Impact of a Research Capacity Building Initiative:

Qualitative Evaluation of HP Research Positions

May 2016

Prepared by Dr. Rachel Wenke and Prof. Sharon Mickan

Queensland Government

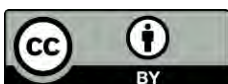Impact of a Research Capacity Building Initiative: Qualitative Evaluation of HP Research Positions

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Contents

Summary

Background: Research positions embedded within healthcare settings have been identified as an enabler to allied health professional (AHP) research capacity, however currently there is limited research formally evaluating their impact. In 2008, a Health Practitioner (HP) agreement funded a research capacity building initiative within Queensland Health (QH) which provided funding for 15 new HP research positions. As part of a larger evaluation, the present project used a qualitative approach to explore the impact of these research positions, as well as the mechanisms that facilitated or hindered their success within their respective organisations.

Methods: Forty-four employees from six QH sites (Princess Alexandra/Metro South, Mater Health, Royal Brisbane and Women's Hospital, Mackay Hospital, Toowoomba/Darling Downs and Townsville Hospital) participated in the study. Individual interviews were undertaken with eight individuals in HP research positions (n=8) and their reporting line managers (n=8). Four stakeholder focus groups were also conducted with clinicians, team leaders, and professional heads who had engaged with the HP research positions.

Results: Nine key outcomes of the research positions were identified across individual, team/service and organisational/community levels. These outcomes included clinician skill development, increased research activity, clinical and service changes, increased research outputs and collaborations, enhanced research and workplace culture, improved profile of allied health, development of research infrastructure, and professional development of individuals in the research positions. Different mechanisms were identified which influenced these outcomes. These mechanisms were grouped as those related to the 1) research position itself, 2) organisational factors and 3) implementation factors. Mechanisms related to the research position included accessibility, stability, interpersonal skills, clinical background, and experience of the incumbent. Mechanisms relating to organisational factors included Executive support and level of communication with the HP research position and physical (i.e., space, technology, AO support) and financial resources. Implementation factors included mechanisms pertaining to integrating interventions conducted by the HP research position with existing resources, networks and clinical practice, and tailoring interventions according to context and clinician readiness, setting realistic expectations (e.g., the role's purpose and clinicians expectations of research), navigating the nuances of the clinical and academic environments and disseminating progress and success. While the majority of these mechanisms were consistent across contexts, individuals that were in a sole research position in a non-metro area, were appointed at the level of a Professor or in a profession specific position, were identified to have additional unique enabling and hindering mechanisms to their success.

To further illustrate the impact of the HP research positions, this report includes case studies from two health services contrasting in size and location: Toowoomba Hospital/Darling Downs Hospital and Health Service and Princess Alexandra Hospital/Metro South Hospital and Health Service. Each case study describes the outcomes of the research positions and hindering or supporting mechanisms within these organisations.

Key Recommendations: Based on project findings, the following recommendations were made to enhance the ongoing success and outcomes of the HP research positions within QH:

Recommendations for HP research fellows:
-Maximise integration into the health service and physical accessibility to clinicians.
-Utilise existing resources and networks and refer clinicians to these where appropriate.
-Seize opportunities to showcase research acheivements.
-Tailor interventions (i.e., mentoring, training) and set realistic expectations with clinicians.

Recommendations for Clinicians, team leaders and professional heads:
-Share skills taught by the HP research positions with other team members.
-Support clinicians operationally to engage in research and disseminate and celebrate progress, seeking opportunities to role model research engagement to other clinicians.
-Include the HP research fellow in planning days and other leadership activities.

Recommendations for Executive Directors of Allied Health:
-Facilitate visibility of the role and their achievements within and outside the organisation.
-Advocate for resources to maximise the role's efficiency (e.g., software, AO support).
-Be strategic when recruiting to new positions, ensuring that the incumbant matches the identified research developmental needs of the health service
-Set up regular communication with the research fellow to troubleshoot any operational barriers.
-Support factors which promote the role's job satisfaction to maximise it's stability

Recommendations for University partners:
-Consider benefits that conjoint research positions embedded within healthcare settings bring when investing in new research positions (i.e., strengthened collaborations, easier translation of findings, research outputs).
- Seek to understand the contrasting processes and expectations of the clinical setting (i.e., conference travel, research capacity building of clinicians) and their impact on positions.

Recommendations for Queensland Health Executive/AHPOQ:
-Advocate statewide linkages of the research fellows for sharing of resources and expertise
-Consider reviewing the ministerial approval policy for international travel in light of its impact on conference travel for the research positions
-Continue ongoing annual monitoring of the research positions, considering additional outcome measures such as research culture, clinical and service changes and job satisfaction.
-Provide internal and external communication strategies to promote the roles and their impact

Conclusion

The present findings highlight the value of the HP research positions for individuals, teams and clinical services across QH, and demonstrate the impact the roles have on building the internal and external profile of allied health. Such findings also build upon the emerging evidence base for allied health research positions. Implementation of the stakeholder recommendations may foster and potentially enhance the ongoing positive impact these roles have on allied health research capacity and culture, clinical services and ultimately patient outcomes.

ACKNOWLEDGEMENTS

INTRODUCTION

Background

In 2008, a Health Practitioner (HP) agreement funded a research capacity building initiative within Queensland Health which included funding for 15 new HP research positions as well as additional funding towards the HP Research Grant Scheme. Creating the research positions firstly involved sending out an expression of interest to health services asking organisations to demonstrate how the positions would contribute to increased research capacity within their organisation. An expert panel then reviewed the applications, which led to the establishment the HP research positions which were distributed across 11 different QH healthcare organisations, ranging from Brisbane metropolitan centres to regional and northern Queensland sites. The positions were broadly represented by a range of professions and experience levels (i.e., from early career researcher to professorial positions). Five of the positions were also conjointly funded by University institutions.

To date, the outcomes of the research fellow positions have been monitored through annual reporting on a number of key performance indicators including grant funding, peer reviewed presentations and publications, number of research higher degree students being supervised, education and training, and participation in collaborative networks [1]. Hulcombe et al., [1] described a preliminary evaluation of these HP research positions and reported a trend towards the positions increasing HP research capacity. These key performance indicators however may not capture the entire impact or outcomes of the HP research positions within their respective organisations, nor the underlying mechanisms and factors which facilitated or hindered the success of the roles. When evaluating initiatives aimed to build research capacity, the ultimate outcomes of the initiative as well as the mechanisms to achieve the goals within their context should be explored [2]. Further understanding is therefore needed regarding the entire impact or outcomes of these HP research positions within their respective organisations, and the underlying mechanisms and factors which facilitated or hindered their success. Such investigation would benefit all stakeholders in regards to supporting the ongoing research capacity building of AHPs and how to best support these positions, as well as adding to the existing literature in the area to potentially benefit other AHPs [3].

Relation to Literature

Building the capacity of AHPs in primary health care to undertake research is considered to be a priority for Queensland [4], as well as Australia and internationally [5-7]. The literature cites a number of strategies which aim to build AHP research capacity including targeted research skills training, funding bursaries and mentoring [1, 5, 8-10]. Embedding dedicated research positions within healthcare organisations is also cited as a strategy to promote AHP research capacity [4, 11-13]. Other observational and descriptive studies have described dedicated research positions as an enabler to allied health research that should be advocated for by health organisations [12, 14-16].

While many AHPs in Australian healthcare services still do not have access to a dedicated research position, the positions are becoming more common, particularly within metropolitan tertiary health services. For example, a survey of physiotherapy departments across Australia reported that over a quarter had a dedicated research position [17]. Another survey of 520 AHPs across all Victorian hospitals revealed that approximately a third of respondents

had access to a co-located research position [14]. The access of research positions has been reported to be less in rural settings. A recent Queensland study highlighted the need for further investment of research fellow positions within rural settings to promote research capacity building of AHPs [15]. Further investigation into the impact of these research positions on allied health research capacity across different organisations is needed to provide evidence for their potential benefit and justify the investment of additional positions.

A recent systematic review revealed that there are few empirical studies formally evaluating the impact of allied health research positions within healthcare [3]. The current evidence base indicates that research positions embedded within healthcare organisations can impact individual and team research skills and research participation of AHPs [14, 18-20]. For example, the survey of 520 Victorian AHPs found that respondents with access to a dedicated research position reported significantly greater research activity and involvement in writing/dissemination, funding and data collection compared to those without access [14]. The mechanisms that helped enable the research positions to yield this outcome however remain unclear.

Another mixed methods study investigated stakeholder perceptions and enabling and hindering mechanisms of a five-year dedicated research position within a United Kingdom healthcare trust [18]. Stakeholders reported positive changes to research culture, increased publications, presentations and changes in practice as a result of the research position providing research support for nurses, midwives and AHPs. Authors highlighted that leadership support within the organisation also positively influenced research engagement [18]. This research was conducted within a single healthcare organisation and did not consider the potential impact of different organisational contexts on the success of these positions.

In summary, there is emerging evidence of the potential value of research positions embedded within healthcare on increasing AHP research skills and participation. It remains unclear however what the broader impact of these positions is across different organisational contexts. The mechanisms which facilitate or hinder their success are also largely unknown. Queensland has a unique opportunity to potentially address some of these gaps in the literature following the establishment of the 15 HP research positions within QH. Further evaluation of the impact of these HP research positions and the mechanisms which enable or hinder their outcomes is therefore indicated.

Aims

The present project aimed to:
1. Explore the impact of QH HP research positions on building allied health research capacity within their organisational context
2. Describe the mechanisms or factors that enable and/or hinder the impact of the role(s) on building allied health research capacity.

The following project report is divided into two parts. **Part 1** of this report will describe the methodology, results and a discussion of the entire qualitative evaluation addressing the above aims including implications and recommendations to stakeholders from the findings. **Part 2** of this report will describe two impact case studies which illustrate the impact of the HP research positions in two contrasting health services: Toowoomba Hospital/Darling Downs Hospital and Health Service and Princess Alexandra Hospital/ Metro South Hospital

and Health Service. Mechanisms which hindered or supported the HP research positions within these respective organisations and factors which will enable the ongoing success of the roles are also described.

Part 1:
Qualitative Evaluation of HP Research Positions

METHODS

Design

The present evaluation was undertaken as a research project using qualitative methodology and a realist evaluation approach [21]. A realist approach was chosen due to the complex nature of the HP research position roles and the potential interplay within their context and mechanisms. The researchers for this study, Dr Rachel Wenke and Professor Sharon Mickan both have AHP backgrounds. They are employed by Gold Coast Health, a health service that did not participate in the present research and therefore is considered to be independent.

Participants and recruitment

In July 2015, an initial email was sent to the Directors of Allied Health of nine healthcare organisations that currently have a HP research position employed. This email was seeking their in principle agreement to participate in the study. Six health services indicated interest in participating in the project: Metro North, Mater Hospital and Health Service, Metro South, Mackay Hospital and Health Service, Townsville Hospital and Health Service and Darling Downs Hospital and Health Service. Ethical clearance and site specific assessment approval (HREC/15/QGC/210) was subsequently sought and granted from these six sites. Within these six health services, participants were recruited from three groups 1) HP research positions, 2) reporting line managers of the positions and 3) stakeholder participants.

1) HP Research Positions:

At the time of recruitment, 10 individuals were currently employed in the HP research positions within six participating health services. To evenly represent all six health services across different experience levels and locations, purposive sampling was used to invite one to two individuals from each site to participate. All eight individuals who were invited to participate consented to take part in the study. Participants employed within the research positions were all QH employees and included conjoint positions with the University of Queensland, Queensland University of Technology and Griffith University. Due to an incumbent at one of the sites being only recently employed, the individual previously appointed in this position was invited to participate.

2) Reporting line managers

After the HP research position provided consent to participate, eight of their current and/or previous (i.e., where the current director was on leave) direct reporting line managers were invited to participate in the study. All invited managers provided consent to participate. The average duration that these participants had been a direct reporting line manager to the HP research position was 2.2 years (SD=1.6, range= 0.5 to 5 years).

3) Stakeholder participants

To gain a deeper insight from other key stakeholders, focus groups were designed to include a range of staff who had engaged with individuals in the HP research positions. Purposive sampling was used to identify four participating health services (Toowoomba/Darling Downs Hospital and Health Service, Mackay Hospital and Health Service, Princess Alexandra/Metro

South Hospital and Health Service and Mater Hospital and Health Service) to be chosen as sites to conduct stakeholder focus groups. This was based on the geographical location (i.e., metropolitan versus non-metropolitan) and types of research positions (i.e., sole versus Professor versus team etc.) within the organisation to ensure the focus groups captured diverse experiences from participants.

Participating individuals in the research positions and/or their line managers within these four health services were asked to nominate staff that had engaged with the research positions to participate in the focus group. A total of 69 AHPs across the four health services were nominated. Of these, purposive sampling was again used to capture a diverse range of staff professions and HP levels, with 50 of the staff being invited to participate in the research via email. A total of 28 of these participants consented to take part in the focus group. Reasons for declining to participate were being unable to attend the nominated focus group time (n=20) or changing positions/roles (n=2). Participants came from eight different professional backgrounds as shown in Table 1. The classification of participants' HP levels, ranged from base grade clinicians (i.e., HP3) to professional director levels (i.e., HP6+ levels). The majority of participants however were employed as senior clinicians (i.e., HP4) or team leaders (i.e., HP5), as shown in Figure 1.

Table 1 Professional background of focus group participants

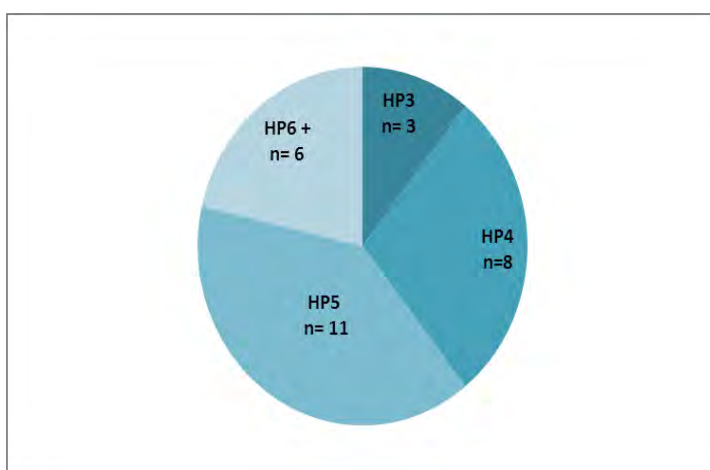| Profession	No. of participants (n=)
Audiology	1
Dietetics	5
Medical Imaging	4
Occupational Therapy	6
Oral Health	1
Physiotherapy	5
Social Work	3
Speech Pathology	3

Figure 1 HP level of focus group participants

Data collection methods

Data was collected through a total of 16 semi-structured interviews and four focus groups all conducted by the Senior Project Officer, Dr Rachel Wenke. All interviews were audio

recorded and interview notes, as well as field notes, were taken by the interviewer. Questions aimed to explore successes and achievements in the roles and mechanisms which facilitated/hindered these, as well as the impact of the roles on research capacity. A set of interview questions was sent to participants via email at least one week prior to the interview to allow time for reflection. Specifically, interview questions considered the framework by Cooke (2005) which outlines six principles to consider when evaluating research capacity building initiatives. These include (1) skills and confidence building, (2) research that is close to practice, (3) linkages and collaborations, (4) appropriate dissemination, (5) continuity and sustainability and (6) building infrastructure (Cooke, 2005). The semi-structured interview guides for participants can be found in Appendix 1.

Semi structured interviews

One on one semi structured interviews were undertaken with the participants in the research positions and their reporting line managers. These were conducted at a time and place convenient to the interviewee or through the use of video/ teleconference, and lasted for approximately 60 minutes.

Focus group

A total of four focus group interviews were undertaken with key stakeholders from four of the participating health services. Focus group interviews were conducted face to face and were comprised of key stakeholder staff (other than direct reporting line managers of the HP research positions) at a time and location suitable to the majority of interviewees and lasted for approximately 60 minutes. Participants within each focus group were all from the one health service. Three of the focus groups had six participants, and one of the focus groups had 10 participants.

Data analysis

Interview recordings were transcribed by a professional transcribing service and transcripts were sent to the participants to check the integrity of the data. Qualitative research analysis software NVivo [22] was used to perform a conceptual analysis of the data. This involved coding the interviews into common topics and categorising them under labels representing particular themes grouped according to outcomes, mechanisms and contexts. Two raters reviewed the coding of themes using an iterative consensus decision making process to maximise the reliability of category formation.

While a realist evaluation typically explores the relationship between context, mechanisms and outcomes [21], data from the results in the present project pertaining to the context of the roles was found to be relatively common. As such, the results focused on mechanisms that supported each outcome across contexts, with unique contexts being described separately. Many hindering mechanisms described by interviewees could be translated into positive enabling mechanisms. As such, where possible, mechanisms were described positively (i.e., as enablers), as this was considered to be most constructive for stakeholders.

RESULTS

Key Outcomes and Mechanisms

The interviews revealed nine key outcomes or achievements of the HP research positions as listed in Figure 2. These outcomes influenced a number of levels within and beyond the health service including at an individual level, service/team level and organisational/wider community level, as represented by the three concentric circles in Figure 1. The relative prevalence of the outcomes (i.e., frequency of sources mentioned) within the data is represented by the relative font size of the outcome listed, with larger font size indicating greater number of sources mentioned. A table of the relative frequency of these outcomes is also found in Appendix 2.
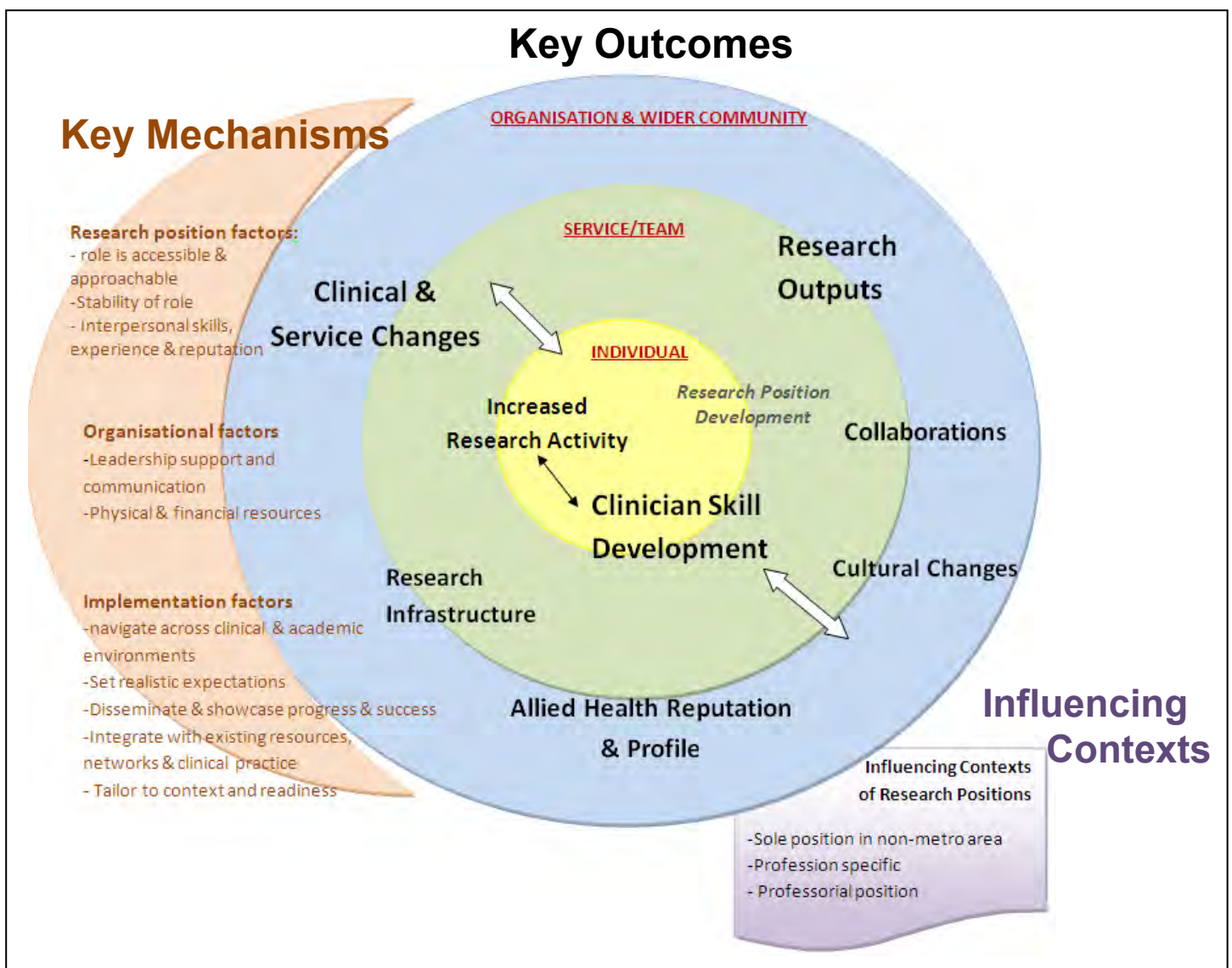

Figure 2 Key Outcomes and Mechanisms of HP research positions

For each of the nine outcomes, interviewees described specific mechanisms which either enabled or hindered the success of the outcomes. As shown in Figure 2, these mechanisms were broadly grouped into three categories: research position factors (i.e., mechanisms related to the role of the HP research position itself), organisational factors (i.e., mechanism that the health organisation could influence) and implementation factors (i.e., mechanisms related to how the role should implement strategies within their organisation). Three unique influencing contexts related to the HP positions were also identified which had distinct enabling and hindering mechanisms related to their context.

The following section will now describe in detail each of the nine key outcomes of the HP research positions together with the specific enabling and hindering mechanisms related to achieving these outcomes. The influencing contexts will then be described. Additional quotes which support the themes described in the results section can be found in the supplementary file to this report.

The order of description of each of the outcomes will begin with those which impacted clinicians at an individual level and spiral outwards to outcomes which impacted at service/team and organisational and wider community levels. The outcome of "Research Position Development" will however be presented last due to the unique reflective nature of this outcome. To attribute results to the individual incumbents in the positions, HP research positions will now be referred to as "research fellows", referring to individuals in both the Professorial and research fellow roles.

1. Clinician Skill Development

The HP research fellows were reported to have developed the research skills of clinicians at both an individual and team level through mentoring, education and training.

Individual development

At an individual level, research fellows were described to have developed clinicians' research skills through one on one mentoring and support. Mechanisms for success included the research fellows undertaking the following:

- **Motivating clinicians** throughout the whole research process through confidence building and encouragement, keeping them accountable and troubleshooting barriers.

"I've found that they provided great guidance….Not so much telling you what to do but putting you in the direction and then assisting you if you run into any hiccups."

— Clinician

- **Breaking down the research process** into digestible components using language that is easy for clinicians to understand.

- **Tailoring** to the clinician's **current developmental level.** This may include developing foundational skills in being a research user (i.e., evidence based practice or EBP) before further skill development.

- **Encouraging self-directed learning,** thereby empowering clinicians to actively learn themselves.

- **Being available and approachable** for clinicians. Staff reported being more likely to ask the research fellows for help if they knew where they were located/who they were and what their purpose was. This may come through **internally promoting the role**

(i.e., in newsletters, meeting with teams). **Personal qualities** including approachability and patience were also reported by clinicians to be helpful.

- **Being integrated with clinicians** (e.g., sitting in same lunch room) and having close accessibility and **physical proximity**.

- **Having broad research experience** to assist clinicians in their research development.

- **Being flexible** to move outside areas of clinical interest or research design expertise in order to assist different professional groups and research projects.

- **Having access to a team of researchers** with diverse skills and experience.

- **Being aware that their role involves capacity building of clinicians**

> *"Proximity is actually really important… if they're sitting literally outside my office… clinicians are more likely to walk in and say while I've got you, can we have a quick chat about x, y, z."*
>
> -Manager

Clinician's **having line manager support** was described to further enable the access to individual support from the research fellow and subsequent upskilling. A **flow on effect** of the clinician upskilling was also reported. Clinicians who received individual mentoring or training gained confidence and in turn shared skills within their own team.

Team development

Research positions also provided and coordinated **dedicated research training** tailored to the needs of groups and teams. This included workshop series, tutorials, educational forums, and videoconferences on a range of topics including EBP, study design, grant writing, and writing for publication. These were provided to either all of the HHS, allied health or to specific teams. Five key mechanisms for success were described including:

> *"[They] provide a fair bit of teaching to our group, just on basic research principles or how to get into research. Just research-related education..."*
>
> -Manager

- **Tailoring training to the needs** of the team. This included visiting teams to find out what research they were currently doing and their ongoing developmental needs.

- Providing training at a **consistent time and place.**

- Having **experience based** rather than didactic lecturing.

- **Embedding education into existing team's professional development** programmes.

- Using **group based learning** with individuals who are actively interested in research but not necessarily in a team. One health service described an initiative that involved clinicians meeting weekly with the research fellow and critiquing writing and grant applications in an honest and open forum. This was reported to have successfully resulted in the development of several staff, with some going on to undertake PhDs. Having the ethics and research governance support staff in attendance at these meetings was said to have also supported the meetings' success.

Research fellows highlighted that their **time can be a barrier** to providing team education and training. Interviewees described mechanisms to increase efficiency including **providing access to other pre-existing training** packages including web based resources and **other internal education** opportunities within the health service as well as **arranging external speakers** with expertise in particular topics. The latter was reported to be dependent on the good will of speaker due to lack of funding for training resources, which was identified as a barrier. **Clinician time** to engaging in the training was seen as another barrier.

Figure 3 depicts how the described mechanisms may theoretically interplay to increase the skill development of clinicians (at both individual and team level) in accordance with adult learning principles [23].
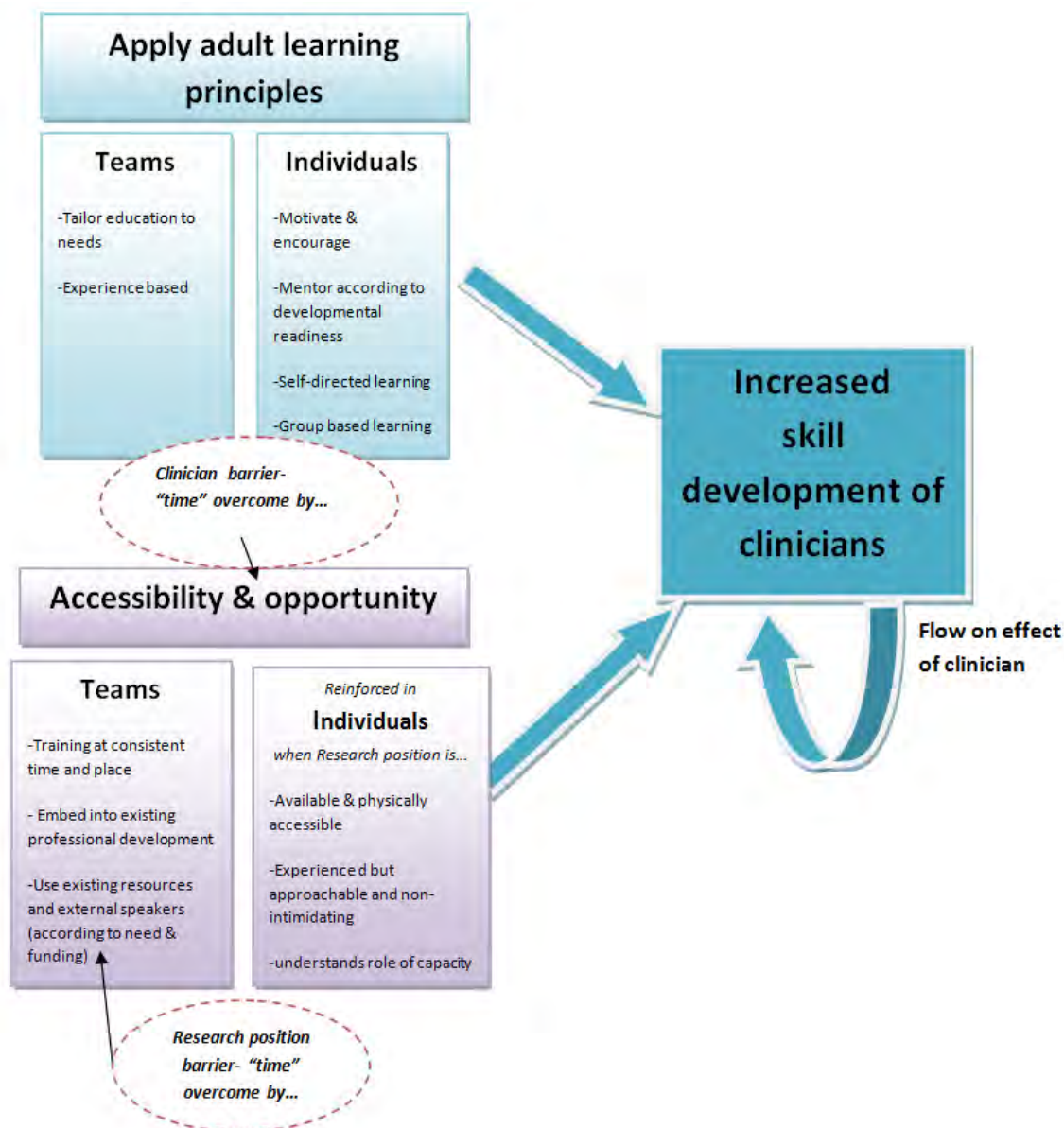

Figure 3 Theoretical model of increasing clinician skill development

2. Increased Research Activity

The HP research fellows were reported to increase the number of clinicians engaging in research activity. This included teams with a very low base or no research activity

participating in several research projects. The increased activity led to a snowball effect of progressively more clinicians engaging in research within those teams.

Despite **time being the most pervasive hindering mechanism** to clinicians engaging in research, several enabling mechanisms were described. These could be grouped into mechanisms related to the research position/fellow, project factors, and service and clinician factors. Mechanisms relating to the research position which promoted clinician engagement in research included the research fellow:

- Having a **clinical background.** This was described to have helped the research fellows empathise with clinicians' time demands and have an understanding of what is considered clinically meaningful research.

- **Having good interpersonal skills** to connect and engage with clinicians.

> *"I've gone from when I first started I think there was probably less than half a dozen people actively participating in research. I think I've got over 40 research projects currently in process now"*
>
> -Research fellow

> *"They're a clinician that is a researcher rather than a researcher who works in the clinical area. So they understand where we're coming from, even if it's not their background…"*
>
> -Clinician

- Setting **realistic expectations and timeframes** for clinicians to work towards including the notion that they may sometimes have to work in their personal time to progress things.

- **Respecting clinician readiness** and working with teams and individuals who have interest in research, understanding that not all clinicians want to participate.

- **Showcasing role model clinicians** who have successfully undertaken research at presentations or within teams, so that other clinicians can see undertaking research is achievable.

- **Being in the position long term.** Clinicians reported being more likely to engage in research when they were being mentored by a research fellow who was perceived to have a stable term in the department.

- **Being full time** to help ensure the research fellow has time to support clinicians engaging in research

Mechanisms related to the types of projects that research fellows undertook with clinicians were also reported to influence clinician engagement in research activity. Examples of this included:

> *"It's making it as easy for them as it possibly can be and that's essential. It's making it clear to them that you're trying to answer something that's going to help them in the long run"*
>
> – Research fellow

- Encouraging the development of **clinically meaningful research projects** so clinicians can see the value in the research and be more motivated to participate. This may be facilitated by having the research fellow attend planning days of teams and identifying projects which may assist teams to become research active.

- Beginning with **smaller scale projects** that are more easily achieved and less daunting for clinicians to complete within

their everyday clinical practice.

- Encouraging clinicians to be part of or support a project team that is **led by other more experienced researchers**

Service factors that may influence clinician research engagement were identified as:

- **Leadership support** to allow clinicians to operationally go offline and take part in research activity and role modelling this within the department.
- Having r**esearch as a team KPI or part of core business**. This includes support from the higher Executive level, whereby research resources and funding are provided to support clinicians engaging in research.
- Having **physical resources** needed to undertake research activity including appropriate physical space, technology, research and statistical software (i.e., Endnote reference manager and SPSS), and statistical expertise (i.e., statisticians)
- Having **protected time off** whereby AHPs clinical time is backfilled with funding.

Lastly, **clinician persistence** was seen as another enabling mechanism to clinicians engaging in research.

3. Clinical and Service Changes

> *"…it's amazed me that through the research grant that she got for that project, she has now generated for the HHS recurrent money for the FTE that are doing that rural allied health model."*
>
> *-Manager*

The research fellows were reported to contribute to a number of direct and indirect clinical changes including **improved patient outcomes** and **clinical service changes**. Interviewees shared a number of examples of direct changes to clinical practice as a result of research undertaken by the research fellows. Several service delivery model changes were also described as a direct outcome of projects supported by the research fellows. Some of these research projects resulted in securing **additional permanent clinical positions** including positions for new models of care, speciality clinics and advanced practitioner positions. Research fellows were also

> *"… they've actually changed their clinical procedures and they're doing it very differently because of the research that they [with research fellows] have done..."*
>
> *-Manager*

described to have helped clinicians **implement evidence into practice.** This included clinicians being more confident in accessing and interpreting evidence so that they could contribute to discussions around management of their patients to ultimately improve patient outcomes.

Mechanisms

Three key mechanisms were shared which enabled these clinical and service changes.

> *"she [research fellow] is able to apply it back to the health service here because she's got that understanding of it.*"
>
> *– Clinician*

These included the research fellow undertaking the following:

- Encouraging **projects that are close to everyday clinical practice.**
- Actively **encouraging clinicians to use EBP** to assist with their decision making.

- **Having an understanding of the health service** (e.g., culture, staffing, priorities and resources) to assist in designing research projects in high priority clinical areas. Such understanding would also assist in overcoming barriers to translation that were reported by interviewees including lack of funding and resources.

4. Research Outputs

The research fellows were reported to contribute in an increased number of traditional research outputs including journal publications, national and international conference presentations and successful competitive grant funding, as well as supervision of research higher degree students. These research outputs often included involvement from clinicians and have been captured formally through key performance indicators (see Appendix 3).

Seven general mechanisms were identified which enabled such research outputs, as follows:

- **Balancing support for clinicians with own research progress.** Potential examples to assist in finding this balance included **delegating to other supports** (i.e., through other lower level positions and clinicians) to assist with lower level research enquiries, as well as sourcing funding to provide **administrative and research assistant support** to allow more time for the HP research fellow to use their research expertise.

- **Encouraging and supporting clinicians to disseminate** their own research. An example of encouraging conference dissemination mentioned was ensuring clinicians have as many opportunities as possible to present their findings and making it a **"fun" experience** so that they encourage other clinicians to also present.

- Providing **support throughout the writing process**; giving advice on how to write in a scientific way and which journal to target for publication. A hindering mechanism to clinicians disseminating research was clinicians not volunteering to use any outside of work time to complete the research, which although not an expectation of QH, was commented to impact the speed of dissemination.

- Having access to an **internal publishing team** to assist with production of poster and conference presentations

- Having a **strategy** at a department level in regards to the types of research programs that are being undertaken and also at a project level, a strategy for dissemination from the early conception stages of the research.

> *"I think some of the other achievements would be number of grant applications and number of applications successful out of that, that we probably wouldn't have even thought about previously."*
>
> *-Clinician*

> *"There's always a bit of a tension, or challenge of competing time. How much time do you spend in a developmental sense versus progressing around research?"*
>
> *-Research fellow*

> *"individuals need time in the role as well to get some momentum, get the relationships in the department, get the research programs going and there's usually a delay until you start to see the pure research outputs."*
>
> *-Manager*

- Having a **full time research position** to allow the fellow more time to produce research outputs.

- **Keeping the research fellow incumbent consistent over time** was reported to keep momentum and helped to see research projects through to dissemination. This was suggested to be facilitated by having the right pay point of the position to attract the right candidate longer term.

- **Having management support** to allow the research fellow to produce more outputs as well as engage staff to participate in producing outcomes.

Research higher degrees

Research fellows were reported to lead to an increased number of clinicians enrolling in research higher degrees (i.e., PhDs and Master's students) within their organisations. Mechanisms for attracting research higher degree students included:

- Providing **presentations about clinician experiences** enrolled in a PhD so clinicians can see a positive peer role model navigating the process.
- **Providing supportive internal grant opportunities** for clinicians to go offline (e.g., once a week for six months) to undertake research projects that are linked with a clear pathway that will lead to a research higher degree.
- **Being linked with a university** (i.e., conjoint position) in order to be able to supervise students.
- Taking time to understand the needs of the clinician and helping them choose a project **topic with broad clinical impact** that is close to their practice. The latter may allow the clinician to complete some of the data collection within their clinical time. This may help some clinicians overcome a perceived barrier identified that undertaking a PhD means giving up their permanent clinical role with limited income and potential impacts on future career opportunities.

"..having something with a track record, such as that position, to be alongside you, obviously it's easier to get money and you've got someone to guide your research question as well. So those are the big benefits"

-Manager

Attracting funding

Successful grant funding was reported from a range of interviewees including national competitive grants as well as state wide and internal grants. Mechanisms specific to attracting research funding identified included:

- **Track record of the research fellow**
- Assisting clinicians in applying for funding including **notifying staff of upcoming grants** (i.e., via email) and **reviewing and giving feedback on clinician grant applications** to ensure their quality prior to submission.
- Having a **supportive department** to help manage the finances from an operational perspective (e.g., organising cost centres).

5. Collaborations

The research fellows were reported to have successfully assisted clinicians form research collaborations and networks with a variety of stakeholders. This included local and international university academics, other QH research positions, and third parties (i.e., Medicare local). Collaborations included both opportunistic and more strategic and formal

partnerships. Examples of how research fellows developed and strengthened collaborations with universities include:

> *"They can certainly facilitate people to …find those links and get to the right person. It's not even the same institution, … that sort of pushes people in the right direction."*
>
> - Manager

- Facilitating the engagement of honours research students with clinical staff.

- Encouraging staff to gain academic titles with universities to allow for increased access to university resources.

- Assisting clinicians in finding PhD supervisors.

In addition, the research fellows were described to have helped foster new internal multidisciplinary collaborations with medical and nursing staff as well as other AHPs.

Mechanisms

Mechanisms identified which supported such collaborations included the research fellow possessing the following:

- Having **experience and large existing networks.** Positions with established networks both externally (e.g., with local and international universities) and internally within the organisation were found to enable collaborations. More experienced researchers in the positions were commented to have larger existing networks, as well as knowledge and experience of which contacts may be more helpful to collaborate with than others.

- Being **trustworthy and respected** within their networks.

- Having **physical space** to allow for meetings with collaborators.

- Having **time in the position**, as a longer time in the position was perceived to lead to greater opportunity to build trust with other staff and form collaborations (particularly internally).

- Taking **opportunities to co-supervise students across specialities**. For example collaborating within a medicine discipline was seen as an enabling mechanism to promoting inter-disciplinary collaborations internally.

> *"how they [healthcare] work and how universities think are very different beasts. You do need to understand both of your partners. … I think that to build with external people, you need to think like they do"*
>
> -Research fellow

> *Well probably the biggest thing …for us that we've seen in connection with [Research fellow name] starting I guess is perhaps just the culture of EBP and research has been raised in our department*
>
> -Clinician

Mechanisms described to specifically facilitate collaborations between academics and clinicians included:

- Being in a **conjoint position** or having established contact with a university, and an understanding of how universities work internally.

- **Understanding and respecting the different strengths** and skills that both the clinician and academic can bring to the collaboration.

6. Culture Changes

The research fellows were reported to enhance the culture of research and EBP across organisations and teams. As a flow on effect, changes to workplace culture were also described. Some examples of changes in research culture reported in interviews included:

- **Changed attitudes** and opinions towards research (e.g., staff previously seeing research as too intimidating to begin, but as a result of the research fellows' assistance, research was seen as more attainable).
- Staff **discussing research more** (e.g., now being standing agenda item at departmental meetings).
- **Increased awareness** of research within their organisation.
- Expectation by staff that there are opportunities to participate in research.

Changes in research culture were particularly apparent in teams that started with a low research base or non-existent research culture, whereby research fellows helped the teams to engage in research. This was reported to be reinforced by **flow on effects** from skill development of clinicians who are now sharing their skills within their department.

Broader changes in workplace culture including **job retention** and **job satisfaction** were also reported by participants as a result of this change in research culture from the research positions. Interviewees reported that their department was seen as a more attractive employer and was attracting higher calibre staff. In the context of a smaller health organisation, another clinician commented that clinicians now may be more likely to want to stay in the health service due to the opportunities to undertake research.

Mechanisms

Certain mechanisms were identified which contributed to culture changes. These included the research fellows undertaking the following:

- **Mentoring and upskilling teams** (including directing them to appropriate resources and training). This helped to **build clinician confidence** which in turn **changed attitudes** and culture towards research. Confidence building also at times required research fellows to encourage clinicians through the process despite clinician's fears.

> *"..research isn't this incredibly difficult thing that only very special people can do. Actually, it's attainable by many and it was quite inspiring actually. .. I don't know that that would have been their view prior to this position developing that profile"*
>
> -Clinician

- Helping clinicians see that **research can be attainable** and does not always need to be large scale but can start with something small and achievable.

- Having **leaders support and role model** research engagement by undertaking research activity themselves and allowing research to be undertaken within normal work time so it is part of everyday practice.

- Being part of a health service with **existing research culture**. Where this is not already existing, **communicating research updates to the Executive** to increase their awareness of research.

Figure 4 shows an explanatory model depicting the relationship between the described mechanisms and culture changes, as based on Bandura's social cognitive theory [24]. This theory emphasises interaction between behavioural, environmental and personal factors to promote change.
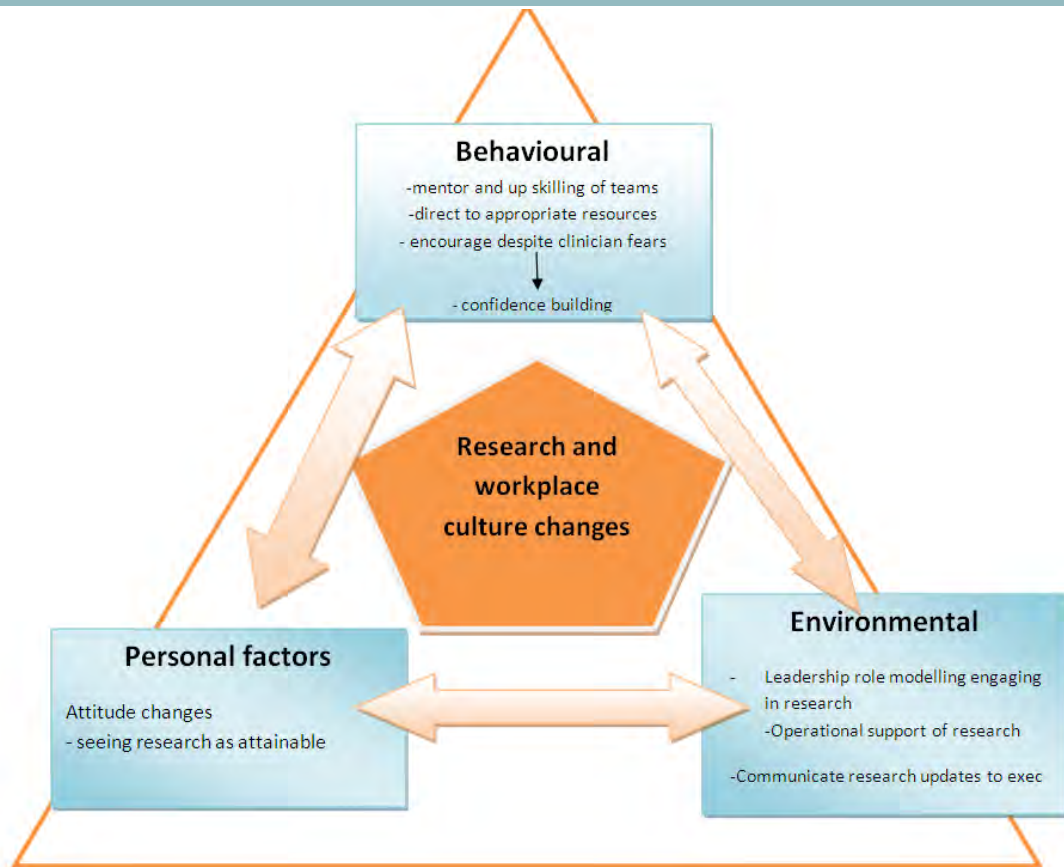
Figure 4 Explanatory model of research and workplace culture changes

7. Allied Health Reputation and Profile

The research fellows were described to have helped raise the profile and recognition of AHPs as active contributors to research. This included raising the profile of specific AHP teams as well as the allied health workforce as a whole, both internally within the organisation (i.e., to senior management and Executive staff and medicine and nursing peers), as well as at a state-wide and international level. The manager of a sole research position within a health service also described the position to increase the profile of research in general for the entire health service.

> *"So there's much more of an awareness from the executive and senior management teams that Allied Health are very active in research..".*
>
> -Research Fellow

> *"I think they've been highly valuable in casting some good focus onto allied health.."*
>
> -Manager

As a result of the increased profile of allied health research, research fellows have been invited to speak at organisational events and sit on research committees which were historically dominated by medicine. Sitting on these committees was described to have led to increased influence in decision making in regards to research not only within allied health but also the wider health organisation. Lastly, the reputation the health organisation has to the public in terms of providing the best evidence based care was also recognised as a result from the research fellows.

Mechanisms which either enabled or hindered this recognition and profile building were grouped into two major themes "communication" and "research(er) credibility" as follows:

Communication mechanisms

- Providing **presentations** internally, locally, and at state-wide, national and international levels to promote allied health research achievements. A significant barrier identified to presenting at international conferences was however the internal QH process of **ministerial approval**, as well as having a lack of funding/paid leave for conference travel.

> *"[Director of Allied Health] … was an incredible facilitator for us. She did a lot of promoting us… there's only so much we could do. We could do a lot once we were in the door"*
>
> *-Research fellow*

- **Promoting the research position role** and organisation at presentations so that people can clearly link the achievement with allied health and/or the respective position/team/organisation.

- **Regularly communicating to Executive level** staff, including reporting on key research outputs (e.g., annual research reports, quarterly reports or forums). These outputs were encouraged to be regularly **promoted by the Executive Director of Allied Health**.

- **Being integrated with other established meetings** (i.e., research committees and directors of allied health leadership meetings) and having research as a standing agenda item at these meetings.

- **Being part of organisations which already operationally value research**. Examples of this included organisations which already provide opportunities (e.g., through HHS level symposiums and presentations) for the research fellows to showcase their achievements internally.

Research(er) credibility

- Having a research fellow with a strong **reputation and track record** can assist in raising the profile of allied health research and assist in engagement with Executive staff.

- Undertaking **high quality and credible research**.

  Further mechanisms for enhancing the quality of research projects identified included:

  o **planning** in advance each stage of research

  o having **systems for governance** of projects including regular meetings with the project team and internal review processes (i.e., prior to external presentations being presented)

  o having **administrative support** to undertake audit and governance processes.

8. Research Infrastructure

The research fellows were described to have led or contributed to the development a range of infrastructure which support the delivery and coordination of research. Examples of such infrastructure and any supporting or hindering mechanisms were identified as follows:

- **Specific research groups and committees.** These ranged from a group of clinicians seeking structured support on a regular basis, to regular collaborative meetings with different medical disciplines to discuss a particular field of research, to more formal higher level research advisory committees overseeing research strategy. Hindering mechanisms to these groups included having a lack of focus and direction about the purpose and outputs of the group, and having duplication with other meetings.

> *"I've set up a research advisory committee. So it's not just me directing it. I'm kept honest by the committee… I guess that's part about maintaining sustainability there, that it's not just one person, it's a group approach."*
>
> *-Research fellow*

- **Securing additional funding for research positions**. This included research fellows playing a pivotal role in securing a research coordinator position to support the lower level research enquiries as well as attracting additional postdoctoral research positions.

  - Overarching **research strategies** either collectively for allied health and/or for specific professional teams. This included devising plans of how to operationalize the strategy which may have covered both EBP and research.
  - **Developing and integrating research KPIs** into departments to promote and support the monitoring of research outputs and activity. Having agreement with all the leaders (i.e., directors of allied health) on what KPIs were being collected further facilitated this mechanism. Developing an **annual report** for research within the health service was another example of infrastructure led by a research position to support research.
  - **Research forums** to showcase research activity which were either held within a health service or in collaboration with nearby health services.
  - **Resources to support clinicians with their research** including websites which contain links to podcasts regarding research training topics, information about steps involved in research and the ethics/governance process. Templates for regularly used documents such as research protocols were also developed and used with clinicians. Using a **group based approach** to develop these resources was described as an enabling mechanism.

> *"..after meeting with everybody I did up a quick sort of operational plan of what we intended to do for going forward which was ..we've also gone to departments to help them even develop their own research plans"*
>
> *-Research fellow*

9. Research Position Development

A final impact of the research fellows was the professional benefit being in the role had on the incumbents individually. Such benefits included:

- **Developing networks** within different disciplines

- **Increasing knowledge** in different areas of health outside their clinical background area

- **Inspiration and reward** from seeing clinicians enthusiasm and determination in research

- Increased opportunity to see **research translate into clinical practice** and make meaningful changes to patient care.

> *"But I think the impact of the role on me has been quite incredible. …. ..how much you learn about the different disciplines and then develop those networks … it's been a huge learning curve and the enthusiasm that some of the staff approaches their research projects with are truly truly incredible."*
>
> *-Research fellow*

Influencing Contexts

The nine outcomes identified of the research fellows and the mechanisms which hindered and supported them, could be generally applied across each of the organisational and positional contexts. However, there were some exceptions. Analysis of the interview data revealed specific contexts to the positions that had some unique enabling and hindering mechanisms that were reported to influence the success of that fellow in their organisation. Three unique contexts that were identified from the interviews included :

- Sole research position in a non-metropolitan area

- Professorial position

- Profession specific research position

Sole position in non- metropolitan area

A unique context to some of the research positions was being a sole research fellow outside a metropolitan area. This context led to some unique benefits and challenges to the research fellow that perhaps were not encountered by fellows working in larger metropolitan or tertiary facilities whereby many other researchers within their facility were employed. Table 2 summarises potential solutions or enabling mechanisms that may address some of the challenges described in the interviews. Additional supporting quotes to described mechanisms are found in the supplementary file to this report.

Challenges

One of the challenges or hindering mechanisms that sole research fellows encountered in this context was **feeling alone or isolated** in their role. These research fellows reported spending a lot of their time working independently rather than within a team. Reduced access to other researchers including higher level statistical expertise and formal university connections, from not being conjointly employed by a university further perpetuated this sense of being alone.

Table 2 Challenges and potential solutions to sole positions in non-metro area

Challenge	Potential Solutions
Feeling alone	• Integrate with team of other research related positions within organisation (i.e., ethics, library positions) • Support from university
Increased time/knowledge demands	• Obtain funding for more positions • Ensure adequately experienced researcher in role • Build infrastructure to support (e.g., website of resources, attendance in committees) • Support from university • Network/mentor with other rural HP research position • Ensure role is full time
Challenges in participant recruitment	• Network with other HP research positions/regional centres • Consider pilot and other study designs
Large geographical area to service	• Use videoconference to communicate • Profile successes and purpose of position
Finding clinical backfill	*No potential solutions raised by interviewees*

 Increased time and knowledge demands of the role were other challenges the research fellows faced. This included the pressure of being in a solo position and having to support research from a range of different staff with diverse types of enquiries and projects. This challenge increased when the research fellow was also servicing medicine and nursing staff in addition to AHPs. Demand for research support from medical staff was also reported to be increasing due to new contractual requirements of junior doctors to all undertake research. The **size of the geographical location** the research fellow was servicing further impacted their demands. Further details of the impact of the geographical location are described in the Toowoomba Case study (see pp 28). Lastly, having the role part time as opposed to full time also increased the demands on the research fellow and meant that the fellow would at times miss important meetings.

> *"we're very, very lucky I think that we've managed to retain [Research fellow name]. Given that they have been a solo operator really… I'm in awe of what she's done and the fact that yeah she's stayed here and battled on, on her own."*
>
> *-Manager*

Interviewees also reported challenges to clinicians engaging in research that were unique to the non-metropolitan context. These included difficulties in participant recruitment for studies due to smaller patient samples to recruit from, and greater difficulties in **finding clinical backfill** due to the lack of access to clinician staffing, particularly senior staff, within the regional/rural setting.

Enabling mechanisms

Certain enabling mechanisms were expressed to help alleviate some of the described

challenges. The feeling of isolation was described to be reduced when the research fellow **identified themselves within a team** of other staff who were involved in research process. Having **support from a local university** to the research fellow was also seen as an enabling mechanism. This was however dependant on geographical accessibility and was found to be more difficult when the position was not conjointly employed by a university.

> *"I consider the research ethics coordinator as part of the team, and also the librarian as part of the team. So that was part of my plan … to map people involved in research in the role. So…I don't feel so lonely."*
>
> *-Research fellow*

Different enabling mechanisms to the positions were identified which may support the research fellow in this context with their increased time demands including:

- **Obtaining funding for more positions,** particularly in roles that do not have any dedicated researchers (i.e., medicine or nursing).
- Having the **position full time.**
- Having an adequately **experienced researcher** in the role who is able to answer a wide variety or queries from a range of clinicians.
- **Networking and/or mentoring other HP research positions** and sharing different research expertise (i.e., qualitative versus quantitative research).
- Having **supportive infrastructure** whereby staff can be directed to existing resources such as a "go-to" **website of useful tools**.

Difficulties in participant recruitment were described to be potentially supported by **adopting pilot type study designs** which require smaller sample sizes as well as potentially **collaborating with other regional centres** to increase participant numbers. Lastly, for larger geographical sites, enabling mechanisms including using technology (i.e., videoconferencing) to communicate and profiling the success and purpose of the position widely across all sites were reported to support the position's success.

A more general enabling mechanism described for this context was the **ease of communication** that came from being part of a smaller organisation. For example, decisions did not have to go through as many layers compared to a larger tertiary health centre. Interviewees also described the trust and familiarity with key stakeholders as an enabler, as *"everyone knows each other".* Being in a sole position, research fellows were also described to be exposed to a number of professional and service areas, which was seen as a benefit by one research fellow to broadening their experience. In contrast, this same factor was seen as a challenge to another research fellow in a similar context, *"I'm the only research fellow, so I've had to sort of diversify a little bit, which is a bit of a shame, really, for me, for my own professional development".*

Professorial Position

Another unique context to some of the organisations interviewed was having a Professor in the HP research position (either currently or historically).

Challenges

Unique challenges or hindering mechanisms were particularly evident when the Professor was in a sole position as a Professor of Allied Health of research and not working alongside

any other HP research positions within the organisation. Challenges included the positions being perceived as having difficulties in engaging and providing support to novice researchers. Specifically, this was described to potentially be due to the seniority of the position, and their track record being **intimidating to clinicians** and limiting the perceived approachability of the Professor. Secondly, due to the significant historical track record and profile of the position, interviewees described that researchers in the Professor positions may be more likely to be **interested in their own research agenda** as opposed to the organisational or services' agenda, or building capacity of clinicians. This was described to be more pronounced if the Professor's research interest areas were not clinically applicable to the health service.

> **"there are some people who really feel intimidated by going to a research professor to ask about - when they're just starting out. I do think that is a limitation."**
>
> *-Manager*

Enabling mechanisms

Some enabling mechanisms were identified which may assist in reducing these challenges as well as generally supporting the Professor role. These included having **supports for lower level clinician enquiries.** Interviewees described that a standalone Professor position creates a large gap for the clinicians seeking practical support with things such as ethics applications and writing a protocol. These support mechanisms to surround the Professor position may include other less senior research positions who can provide the more hands on support for clinicians, as well as the provision of small grants for clinicians to go offline to undertake research.

> *"If the position was set up as a higher level position and if you don't have that middle tier it's always going to struggle ….. Whether it was set up to support more senior research appointments …and support quite novice researchers, which is a big gap. "*
>
> *-Clinician*

Another enabling mechanism to the Professor positions included the organisation having very **clear expectations of the role's purpose** from the outset. Interviewees recommended the allied health service should map out what is their overall intended vision or purpose for the role and what key performance indicators their health service wants from the role (e.g., level of research support or outputs), and then recruit someone who will be able to fulfil those expectations.

Other general enabling mechanisms to the conjoint professorial positions described by interviewees included being **employed through a University** as opposed to QH. This arrangement facilitated the process of international conference travel, which is a necessity of these high level roles. Having the **position physically based in the hospital** or

> *"We sit on some of the research committees, that in the past we never would have"*
>
> - Manager

clinical environment as opposed to a university was also described to have helped the Professor to facilitate engagement and subsequent outcomes with clinicians.

A final enabling mechanism described of the Professor positions was their ability to more easily **advocate for allied health** at Executive level meetings. Interviewees described that

because the positions had significant research experience and track records their opinions were more readily invited and respected at these meetings.

Profession Specific Research Fellow

The final unique context identified was HP research positions that provided support primarily to a single allied health profession. The context of these profession specific research fellows yielded some unique mechanisms which facilitated the success of these roles. These included:

- Having **manager support** from the profession that the research position was primarily supporting. Managers with research understanding and experience and who operationally supported and encouraged clinicians to take part in research activity (e.g., data collection) were reported to help enable the role within the department.

> *"I've been able to experience different managers, managers who come with a research understanding and research experience and are supportive of that, and also a manager who doesn't come from that background and doesn't necessarily support unfunded activity as part of everyday work. That's been real a critical shift to the success."*
>
> *-Research fellow*

- Being **physically located** in the same area as the profession to promote incidental support (e.g., having their own office and computer/desk area).

- Being **embedded within the team structure** operationally including taking part in leadership meetings and troubleshooting within the department. Having clinicians see the research position as part of the team as opposed to working externally, helped members of the entire team see they can contribute and be accountable to research outputs of the department as opposed to it falling onto one person.

- **Assisting and promoting recruitment of clinical staff** within that department who are interested in participating in research. This helped to enable further capacity and culture building within the team that the research position was embedded within.

> *"I think they [clinicians] are more inclined to go to their discipline if there was a research position in their discipline… They feel more comfortable."*
>
> *-Manager*

Interviewees also described that having positions that were profession specific in itself was a mechanism which made it **easier for clinicians to engage** with the research position. This was described to be due to the familiarity and knowledge the role had of that profession. Interviewees elaborated that AHPs felt more comfortable approaching someone within their own profession as opposed to someone outside.

DISCUSSION

The current project aimed to explore the impact of the HP research positions on building allied health research capacity across health services and to describe the enabling or hindering mechanisms to the success of these roles. Nine key acheivements of the research positions were described which impacted individual, service/team and organisational levels, extending to the wider community. A number of mechanisms were identified which influenced these outcomes including factors which related to the research position itself (e.g., accessibility and stability of the role), organisational factors (e.g., leadership and resources) and implementation factors (i.e., how the role should implement strategies). Three unique contexts were also identified (i.e., being a sole position in non-metro area, a Professor, or a profession specific position) which had some additional mechanisms that were unique to the outcomes of these positions. Findings highlight the value of the research positions to AHP research, culture and workforce, and provide useful knowledge to add to the current evidence base in the area. At a local level, findings also have important implications to a number of stakeholders and may contibute to the ongoing support and sustainability of these and future roles.

Relation to current research

The present evaluation is the first to have investigated the impact of allied health research positions across multiple health contexts. The majority of outcomes including increasing clinician's development and research activity and promoting research outputs, collaborations, and research infrastructure are consistent with the current evidence base for research positions in allied health [6, 14, 18, 25]. The outcomes of the HP research positions in the present project were also found to impact across different developmental levels (i.e., individual, team, organisational) as described in Cooke's research capacity building framework [2]. This finding further builds upon previous observational research which has reported that research positions may influence clinician research capacity across individual, team and organisation levels [14].

The majority of outcomes of the HP research positions are also in alignment with Cooke's six principles for effective research capacity building initiatives [2] (refer to p8 of this report). Interestingly, certain outcomes from the present project were different to those identified within Cooke's six principles yet still important to allied health. These findings include the outcomes of enhancing workplace culture (e.g., job satisfaction, employer attractiveness) and the profile of allied health, service changes, and the professional development of the research fellows themselves.

The finding of improved workplace culture as a result of the research fellows is consistent with previous health care research which reported a positive association between clinician engagement in research and job satisfaction [26]. The introduction of academic-clinical positions in rural New South Wales was also informally described to help with recruitment of AHP staff [27]. Considering ongoing work retention issues within allied health [28], the finding of improved workplace culture as an outcome of the HP research positions is meaningful to health organisations. Such a finding may be particularly important for rural health settings which may experience greater difficulties with AHP workforce retention [27, 29-31].

Considering allied health's historically low research profile compared to medical peers [5], the increased internal and external profile of allied health research as a result of the HP research positions is an important finding for the profession. Indeed, the general profile of

allied health within Australia is often low and misunderstood, with allied health frequently being overlooked at a systems level compared to nursing and medicine [32]. The service and clinical changes occurring as a result of the research from the HP research positions may also help build the allied health workforce's reputation and may provide evidence the impact of allied health on important organisational performance indicators [32].

Lastly, the professional benefits to the individuals in the research positions was also reported in a previous paper describing clinical-academic positions in allied health, stating that the diversity of the roles were both challenging and rewarding to these positions [27]. It could be argued that the professional development and job satisfaction of the incumbent is important in promoting the stability of the HP research position. The stability or consistency of the incumbent in the position was also reported as one of the key mechanisms for their success.

Many of the outcomes from the present study also interacted with one another and likely had flow on and synergistic effects, as described by Cooke [2]. For example, the upskilling of clinicians facilitated by the research fellows may have led to the AHPs increased research activity and in turn this activity may have contributed towards clinical and service changes and research outputs. Collectively, these changes and outputs may have led to increasing the profile of allied health and changing the research culture within the organisation, all being key outcomes of the research positions.

Mechanisms

The current research was the first to have included an in depth exploration of the mechanisms which hinder or enable the success of allied health research positions across different organisational contexts. While a number of unique mechanisms were identified, other mechanisms found support existing evidence. For example, consistent with the present findings, Perry reported that organisational culture, managerial support and the interpersonal style of the research position were mechanisms to the success of a research position [18]. Implementation factors including tailoring strategies used by the research fellows according to context and readiness is also in agreement with William et al. [14]. Such individual tailoring is also in line with principles of adult learning [33], and Roger's diffusion theory which states that innovations are adopted at different rates according to individual readiness [34]. Furthermore, integrating research positions between the clinical and academic environments, and integrating research into routine clinical activities has been reported as another enabling mechanism to research positions [4, 18]. Other mechanisms related to the accessibility, experience, stability of the research position role, physical resources and funding, and other implementation factors are not well cited in the literature and provide new evidence for how the implementation of these positions may be facilitated and supported.

Context

The present study also identified three unique contexts of the research positions and mechanisms for their success: sole position in non-metro area, Professor position and profession-specific position. The context of sole research fellows in non-metropolitan areas was recently referred to in a study describing the challenges of AHPs undertaking research in Queensland rural settings [35]. Creation of additional research positions, use of technology to support, and undertaking more team based research were some mechanisms described to generally enable clinicians to engage in research and were consistent with the present study [35]. However, the authors did not provide specific strategies to support the success of the research positions themselves.

Apart from the original descriptive piece by Hulcombe et al [1], this is the first study to our knowledge that has commented on the context of a Professor position to build allied health clinician research capacity. While there is some evidence in the literature of research positions providing support to a specific profession (i.e., physiotherapy [12, 17, 25] and nutrition [8]), mechanisms for their success have also not been clearly reported. Findings in regards to the unique mechanisms for each of the three contexts described in the present project adds to the existing limited knowledge in the area. Results may also provide insight into some of the mechanisms which may support or hinder the research positions within these unique contexts.

Key implications and Recommendations

The present findings identify a number of benefits of the HP research positions across different QH health services. To further sustain and enhance the success of the positions, a variety of mechanisms were identified which have important implications to a number of stakeholders. The following section will describe key implications and recommendations to these stakeholder groups as shown in Figure 5:
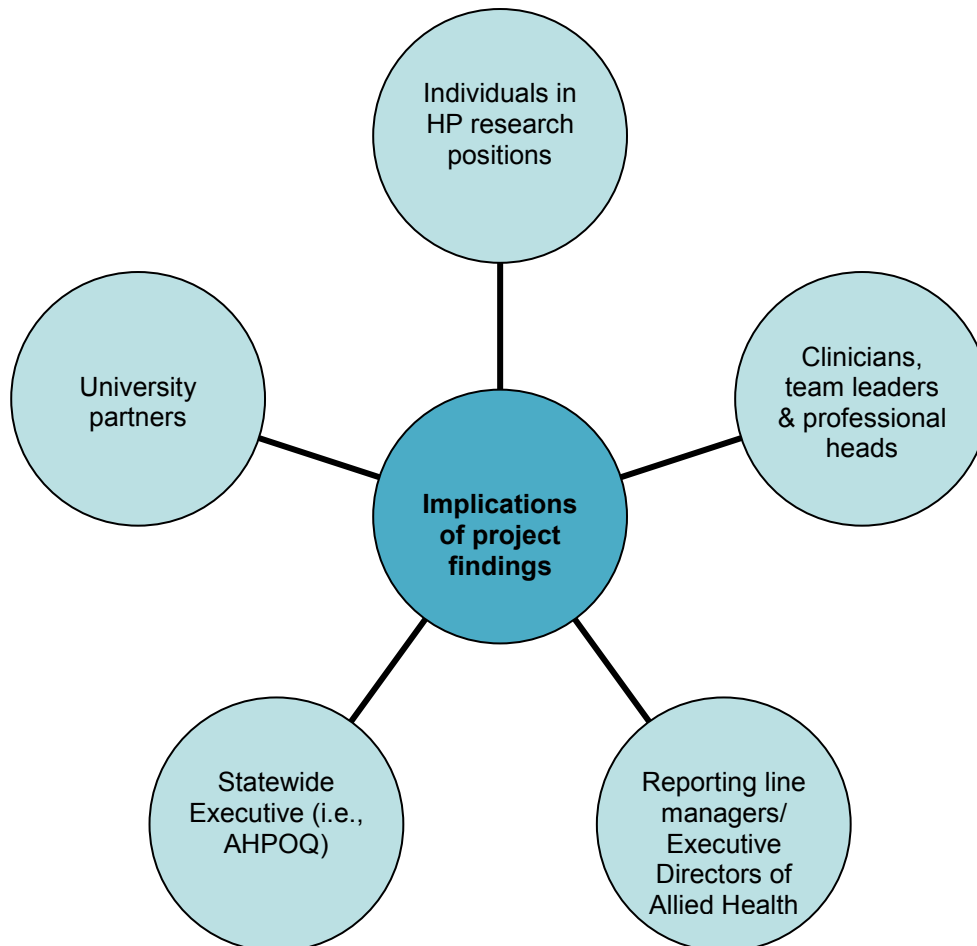

Figure 5. Stakeholder groups impacted by research findings

Research positions

Based on the mechanisms identified in the present project, individuals currently in or seeking to commence a HP research position may sustain and/or enhance the outcomes of their role by considering the following:

- *Integrate themselves* as much as possible into the health setting (e.g., sitting on committees) and maximise their own accessibility and approachability with clinicians to promote engagement (e.g., spending time within the clinical environment in a visible location, communing with other clinical staff at lunchtime).

- *Utilise existing resources and networks.* For example referring clinicians on to other resources within and outside the organisation (e.g., office of research/ethics, university resources).

- *Seize opportunities to disseminate and showcase.* This includes acknowledging research progress and successes they have supported at key internal and external events and seeking opportunities to promote their role within the organisation.

- *Tailor interventions (i.e., mentoring, training)* to clinician's developmental level and readiness, considering aspects such as motivations and current research skills. Fellows should also acknowledge that not all clinicians seek to engage in research and target those who are most interested

- *Set realistic expectations with clinicians* regarding research engagement, giving digestible information in non-technical language to reduce clinician intimidation and set realistic goals clinicians can achieve and be accountable towards.

- *Reflect on your communication style* and approachability when interacting with clinicians to maximise engagement.

- *Understand clinical and academic systems* and educate partners about the strengths of both as well as opportunities for improvement.

Clinicians, team leaders and professional heads

Allied Health clinicians, team leader and professional heads may want to consider the following recommendations to further enhance the impact of the HP research positions within their organisation:

- *Share skills:* AHPs who have gained skills from the HP research positions should be encouraged to share these with other members of their team. This reduces the time demands on the research positions and helps to build internal capacity within teams for long term sustainability.

- *Present findings and celebrate successes*: Clinicians who have successfully engaged with the research position and are participating in research, should be acknowledged and supported to present their findings not only at conferences but also internally to medical and nursing peers. Findings from the project revealed that this not only increased the profile of allied health within the organisation but also helped other clinicians to engage in research.

- *Be inclusive:* Invite the HP research fellow to planning meetings/days and integrate them where possible/appropriate in other leadership activities and meetings including inviting them to present at professional development sessions.

- *Be supportive:* Support clinicians who are engaging in research operationally (i.e., find backfill for clinicians who receive grant funding, support conference leave for presenting clinicians).

- *Be a role model:* Clinical leaders should seek opportunities to undertake research themselves, thus serving as a role model within the department for engaging in research.

Reporting Line Managers/Executive Directors of Allied Health

Interviewees revealed some enabling mechanisms that reporting line managers of the research positions may consider when managing the HP research positions to maximise and sustain the success of the role. These factors included:

- *Promote the role:* Where possible facilitate visibility of the role within and outside the organisation and their research achievements (i.e., publications, support on projects) across different levels and professions (i.e., including medical and nursing peers)

- *Be strategic with new positions*: If you are seeking to recruit to new or additional positions, consider first mapping the research needs of the allied health workforce within the organisation, defining the purpose of the research position (e.g., research coordination, driving own research agenda, novice capacity building or combination) and then finding a position that will be matched accordingly. When recruiting, consider interpersonal skills, and existing networks and experience of the incumbent (including knowledge of internal systems). Consideration of implications to university partners (see over page) is recommended when negotiating a conjoint position.

- *Set up regular communication* with the research fellow to troubleshoot any operational barriers they may be encountering in regards to their research or role.

- *Advocate for resources* that the research fellow may require to promote the efficiency of their role (e.g., computer software, administrative or research assistant support)

- *Consider stability of position*: Individuals who were in the research position for longer periods of time were reported to be linked with increased clinician research engagement and increased research outputs. Managers may therefore wish to consider factors that can promote the satisfaction of the incumbent including their professional development opportunities and aforementioned supports.

In addition, managers of roles within unique contexts (i.e., profession specific, professor roles and sole positions in non-metro areas) are asked to consider additional mechanisms on pp13-17.

University Partners

While all outcomes reported were seen to be beneficial to health organisations, certain outcomes may be seen as particularly favourable to university partners. These may include the research fellows leading to increased collaborations and research outputs including an increased number of PhD students being enrolled. Specifically, improved relationships between health and academic institutions and development of mutually beneficial partnerships in taking research higher degree students were seen. Research fellows also reported it being easier to recruit participants in their projects in their clinically based position as opposed to previous academic appointments, and were able to see greater clinical impact and translation of their findings. These potential benefits may be appealing to University institutions when being approached by health organisations to invest in conjoint research

positions within allied health. As well as becoming more aware of such benefits, university partners should seek to understand the unique challenges of the clinical environment (in contrast to the academic setting) that may impact on the outcomes of these roles. This may include for example conference travel, accessing computer software, and balancing capacity building of clinicians with research progress.

Queensland Health Executive/ AHPOQ

Lastly, findings of the present study have important implications for QH Executive including AHPOQ. AHPOQ may wish to consider strategies and infrastructure to best support the implementation of some of the identified mechanisms to maximise outcomes of the HP research positions. This may include advocating ongoing state-wide linkages/networks of the research fellows (i.e., database of relevant research expertise interest areas of each of the fellows). This may allow sharing of training and mentoring resources, project ideas and match expertise. The current ministerial approval policy for international travel and its impact on AHPs in research positions may also warrant attention.

Continued annual reporting of the HP research positions is recommended as well as consideration of ongoing evaluation of other outcomes identified in the present research not routinely monitored. This may include ongoing monitoring of the research and workplace culture of organisations (e.g., through tools such as research capacity and culture tool or similar), indicators of allied health profile raising and inter-professional collaborations (i.e., number of collaborative multidisciplinary projects, number of inter-professional research committees/groups participating), satisfaction of the HP research positions themselves (i.e., measures of job satisfaction), and capturing of clinical and service changes influenced by the positions (i.e., changes to policies/procedures, addition of new clinical staffing for models of care, creation of clinical positions). Providing communication strategies to organisations and/or individuals in the HP research positions to promote the successes of the positions within and outside their organisation may further support the positions and build the profile of allied health research.

Limitations and Future Directions for Research

Certain limitations should be recognised in the present research. Not all health services employing a HP research position were represented in the interviews. Even so, purposive sampling was used to capture a diverse range of geographical areas (i.e., North Queensland, rural Queensland and Brisbane city). Focus group participants were also predominately team leaders or senior clinicians with few HP3 clinicians. This may reflect more senior staff are generally engaging with the research positions than junior staff, which is consistent with previous research [14].

This is the first research that has investigated the impact of research positions across multiple health organisations and the mechanisms which hinder or support their success. Even so, all health organisations were within the same geographical state. To help substantiate the present findings, further research across other Australian states/settings and internationally is indicated. Future research may also wish to include the perspectives of other important stakeholders including university partners of conjoint research positions, as well as nursing and medical staff.

Conclusion

The present findings highlight the value of the HP research positions within QH. Achievements of the roles identified included building AHP's individual and team research skills and activity, increasing collaborations and research outputs, improving research culture and clinical services, and enhancing the profile of allied health within and across organisations. Findings have important implications to a number of stakeholders including individuals in the HP research positions, AHPs and their managers, Executive Directors of Allied Health, university partners and state-wide executive.

It is recommended that health organisations consider how the HP research position(s) and key stakeholders within their health service are currently implementing key enabling mechanisms that were identified to enhance the success of the roles. These mechanisms may facilitate the ongoing evaluation, support, success and sustainability of the HP research positions, as well as provide evidence for the potential need for additional positions and/or resources for these positions within QH.

Lastly, outcomes of the report build upon the existing evidence base in the area of the impact of research positions in allied health. Findings demonstrate the value of dedicated research positions and the positive influence they may have on not only allied health research capacity and culture, but clinical services and ultimately patient outcomes.