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Measuring growth in research capacity and capability of allied health professionals at a regional Australian public health service: 2011–2023

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Abstract

Introduction Clinicians within public healthcare organisations, including allied health professionals are becoming increasingly research active. Townsville Hospital and Health Service (THHS) employed an embedded Research Fellow in 2010 to build the capacity and capability under a state-wide initiative resulting in increased activity over time. A Research Capability Framework (RCF) was introduced in 2018 with intent of having a briefer measure of activity than the previously used research ‘spider’. This study measures and explores the growth in research capacity and capability over 12 years.

Methods A mixed methods triangulation design compared two ways of measuring research capacity including interviews and self-rating of the RCF objectives by Discipline Directors (DD), and a survey of allied health professionals to measure their level of research experience and knowledge of health services research methods. The interviews were themed and quantitative data was analysed descriptively.

Results 12 DDs, 5 Team Leaders and 105 clinicians participated. Four major themes were identified from the interviews: clinical practice provides a rich environment for quality improvement and research activity, influence of health service managers on research culture, prioritising clinical care over research, and the effect of collaborations on research. High levels of research participation were noted, and varying levels of methods knowledge were evident.

Discussion Similar results in consuming and producing research activity by both instruments suggest the shorter RCF could replace the more onerous research spider. Qualitative data collected simultaneously with the Objective ratings can be used to plan the future direction of capacity building efforts. The high levels of experience in quality improvement skills but limited knowledge of research translation methods suggest this knowledge gap may be a barrier to the translation of allied health research.

Keywords Allied health professionals, Research capacity and capability, Public health service

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Table 1 Overview of the timeline of allied health research capacity and capability building at THHS

Year	Milestone	Papers
2007	Industrial Agreement signed by QH, including research capacity initiative	
2010	Fractional RF commenced at THHS Weekly meetings for research special interest group established	3
2011	Conjoint Professor with James Cook University commenced Baseline survey conducted across 3 northern Queensland HHSs Research education commenced	1
2012	Small capacity grants disbursed to Allied health clinicians	1
2013	Professor resigned and not replaced First PhD enrolment (Pharmacy) via Cohort program Two papers published from baseline survey: (Harvey et al., Pighills et al.)	4
2014	First PhD graduate (Occupational Therapy) Evidence Briefs introduced to report research impact on clinical practice First enrolment in mentoring program with Health Services Research Association of Australia and New Zealand Strategy to include a focus on health service research methods Two PhD enrolments (Pharmacy and Podiatry) via JCU Cohort program	7
2015	Follow up survey conducted: THHS only Third Baseline survey paper published: (Pain et al.)	5
2016	Fractional RF position upgraded to full-time Two PhD enrolments (Sonography and Radiation Therapy)	7
2017	Townsville Institute of Health Research and Innovation established Full-time RF employed in Oncology	15
2018	PhD enrolment (Sonography) RCF introduced at THHS	21
2019	RCF objectives rated by managers via email request Two PhD graduates conferred (Pharmacy)	17
2020	RCF objectives rated by managers via face-to-face interview Successful capacity building grant to employ a research assistant	18
2021	PhD graduate conferred in Sonography	16
2022	Grant to continue research assistant unsuccessful	23
2023	Staff survey reissued, RCF evaluation commenced, PhD graduate conferred (Radiation Therapy) Full-time RF position converted to two fractional positions	12
2024		14
2025	RF retires	7 to date

QH: THHS, Townsville hospital and health service; HHSs, Hospital and health services; AH, Allied health; RF, Research fellow; RCF, Research capability framework; HP, Health professional/s; PhD, Doctor of philosophy; JCU, James Cook University (Cohort program enrolled cohorts of students and provided structured support)

Background

Allied health professionals are increasingly research active, but lacking expertise in robust research methods [1, 2]. Research capacity building for allied health began at Townsville Hospital and Health Service (THHS) with a funding opportunity for a statewide initiative within an industrial agreement in 2007. The agreement applied to staff under the Health Practitioner (HP) award and included 63 clinical disciplines other than medicine and nursing [3]. Queensland Health funded embedded research fellows (RF) to support all staff under the HP award and also funded grants disbursed in annual competitive rounds. Three RFs and a professor, all but one in conjoint positions with James Cook University, commenced in three northern Queensland public health services in 2010–11. The newly appointed fellows conducted a baseline survey of HPs in 2011 using the ‘research spider’ [4]. The survey demonstrated social workers had a high level of interest in research, [5] occupational therapists had more experience in consuming research than producing it, [6] and rural allied health professionals had less experience in most research activities than their regional counterparts [7]. The research spider lent itself to perceiving research skills in a continuum from consuming research (literature searching, critical appraisal skills and translation into practice) through to producing research for publication [6].

Early research capacity building (RCB) activities were largely driven by role performance indicators and included research education, partnership with universities, and supervision of students undertaking higher degree research. Additional strategies were incorporated over time to support research activities across the continuum, including regular peer support, mentoring and identifying and collaborating with methods experts including local librarians [3]. Key milestones on the capacity building journey include support from an external mentoring program for research active clinicians [8], and clinician PhD enrolment (Table 1). A follow-up survey of research experience within one of the three northern Queensland health services (THHS) in 2015, again using the research spider, showed increases in all research activities, except those measured by traditional research outcome metrics – publications and grants [9].

Several lessons were learned from the 2015 survey. Research experience of THHS allied health, as measured by the activities listed in the research spider, was similar to elsewhere in Australia [10, 11] and internationally [12, 13]. Allied health, universally, have higher levels of experience in activities such as finding and reviewing literature, or consuming research necessary for evidence-based practice and quality improvement activities. The need for assistance in research ‘consuming’ activities was addressed at THHS in 2023 by employing an RF

specifically to support quality improvement and research translation. The second RF was employed without a change in resource inputs with both positions funded at half capacity.

With higher experience levels in activities associated with consuming research, there was a deliberate focus on health service research methods for allied health with the intent it would lead to improved research translation. Concurrently, THHS increased organisational research support by establishing a research unit to improve ethics and governance processes [14]. The new research unit increased research support, funding, and infrastructure. However, there was variation in the level of support across disciplines and geographically with rural staff remaining largely unsupported [15]. At this time, allied health identified the need for a framework to focus on research capability (or ability to do research) rather than capacity (or time to do research) as there was no dedicated time for allied health to do research without grant funding.

A less onerous survey that measured research activity was needed to address the marked decline in response rate between the 2011 and 2015 surveys. The tool needed to be brief enough to conduct annually yet specific for the research needs of a regional health service. The Research Capability Framework (RCF, Fig. 1) was introduced at THHS in 2018 (Table 1). The RCF was adapted from previous frameworks [3, 16–19] and included an objective

to grow local research leaders based on rural research capacity building evidence [20].

The RCF adopted two principles from Cooke's framework (2005) (research close to practice, and in partnership) and a third (research as core business) from Ward et al. [18, 16]. Each principle was underpinned by two objectives. The objectives underpinning the principle of research close to practice were based on the results from the research spider that most staff engage in quality improvement activities, but a small proportion of staff produce research outputs, such as publications and higher degrees. The second principle (research as core business) was underpinned by an objective to build research-enabling infrastructure and processes within the team and across THHS and grow local research leaders [21] and champions [22]. The third principle included internal and external partnerships as objectives because of the overwhelming evidence of the benefits of partnerships in building research capacity [23, 24]. The framework was developed specifically to address capability (ability to do research) in health services research methods and by growing local research leaders.

Numerous studies have reported research capacity building levels of allied health professionals [11, 12, 25]. However, there are limited reports showing the outcomes of prolonged research capacity and capability initiatives. This paper reports on the growth of research capacity and capability in a regional public health service over

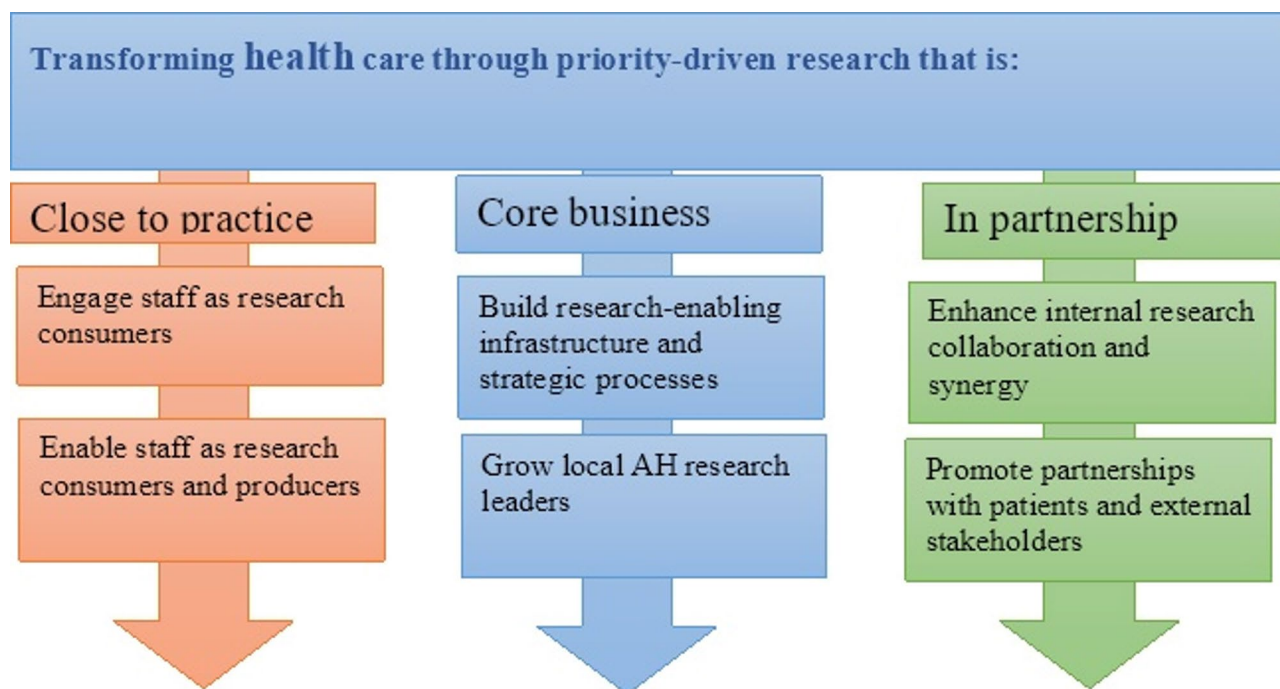


Fig. 1 Diagram of the research capability framework (RCF) designed with the overarching goal of transforming healthcare. The RCF is underpinned by three principles each of which is comprised of two objectives. The six objectives form the annual evaluation of research activity at THHS by having team Managers rate their team against them based on four levels: preparing to start, emerging, consolidating and proficient

12 years. It includes an assessment of the RCF on consuming and producing research by AHPs at THHS with the intention of replacing the longer survey with the RCF to plan for sustainable growth, if appropriate.

Methods

Aim

This study aims to measure research capacity and capability progress of AHPs at THHS since 2011.

Design

A mixed methods triangulation design (Fig. 2) compared two ways of measuring research capacity [26]. Results from qualitative interviews with allied health managers were converged with quantitative data from managers' ranking of the RCF objectives and allied health staff survey of research experience and methods knowledge.

Setting

THHS is a regional, publicly funded health service that hosts one tertiary referral hospital and nine regional health facilities serving a catchment 148,000 square kilometres with approximately 700,000 people. The catchment includes communities categorised on the Modified Monash Model (MM) based on remoteness and population size from category 2 (regional city) through to 7 (very remote) [27]. There are 23 recognised allied health disciplines within the THHS including therapies (such as physiotherapy and occupational therapy), sciences (such as pharmacy and pathology), and diagnostic services (such as medical imaging) hosting a workforce > 680 allied health professionals.

Ethics

Ethics approval was provided by the THHS Human Research Ethics Committee (HREC) prior to the commencement of the study (HREC/2022/QTHS/81533). Author reflexivity is recorded in Supplement 1.

Recruitment

Interview participants were recruited via an email invitation with a participant information and consent form included (n = 17). All participants consented via return email prior to interview. The research experience survey was disseminated via the email distribution list to all staff at THHS employed under the HP designation, except pathology laboratory staff as they are on a different distribution list. The email described the study and advised consent to participate would be implied if they returned a completed survey.

Data collection and analysis

In 2019, the initial evaluation using the RCF was conducted. All allied health Managers at THHS (n = 17) were sent an email asking them to rank their team against the six objectives of the RCF. To address the low response rate (5 out of 17) from the initial evaluation, Managers were invited to an interview in subsequent years. Interviews were conducted in 2020 and 2023 by two of the investigators (TP and GK) using an interview guide (Supplement 2) and probing questions as needed. No interviews were conducted in 2021 or 2022 due to the deployment of staff for Covid-19 duties.

Qualitative data collection was via a 30-min semi-structured interview of AH managers by two members of the research team (TP, GK). The interview had a dual aim to seek information about the department's research progress and relevance of the RCF to their research

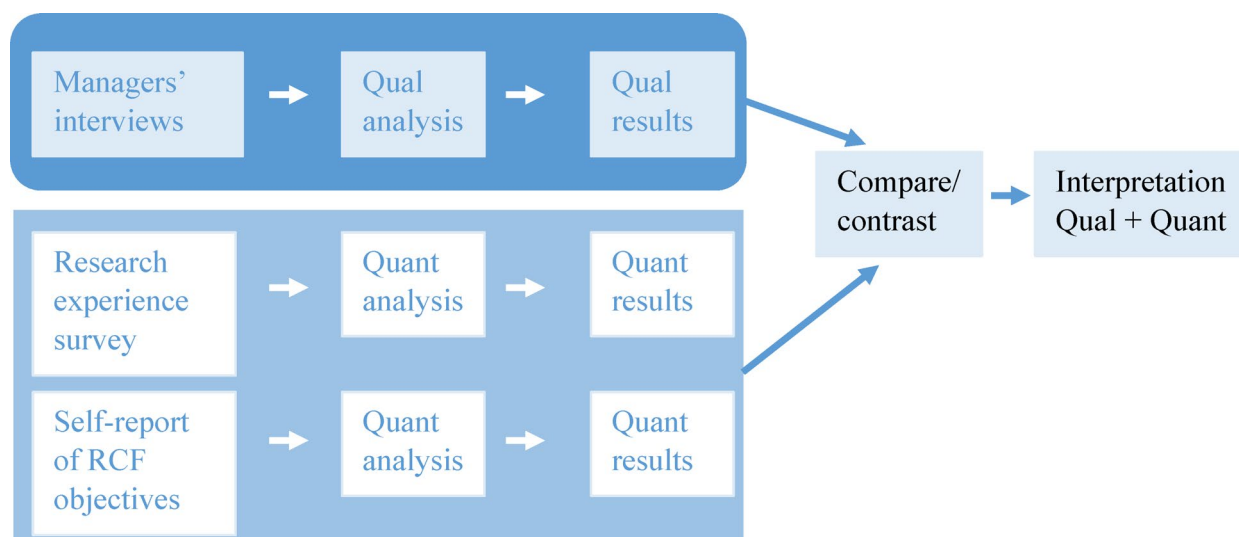


Fig. 2 A schematic of the mixed methods design used for this study. Qual – qualitative, Quant – quantitative, RCF – Research Capability Framework

activity. All interviews were digitally recorded and transcribed using Otter software (<https://otter.ai> Version 3.19.0.821). The transcriptions were reviewed for accuracy and edited to reflect a conversational style [28]. Qualitative results were explored for similarities and differences [29]. The transcripts were analysed abductively into codes and themes using the method described in Braun and Clark [30]; with all codes and relevant quotes recorded in Microsoft Word. The themes were developed, discussed, and refined with any differences documented until agreement was reached.

Two sets of quantitative data were collected. First, AH Managers (n=17) were asked to rate the six RCF objectives following the interview. The ratings for each objective were Preparing to start (0), Emerging (1), Consolidating (2) and Proficient (3). Responses were analysed with SPSS and compared across the three time points.

Second, allied health staff were invited via an email distribution list and asked to rate their research experience and methods knowledge. The survey contained the same questions about research experience and support needs as previous surveys to allow comparisons across the years (Supplement 3) [7, 9]. A series of questions were added to explore capability in a variety of research methods. The method types included in the survey were chosen by the research team as the more common methods used in health services research. Survey data were collected electronically using Microsoft Forms (MS Office 365) and analysed with SPSSV29 (IBM Corp. Released 2021. IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp). Descriptive statistics summarised survey responses for 2023 for comparison against the first two objectives of the RCF and comparisons across the years were performed using Chi square (Supplement 3).

Results

Interviews

All 17 allied health Managers were interviewed and completed the rating against the RCF objectives at the end of each interview. Eleven of the Managers had participated in previous annual reviews of the RCF so were aware of the objectives whereas the six new managers were introduced to the RCF for the first time. Four major themes were identified from the interviews: clinical practice provides a rich environment for quality improvement and research activity, influence of health service managers on research culture, prioritising clinical care over research, and the effect of collaborations on research.

Clinical practice provides a rich environment for quality improvement and research activity

The clinical environment and proximity to patients was often considered an incentive to conduct quality improvement or research activities. Some QI projects

were commenced because of the need to improve service delivery following suggestions from patients or as a requirement of either THHS or the clinician's role.

... A lot of those [quality] improvements are based on patient feedback. (TL2)

... It's something we need to do anyway. Yeah, we've done it in a quality framework, so that it wasn't mysterious ... (DD13)

Influence of health service managers on research culture

Teams that had research engaged managers tended to be more supportive of research with greater engagement and research activity amongst staff. Engaged managers could clearly articulate research enabling activities, such as leading by example, rearranging clinical load to allow research time, incorporating research into departmental processes, and facilitating or supporting research activity. Whereas managers not engaged or active in research, did not recognise the place of quality improvement on the research continuum and so did not prioritise quality improvement or research. Others delegated the research portfolio to others with little oversight or input.

... [I] make sure that I link those people with the people that understand research in this organisation to support them to go further in that. [Name] has been doing that in her own time ... So she does that on her days off. And I tweaked the roster for her ... (TL7).

... we actually just prioritise the high-risk patients that we see. And then the time leftover is guarded for project work, or study or covering someone who's on leave to go to a conference. (DD5)

It's been a really low priority ... we just don't have very many people currently involved in research and therefore, I'm just really not sure the best way to get people more involved. (DD1)

Prioritising clinical care over research activity

AH Managers cited a busy clinical load for lack of research activity as they considered the clinical work is the priority in healthcare organisations. Organisationally, research is promoted as a strategic pillar, but THHS allied health professionals have no dedicated time for research with current research activity performed on top of their clinical load. Furthermore, there are limited resources within the organisation or investment from the local universities to increase capacity. An example was provided in which clinical productivity was increased as research funds were used to employ clinicians to perform a clinical service that was the subject of a research project. Despite these barriers, some Managers found ways to

enable staff to conduct research or quality improvement activity.

... if our staffing actually allowed for anything other than running your little tail feathers off clinically, then yes, I think that would be an interest but practically at the moment, it's just not possible (TL7). We didn't have the resources to do it [collaborative research project]. And so, we were able to come up with an agreement where they gave us the money to have the clinicians do the screening (DD16)

The effect of collaborations on research

Collaborations or partnerships are objectives of the RCF as they are seen as crucial to facilitating research progression. Some collaborations began to support small, local projects and others began to collect local data for large, externally led projects. Either way, collaborations increased the confidence of some allied health professionals to commence locally initiated research.

... collaborating more with our southern tertiary hospitals is just smart. We don't need to be a stand-alone service. (DD13)

Self-reported responses to objectives

The AH Managers' rating of their team against the RCF objectives was averaged across all teams. The ratings for all teams increased over time with the largest increases noted in Objectives 4 and 6 (growing local research leaders and promoting external collaborations respectively). Each year, Objective 1 (engaging staff as research consumers) was rated highest. Objective 2 (enable staff as research producers) had the least change in rating over time. (Fig. 3).

Staff survey

Survey data were collected between Feb-Mar 2023 with a response rate of 15% (105 of 685 AHP staff). Most respondents were based in Townsville (97%), with 69% employed at Townsville University Hospital. AH disciplines that responded were occupational therapy (n = 16), physiotherapy (n = 18), pharmacy (n = 15), speech pathology (n = 13), psychology (n = 7), podiatry (n = 6) and social work (n = 7). Seventy-four percent of respondents had clinical roles, followed by 9% clinician/manager, 7% managers, 5% educators and 5% other. Responses to research participation are shown in Table 2.

Most respondents indicated high levels of experience in skills associated with consuming research (e.g. reviewing literature) and low levels of experience in skills for producing research such as publishing (Table 3). This aligns

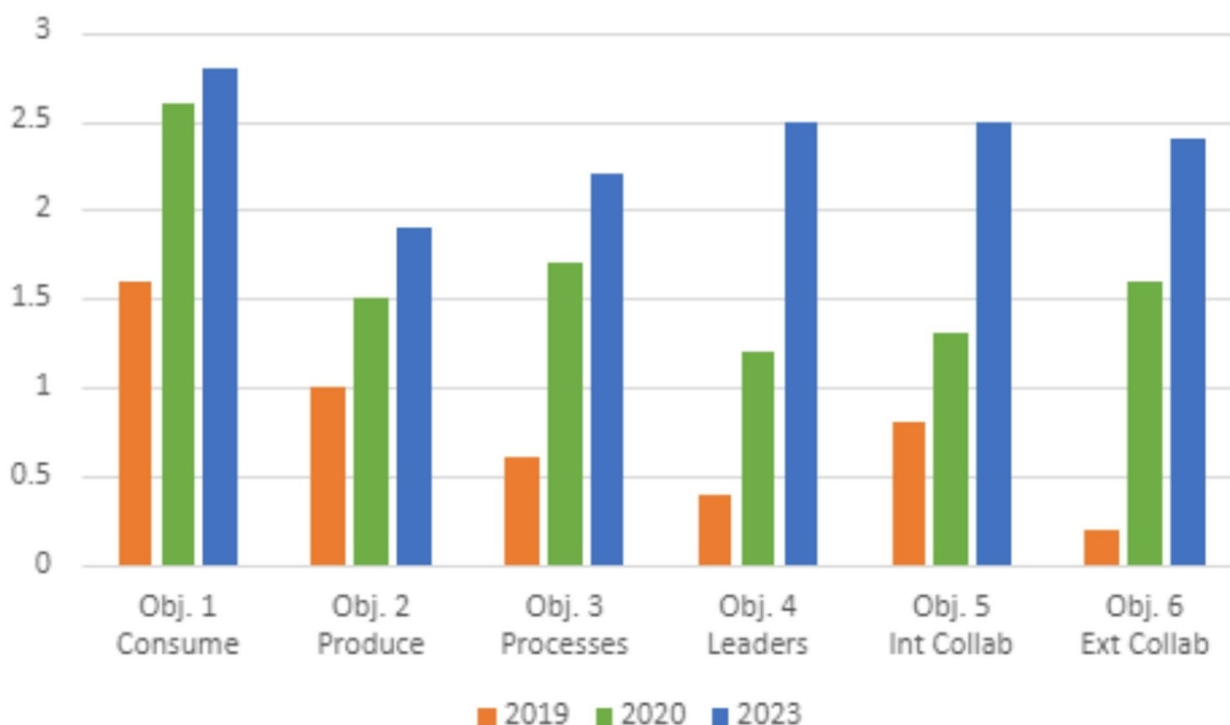


Fig. 3 Averaged annual rating by managers across all departments and teams against the six objectives of the Research Capacity Framework where response options were 1 = preparing to start, 2 = emerging, 3 = consolidating and 4 = proficient. Obj = objectives, Int = internal, Ext = external

Table 2 Current and former research participation and post graduate educational qualification of THHS AHP survey respondents

	Yes (%)	No (%)	Maybe (%)
Previously involved in research	70.2	29.8	–
Post graduate qualification	52	48	–
Interested in Higher Research Degree	48.1	51.9	–
Research included in Role Description	43.3	56.7	–
Research included in PAD*	42.3	19.2	38.5
Currently involved in research	35.6	58.7	5.8
Planning a Research Project	28.8	71.2	–
Previous Research Degree	17.3	82.7	–
	Producing	Using	Both
Interest in producing/using research	5.8	34.6	59.6

*PAD, performance appraisal and development

with responses regarding support needs; respondents indicated they do not need a lot of support for consuming research, while a high level of support is needed for producing research (Table 3).

In relation to research methods knowledge, most respondents had ‘heard of’ quantitative methods. (Table 4) Health economics and evaluation methods are what most people ‘would like to learn.’ Most staff indicated they have done systematic reviews and surveys, but not many had ‘tried’ methods associated with research translation or implementation. The most frequently occurring research method term expressed in the free text response was RCT ($n=14$), followed by systematic review and meta-analysis ($n=8$) and qualitative interviews ($n=6$) (Table 4).

Discussion

This study measured and explored growth of allied health research capacity and capability at THHS using the research spider and the RCF. Quantitative and qualitative data were converged to determine if the RCF could replace the research spider and to explore how best to support the growth of research among allied health professionals. Quantitative results show measurement of research consuming and producing activities were similar using either measure. Repeated measurement over time demonstrated growth but resulted in lower response rates by staff to the survey over the years, suggesting the shorter measure may be preferable. In addition to the ranking of the Objectives, qualitative information from the interviews provided insights supporting the higher activity levels in consuming research. An additional benefit of the RCF is the qualitative input to adjust future research strategy.

Allied health research capacity and capability building at THHS is underpinned by two important concepts. The first is that research skills are components of a ‘research continuum’ with skills for consuming research at one end

and skills for producing research at the other [6]. Both the RCF and research spider show higher levels of experience in activities associated with consuming research compared to producing it among allied health professionals in this study. This is reflected elsewhere in Australia [11] and internationally [12, 13] using the Research Capacity and Culture tool which rates the same research skills at individual, team and organisation levels [11]. A potential explanation for higher experience levels in consuming research may be the requirement to conduct quality improvement activities within tertiary health services whereas research producing activity is generally prioritised below clinical care [31]. THHS Managers stated allied health professionals frequently perform quality improvement activity, suggesting robust support at this level of the research skills continuum by the recently appointed RF may lead to improvements in healthcare. Future evaluations will determine if this is the case.

The second concept is that consuming and producing research contribute to research ‘participation.’ Participation, therefore, includes conducting quality improvement activities and producing research outcomes (such as publications) as contributing to overall research activity. Only a small proportion of respondents were experienced in publishing or grant writing, with similar results shown elsewhere [13]. When measured by traditional research metrics of grants and publications, allied health would have low participation rates leaving the largest area of allied health research activity unrecorded. However, this unrecorded activity has the potential to change clinical practice via quality improvement activities which should be a desirable outcome for research in healthcare organisations. A review of quality improvement projects conducted within a healthcare organisation has shown savings in time, resources and costs [32]. There is a presumption that evidence-based practice or quality improvement activities will translate research into clinical practice but low knowledge about research translation methods self-reported by allied health professionals in this study suggest otherwise. Despite the low confidence allied health professionals have in translating research into practice [33] it is often a requirement of their role. Therefore, building capability in this important area of the research continuum may improve confidence and likelihood of translation at THHS.

Lessons from the early years of research growth showed THHS staff with research experience enabled other staff in a community of practice approach [34, 35]. Locally, the intent was to develop individuals as research leaders who in turn empowered and enabled other clinicians in research activities. Other research capacity initiatives in rural areas made similar observations that research capable individuals enable others [36] and a study in regional England demonstrated the value of local research

Table 3 AHP self-reported responses to the survey regarding levels of research experience

	Experience (%)*				Need for support (%)					P*
	Performed often	Performed alone	Attempted in team	Aware but not done	No experience	Need support at all stages	Need a lot of support	Need some support	Need minimal support	
Finding literature	34.6	47.1	11.5	2.9	3.8	8.7	9.6	31.7	31.7	<0.001
Reviewing literature	17.3	46.2	20.2	11.5	4.8	9.6	16.3	31.7	26.0	<0.001
Write lit. review	6.7	40.4	19.2	22.1	11.5	18.3	23.1	27.9	24.0	0.006
Generate research ideas	10.6	35.6	32.7	12.5	8.7	13.5	22.1	39.4	17.3	<0.001
Develop research question	7.7	25.0	33.7	20.2	13.5	14.4	29.8	32.7	17.3	0.016
Write research proposal	6.7	20.2	26.0	19.2	27.9	26.9	29.8	28.8	10.6	0.005
Applying for funding	4.8	9.6	14.4	23.1	48.1	44.2	30.8	16.3	8.7	0.066
Write ethics application	5.8	15.4	24.0	14.4	40.4	39.4	25.0	25.0	6.7	0.009
Using qual methods (interviews)	3.8	13.5	22.1	28.8	31.7	29.8	29.8	32.7	4.8	0.413
Use quant methods (numerical)	6.7	20.2	28.8	21.2	23.1	26.9	27.9	29.8	14.4	0.039
Analyse and interpret results	9.6	24.0	28.8	20.2	17.3	23.1	35.6	25.0	14.4	0.001
Write research report	7.7	21.2	24.0	18.3	28.8	28.8	26.9	27.9	11.5	0.133
Present at conference or meeting	6.7	23.1	16.3	19.2	34.6	29.8	21.2	19.2	17.3	0.246
Publishing research	6.7	2.9	23.1	26.0	41.3	47.1	28.8	15.4	4.8	<0.001

Left hand side: Percent of respondents who indicated they were not 'experienced', 'aware of', 'attempted in team', 'performed alone' or 'performed often' for the various skills associated with research. Right hand side: Percent of respondents who indicated they required 'support at all stages', 'need a lot', 'need some', 'need minimal' or 'need no' support to conduct the listed skills associated with research. *P values for the comparison of the 2023 results with 2011 and 2015 (published previously with results shown in Supplement 3) using Chi squared test [7,9]

Table 4 Participants knowledge of research methods

	Expert	Experienced	Tried it	Heard of but not tried	Would like to learn	Never heard of it	Number of mentions
Quantitative							
Cohort studies	0.0	2.9	20.2	63.5	8.7	4.8	4
Case controlled studies	0.0	3.8	8.7	71.2	11.5	4.8	1
Case studies	0.0	6.7	21.2	60.6	11.5	0.0	1
Surveys	0.0	16.3	47.1	26.9	9.6	0.0	4
Randomised controlled trial	0.0	1.0	17.3	70.2	10.6	1.0	14
Pragmatic trials	0.0	1.0	2.9	44.2	15.4	36.5	
Stepped wedge trials	0.0	0.0	0.0	38.5	16.3	45.2	
Health economics							
Discrete choice experiments	0.0	1.0	3.8	32.7	20.2	42.3	
Patient reported outcome measures	0.0	7.7	21.2	51.9	12.5	6.7	
Decision modelling	0.0	1.0	3.8	41.3	19.2	34.6	
Cost effectiveness analysis	0.0	0.0	13.5	62.5	22.1	1.9	
Cost utility analysis	0.0	0.0	4.8	51.9	19.2	24.0	
Cost benefit analysis	0.0	1.0	11.5	64.4	21.2	1.9	
Evaluation							
Realist	0.0	1.0	1.9	32.7	19.2	45.2	
Logical framework	0.0	1.0	2.9	42.3	20.2	33.7	
Process evaluation	1.0	1.9	9.6	47.1	19.2	21.2	
Summative evaluation	0.0	1.0	7.7	40.4	19.2	31.7	
PDSA cycles	0.0	14.4	18.3	22.1	11.5	33.7	5
Literature reviews							
Systematic review	0.0	5.8	38.5	43.3	8.7	3.8	4
Narrative review	0.0	2.9	10.6	54.8	13.5	18.3	8
Rapid review	0.0	1.0	7.7	42.3	13.5	35.6	1
Scoping review	0.0	2.9	13.5	42.3	14.4	26.9	1
Qualitative							
Narrative enquiry	0.0	0.0	5.8	48.1	11.5	34.6	
Participatory action research	0.0	0.0	7.7	40.4	11.5	40.4	
Grounded theory	1.0	1.0	3.8	49.0	13.5	31.7	
In-depth interviews	1.0	1.9	16.3	61.5	13.5	5.8	6
Focus groups	1.0	2.9	18.3	61.5	11.5	4.8	2
Observation	0.0	2.9	19.2	57.7	13.5	6.7	
Document review	1.0	2.9	16.3	51.0	11.5	17.3	
Discourse analysis	1.0	1.0	4.8	46.2	12.5	34.6	
Implementation							
RE-AIM	0.0	0.0	1.9	15.4	11.5	71.2	1
iPAHRiS	0.0	0.0	1.9	15.4	12.5	70.2	
Knowledge to action	0.0	0.0	4.8	19.2	13.5	62.5	
TRIP	0.0	1.0	8.7	31.7	11.5	47.1	2

Each method has 6 potential responses: 'Expert', 'experienced', 'tried', 'heard of but not tried', 'would like to learn' and 'never heard of'. Number of times the method type was mentioned in the free text responses

champions [37]. Others found research capacity building for all clinical disciplines in regional and rural areas need to avoid reliance on individuals and focus on planning for sustainability [21]. One rural health service integrated a research unit into their organisational structure with some input of resources plus support from partners who understand the value of rural health services [38]. However, growth of allied health research activity at THHS

occurred without partnership or conjoint appointment with an academic institution demonstrating that capacity building using a strategic approach and tailored to the local regional health context can achieve significant results with minimal resources.

A recommendation from the Review of Health and Medical research in Australia is for research to be embedded in the health system [39]. There is a positive

association between research activity and organisational performance in healthcare [40]. The embedded allied health RFs in Queensland are uniquely placed to build the internal and external profile of allied health [41]. The benefits of the state-wide initiative include efficiencies derived from expanded scope roles [42], improved access via substitution models [43, 44] and the reduced time to translation as a result of clinician-led research conducted in healthcare organisations [45] that enable shorter translation time and reduce research waste [46]. In the local context, allied health research has delivered expertise in ultrasound for the measurement of neonatal renal parenchyma [47], rural and remote models of care for occupational therapy [48, 49], implantable cardiac devices [50], pharmacist-led education and antibiotic stability [51, 52], speech pathology support for rural and remote patients with head and neck cancer [53] and an emerging interest in mild cognitive impairment [54]. Altogether, the publications from these diverse disciplines demonstrate the value of increasing research capacity and capability within the allied health professions and specifically within THHS.

Quality improvement and research are likely to enhance value and implement findings by bridging the gap between health services research and quality improvement activities in healthcare [55]. Within THHS, a one-page narrative was developed to communicate the benefit of quality improvement and research to the host health service. The narrative was named Evidence Brief (Table 1) and is the subject of another study by this research team. Future evaluations of the Evidence Brief will further elaborate on the benefits and implications of allied health research.

Conclusion

This study describes the growth of allied health research activity at a regional Australian public health service over 12-years using the research spider and the RCF. The results suggest the shorter RCF can replace the longer research spider survey to iteratively measure research activity with the advantage of simultaneous collection of qualitative data to enable changes to be made to the future direction of research strategy for allied health. Growth in research capability despite lack of growth in capacity has been demonstrated by a focus on consuming research activities and building capability in health service research methods. The high levels of experience in quality improvement skills but limited knowledge of research translation methods suggest this knowledge gap must be addressed before a pathway for moving rural health services like THHS to become learning health systems can be realised.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12913-025-13187-6>.

Supplementary Material 1

Author's contributions

TP, LT, AB, GK, ES, SP, and KR were responsible for the conception and design of the study. TP and GK were responsible for data collection. TP, GK, ES, AB, were responsible for the data analysis with contributions from SP and KR. TP was responsible for writing the first draft of this paper and other authors provided critical revisions. All authors read and approved the final manuscript.

Funding

This study was funded in part by a grant from the THHS Study Education Research Trust Account (SERTA) Grant number 19_2021.

Data availability

Data and materials used or generated in this research is available upon reasonable request.

Declarations

Ethics approval and consent to participate

Ethics approval was provided by the Townsville Hospital and Health Service Human Research Ethics Committee (HREC) prior to the commencement of the study. All participants provided written informed consent prior to their interview. Consent for the survey was implied when staff returned a completed survey. (HREC/2022/QTHS/81533). All methods associated with this research were carried out in accordance with the Declaration of Helsinki and the Australian National Statement for Ethical Conduct of Human Research.

Consent for publication

Not applicable.

Competing interests

The authors declare they have no competing interests.

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Received: 12 March 2025 / Accepted: 9 July 2025

Published online: 21 October 2025

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