to drive major health system reform was hampered by the competing expectations of their sovereign partner organisations, against the backdrop of limited discretionary operational resources. The misaligned accountabilities between partners meant that any population health goals in the AHCs were overwhelmed by a constant existential pressure to prioritise delivering value to the partners. Other studies of AHCs in Australia and

England have similarly identified cross-organisational collaboration challenges stemming from dissonant metrics and accountabilities for healthcare and research.[10,15] These ongoing difficulties highlight a need for further investigation of cross-organisational collaboration strategies in AHCs – such as how to balance two fundamental aspects of collaboration: cooperation and coordination.[13,32]

#### 4.1. Strengths and limitations

Key strengths of the study include the multiple case study design that enabled comparison of four unique AHCs both within and between two countries, use of data triangulation within each case, and purposive sampling approaches enabling analysis of perspectives from several key AHC stakeholder groups. However, a limitation was that most interviewees in the case studies were individuals employed in AHC leadership, executive and academic (non-clinical) roles as these individuals were easier to identify as AHC stakeholders and to engage, which increased the weighting of “official” narratives in the interview data collected. The conceptual framework used in the study contributed to addressing this by drawing attention to data, including dissenting interviewee perspectives, that pointed to misalignments between normative, regulative, and cultural-cognitive forces in the AHCs. Also, although efforts were made to ensure that the quantity and quality of data collected from each case in the study was roughly equivalent, one case study (the Oxford AHC) 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. Further, because the first author had prior, in-depth knowledge of one of the cases (the Northern Queensland AHC), conscious efforts were made to use clear definitions of the boundaries of each case, purposive sampling methods, data triangulation, researcher reflexivity and peer debriefing throughout the research process to minimise the influence of any pre-conceptions in the conduct of that case study.

While the cross-case analysis offers insights into features of the four case study AHCs that may reflect experiences in other AHCs, the case-specific findings are not generalisable to other AHCs Australia, England and elsewhere beyond insights into country and sector -wide systems and policies, and analytic generalisability to relevant theories.[17] Finally, as data collection for the study was completed prior to the COVID-19 pandemic, findings are reflective of pre-pandemic health systems, which are likely to have undergone changes in subsequent years. Future research might seek to examine the role of AHCs in supporting the COVID-19 pandemic response and future pandemic preparedness.

## 5. Conclusions

This exploratory, multiple-case study on AHCs in two countries identified several institutional elements that are likely to be needed for AHCs in Australia and England to deliver on both internal and external expectations of their role in strengthening population health. First, government designation schemes should be amended, and funding introduced, to incentivise multi-sectoral collaboration and locally determined priorities over sufficient timeframes, supported by population-oriented performance indicators. Second, AHCs should embrace a population health role and reflect this intent in outcomes-focussed strategic goals and operational plans specifying impact pathways, supported by clear, and population health -oriented, operational definitions of “translation” and “innovation”. Finally, AHCs should pursue initiatives aimed at improving cross-organisational collaboration between organisational partners including addressing misaligned incentives and cultures. There is an opportunity for future research to strengthen the evidence base on strategies to overcome the impediments to a population health role identified in this study.

## Ethical Issues

Human research ethics approval was 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 (AHREC Protocol #: 04-18-754; 1 March 2018). Reciprocal acknowledgement of THHS HREC approval was received from the James Cook University Human Research Ethics Committee (JCU HREC) in September 2017.

## Authors' Contributions

AE and SMT devised the study and the main conceptual outline. AE led study design, conducted data collection and analysis, and wrote the manuscript with input from all authors. SMT, JT, and PVO contributed to study design and supervised the project. SMT, JT, PVO, and SL provided critical feedback and helped shape the research, analysis, and manuscript. SL also provided advisor mentorship for the project.

## Declaration of Competing Interest

The material in this manuscript is based on doctoral work conducted at James Cook University by the first author. The co-authors are the members of the first author's advisory panel. The work was supported by an Australian Postgraduate Award Stipend; and Higher Degree by Research Enhancement Scheme funding from James Cook University, Australia. These resources were used to support some travel for data collection, conference presentations and publications.

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## Appendix 1. Interview question guide

### Participant background/role

- 1 What is your role within your organisation?
- 2 What is your role within [AHC]?

### Structure, composition, purpose and activity of [AHC]

- 1 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?
- 2 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?
- 3 How is [AHC] funded?
  - a Are there membership fees?
- 4 How does [AHC] report on its performance? (accountability arrangements)
- 5 What is the purpose of [AHC]?
  - a Why is it being established?
  - b What is driving its establishment?
- 6 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-organisational communication

- 1 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?)
- 2 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

- 1 What do you see as being the key challenges and opportunities facing the health system in the region?
- 2 What in your view are the top priorities in service delivery in your region? Research? Education?
- 3 What are the major health concerns of your region's populations?

## Role of the AHC

- 1 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?
- 2 How would you define the 'success' of [AHC]?
- 3 Are there any (other) barriers to [AHC] being 'successful'? What are they?
- 4 Do you have any additional ideas or recommendations about the future activities and role of [AHC]?

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