

Implementing large scale workforce change: Learning from 55 pilot sites of allied health workforce redesign in Queensland, Australia

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Abstract:

Background: Increasingly, health workforces are undergoing high level 're-engineering' to help them better meet the needs of the population, workforce and service delivery. Queensland Health implemented a large scale 5 year workforce redesign program across more than 13 health care disciplines. This study synthesised the findings from this program to identify and codify mechanisms associated with successful workforce redesign to help inform other large workforce projects.

Methods: This study used Inductive Logic Reasoning (ILR), a process which uses logic models as the primary functional tool to develop theories of change, which are subsequently validated through proposition testing. Initial theories of change were developed from a systematic review of the literature and synthesised using a logic model. These theories of change were then developed into propositions and subsequently tested empirically against documentary, interview, and survey data from 55 projects in the workforce redesign program.

Results: Three overarching principles were identified which optimised successful workforce redesign: (1) Drivers for change need to be close to practice; (2) Contexts need to be supportive both at the local levels and legislatively; and (3) Mechanisms should include appropriate engagement, resources to facilitate change management, governance, and support structures. Attendance to these factors was uniformly associated with success of individual projects.

Conclusions: ILR is a transparent and reproducible method for developing and testing theories of workforce change. Despite the heterogeneity of projects, professions, and approaches used, a consistent set of overarching principles underpinned success of workforce change interventions. These concepts have been operationalized into a workforce change checklist.

Keywords

Role redesign, workforce change, implementation, logic model, proposition testing, mixed methods, workforce flexibility, allied health, inductive logic reasoning

Background

The current healthcare system faces a number of challenges that test its ability to deliver effective, efficient, and responsive services to the population. These challenges are well documented and include: increasing demand for services[1, 2], growing prevalence of chronic disease[3, 4], escalating service costs [5], diminishing workforce availability[6-8], and changing community expectations [7, 9].

In response to these challenges the report *The Australian Allied Health Workforce – An Overview of Workforce Planning Issues* [10] recommended investigation into ways that the allied health workforce could be reformed to promote sustainable allied health services and viable models for service delivery. This reform agenda was supported by Queensland Health (QH) through their Health Practitioners Models of Care (QH MoC) strategy which implemented a number of innovative workforce redesign and reform projects to trial new models of care (MoC) delivery.

‘Models of care’ is a broad concept that describes the best way to deliver patient care services to a specific population [11]. The objective of MoC is to “ensure people get the right care, at the right time, by the right team and in the right place” [11 p.4]. The MoC approach to service delivery is designed to align the healthcare workforce with services that are consumer focused, aligned with service delivery plans, multidisciplinary, and holistic in their approach care. This MoC approach has been taken up nationally through the Australian Health Ministers’ Advisory Council and three national workforce planning committees, the Australian Medical Workforce Advisory Committee, the Australian Health Workforce Advisory Committee (nursing and allied health), and the Australian Health Workforce Officials’ Committee [12] and is implemented by individual jurisdictions to meet their service and workforce planning requirements.

The QH MoC strategy supported the introduction of new MoC that:

- Used allied health scopes of professional practice to their fullest extent
- Advanced or extended scopes of practice
- Better utilised support staff (assistant staff)
- Partnered with internal and/or external staff
- Used multidisciplinary approaches and integrated health services across the health care delivery continuum.

This strategy facilitated workforce reform through the development of an organisational environment that encouraged, enabled, and sustained these new MoC. Initiatives were undertaken to enhance leadership capacity, workplace culture, training and education, and interprofessional collaboration, as well as resolve human resource, industrial, and legislative issues. One arm of this strategy involved sponsoring demonstration projects that more efficiently used the skills of allied health professionals (AHPs) and assistants through alternative models of service delivery. These demonstration projects sought to develop, trial, and embed new MoC that delivered best practice, improved patient outcomes, enhanced workforce sustainability, and managed demand within allocated resources. In particular, they examined and evaluated: 1) best use of full /advanced and extended scope of practice roles for AHPs and use of allied health assistants (AHAs); 2) potential for new and different roles; 3) sharing of competencies and tasks to decrease duplication; 4) use of technology to enhance service delivery; and 5) increased coordination of services.

Queensland Health funded two rounds of MoC demonstration projects between 2009 and 2013 with the first 30 projects completed in 2011. The second round commenced in 2011 involving 34 new projects plus 5 continued from Round 1. Each model of service delivery was trialled for up to two years. To our knowledge, this is the largest single workforce redesign project in Australia.

There is a dearth of theory relating specifically to workforce change. A recent review of workforce change instruments undertaken as part of a larger, workforce change project [13] found few of these instruments were evidence-informed, nor had they undergone any formal evaluation. There have been a number of recent, large scale role redesign projects including the National Health Service (UK) Changing Workforce Program which incorporated the Accelerated Development Program [14-16]; however, neither of these programs captured systematic learning or codified processes and mechanisms for workforce change in a reproducible way. Health Workforce Australia recently published an evaluation of a large scale change program of workforce innovation in caring for older people [17]. This evaluation went some distance in creating a model for workforce change by providing a conceptual framework, demonstrating evidence of innovation, discussing change management, stakeholder engagement, and program design.

This aim of this study was to systematically explore the learning from the QH MoC projects to develop guidelines to inform future workforce change projects. One of the unique features of this project was that it drew on a range of different types of role redesign, professional backgrounds, and contexts. Much of the existing literature on workforce redesign is based on a single setting, profession, or type of role.

Methods

The learning of interest from this study was an understanding and codification of the reproducible processes, or mechanisms, that lead to successful workforce reform. This required a methodology that could link the way the intervention was delivered to the specific *outputs* or *outcomes* from that intervention, or in other words, the theories to explain change. At the same time we needed to synthesise data from a large number of heterogeneous projects and literature and then manage and process that information in a transparent way. A number of methodological approaches facilitate this type of descriptive, causal analysis. Donabedian's structure – process – outcome triad is designed to look beyond the outcome and examine the modifiable ingredients that lead to the achievement of that outcome [18]; however, it is not an evaluation tool per se. Logic models are a well-developed tool for graphically illustrating the various components to identify the drivers, contexts, mechanisms or activities, outputs and outcomes [19]. However, logic models do not provide a transparent way to link together the component activities and outcomes to produce theories.

Two contemporary, theory-based evaluation approaches are Realistic Evaluation and Theories of Change. Realistic Evaluation explores the relationship between contexts, mechanisms, and outcomes within a structured theoretical framework [20] to describe what intervention works for whom, and in what circumstances. Theories of Change are an increasingly popular tool in program evaluation to explore the relationships between activities and outcomes to look at how and why the changes occur [21]. At face value, there are several similarities between these two approaches; however Blamey and Mackenzie juxtapose the approaches, highlighting the differences between them and the challenges of each [22].

Neither of these approaches was able to be applied fully to this study for several reasons. The MoC projects had already commenced, and many had finished, thus the theories needed to be developed retrospectively. Within the MoC evaluation, there were several different types of projects and a range of

different drivers. The complexity of types of projects meant that we perceived Realistic Evaluation to be too ‘fine-tuned’ to cope with the macro and meso level data and concepts. Theories of Change appeared to be better equipped to deal with this complexity, however needed an underlying theory to begin with. Furthermore, neither method is well described or used consistently in the published literature [22].

Consequently, we developed *Inductive Logic Reasoning* to address these limitations. The principle analytical tool was the logic model which was used to systematically extract and organise the data under the headings drivers, contexts, mechanisms (barriers and facilitators), outputs, and outcomes of the MoC projects.[19, 23]. The iterative development and modification of these logic models provided a structured, systematic, and transparent way to document the findings from the multiple data sources. The approach is summarised in Figure 1.

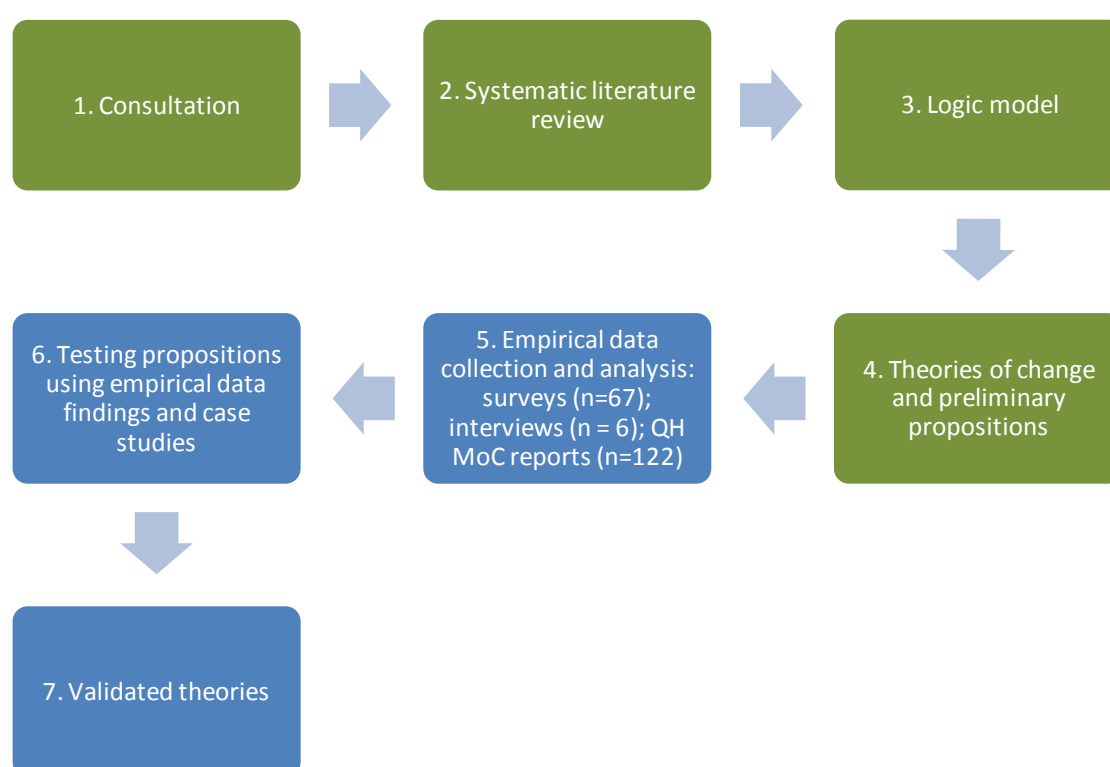


Figure 1: Steps involved in Inductive Logic Reasoning

The research was undertaken in two phases. Following detailed consultation with a steering committee and people involved in the MoC projects to develop the analytical framework, Phase one involved a systematic review of the MoC literature which was extracted into an initial logic model (Table 1) describing the drivers, contexts, mechanisms, and outcomes underpinning workforce change [24]. The definitions of the logic model components are described in Table 2. Few published approaches to logic models incorporate the drivers; however, we found that the drivers were closely related to the outcomes and helped develop a coherent pathway linking the components of the logic model together. The logic model is organised to show the relationships between the component parts. For instance, working across the second row of logic model illustrates how the ‘workforce drivers’ required a context of wider support from the existing workforce, mechanisms that promoted engagement with the existing workforce, which resulted in better ‘workforce outcomes’. The bottom row of the logic model (‘remove strategic uncertainty’

and 'project management') were not linked directly to drivers or outcomes, but provided the project management context that is essential for the success of any workforce change project.

From the logic model, we developed a series of testable, proposition statements, or preliminary theories of change. The proposition statements were developed by linking the outcomes to the drivers, contexts and / or mechanisms (Table 3). Five broad propositions were developed, each relating to a specific outcome category. Within these, specific sub-statements were developed that were tested in phase two.

Phase two involved testing the propositions against the empirical data arising from the QH MoC projects. Detailed, ongoing consultation took place with both QH and the project steering committee, selected for their expertise in workforce change, regarding the development of these initial theories. The final output was an empirically tested set of propositions and principles to inform workforce change, and a *Workforce Change Checklist* to guide workforce change projects.

Three sources of project data were used for Phase two of the research: documents developed by the individual MoC projects, an E-survey of project sponsors and participants, and key stakeholder interviews. All projects produced a substantial amount of documentary data including concept briefs, project plans, feasibility studies, monthly reports, quarterly reports, project completion reports, and published literature. Project completion reports were the principal source of data; for incomplete projects the most recent quarterly report and any other reports deemed relevant were used. An E-survey was circulated to 103 project sponsors and officers. Three reminder notices were sent out, each at one week intervals from the initial email. Interview participants were purposively sampled to ensure representation of project types and population densities (urban, rural). Semi-structured interviews were used to obtain greater depth of understanding of the processes of implementation of the projects, capacity building, sustainability, and identify any novel approaches. Interviews were recorded, summarised, and coded using the constant comparative method to identify themes and trends [25, 26].

A data extraction framework was created to evaluate the data from each project for its degree of support for, or divergence from, the propositions as well as identify project drivers, facilitators, barriers, outputs, and outcomes. Team members extracted relevant data directly into a customised, fillable form within Google Documents. In the absence of quality assessment ratings for the individual projects, the propositions were tested against their level of convergence with or divergence from the propositions.

Ethics approvals were obtained from the Human Research Ethics Committees of Southern Cross University and Queensland Health.

Results

Response rates

The MoC projects involved an extensive range of health professions. AHPs were the primary disciplines involved; however, in many cases the implementation of the changes also required involvement from medicine and nursing. The primary disciplines involved were physiotherapy (PT), occupational therapy (OT), social work (SW), dietetics, podiatry, pharmacy, psychology, speech therapy, audiology, clinical measurement, medical imaging, orthoptics, and oral health. The total number of staff involved in these projects was estimated at more than 500. A full list of the MoC projects is included as Appendix 1.

One hundred twenty two (122) documents were included in the data extraction process. Of 103 surveys distributed, 84 responses were received and 67 were usable. Responses were received from project sponsors and officers, and others including clinicians and clinical leaders working within the projects, steering committee members, trainers, managers, and department directors associated with the projects. Fifteen projects were identified for further follow up by interview, however in eight cases no one was able to provide additional information about the projects due to the significant redundancies that occurred in QH as a result of the change in state government in 2012. Participants from six of the remaining seven projects agreed to participate in interviews.

Appendix 2 presents a summary of the outcomes of all of the projects based on success, sustainability, and replication of the project. Appendix 3 shows the results of the data extracted against each of the propositions, illustrating confirming or disconfirming data for each of the propositions, and a brief summary of the evidence for each of the propositions. The narrative describing each of the propositions is presented below. In the initial propositions success was defined in terms of sustainability, outcomes, and staff satisfaction. However, it became apparent that several 'successful' projects were not sustained due to reasons that were outside the scope of the project. This is often termed 'implementation failure' [22] and needed to be separated from 'project failure'. Similarly, as Martin et al. [27] point out, sustainability is part of a process or continuum, and not an end in itself.

As a result, we separated the concept of sustainability from 'project success' by defining project success in the following ways;

- Implementation as planned
- Goals achieved
- Full local acceptance and adoption of the role
- Codified practices that facilitate uptake of the role in a new site
- Role/derivative of original model implemented in a new site
- Local stakeholder understanding and support of the role
- Appropriate use of role by stakeholders
- Service benefits or efficiencies associated with new role

Several of the projects identified outcomes that improved as a result of the project, such as detailed patient health outcomes. While we attempted to verify the strength of these findings using standardised quality assessment tools [28], the heterogeneity of the data sources, quality of reporting, and methodologies used rendered this process ineffective. As this was a high level process analysis we combined these outcomes together under the heading of patient outcomes and examined process issues that may be associated with this improvement. Consequently, this project cannot draw any conclusions about causality; only assess the nature of relationships between descriptive data.

After completing these steps the propositions were revised and the refined propositions are outlined below. Note that we have substituted the term 'success' for 'sustainability' where appropriate.

Descriptive review of propositions

1.1 Better success of the new MoC is associated with early and full engagement of key stakeholders.

Lack of engagement, hostility, and resistance by key stakeholders was an important contextual barrier, while full engagement and commitment was a key mechanism for success. Five different types of resistant contexts were identified including:

- Unwillingness to change by staff involved in the change process.
- Lack of support from 'powerful elites'. The most important single group identified here was the medical profession. However, lack of support from other important key stakeholders such as local managers, chief executives, project sponsors, and directors of allied health were also acknowledged as preventing projects from proceeding or being successful.
- Interdisciplinary resistance arising from practitioners with equivalent status, but whose roles would be affected by the changes (e.g. nurses were affected by changes to roles of AHPs and introduction of assistants).
- Resistance from other institutions
- With the introduction of new delegatory frameworks, there was a reluctance and resistance by some existing staff to delegate parts of their previously established roles.

Conversely, engagement of key stakeholders was an important driver of success. Of the completed projects the successful ones identified engagement with key stakeholders as a key factor for success; the eight unsuccessful projects all identified lack of engagement as a key cause. In one project involving two hospitals, one site was successful while the other failed; this was attributed entirely to the lack of support from medical stakeholders at the second hospital.

1.2 Better success of the new MoC is associated with bottom-up (rather than top-down) drivers.

The importance of bottom-up drivers to the success of the new MoC was identified in several projects. 'Bottom-up drivers' refer to locally identified and owned reasons for introducing the new MoC, irrespective of whether this driver had a workforce, patient need, or service focus. This was substantiated in the following ways:

- Projects with evidence of success elsewhere were not able to be successful in contexts without a local champion to support the cause.
- Projects which did not clearly identify the local needs, drivers, or benefits, whether in terms of staff or patient needs found it harder to get traction.

The local engagement and ownership was particularly important for rural-based projects. In situations where the project was not seen as a local priority, and was being driven by external expectations, projects had less success.

"The project was not seen as a priority [by the local area]; allied health staff felt pressured by [name] to attempt unachievable deliverables." (Rural project)

1.3 Better success of the new MoC is associated with top-down support.

Best et al. [29] identified that having a blend of designated leadership and distributed leadership was likely to increase success of the target initiatives. They posit that engagement of individuals at all levels of the change process is required and in particular, there needs to be an alignment between top leadership and

distributed leadership. This suggests an alignment of the values, vision, and mission of the two types of leaders.

This proposition was supported at several levels of our study:

- A change of government towards the end of the MoC project resulted in a change of strategic priorities, uncertainty, and reallocation or cessation of funding. This change and uncertainty prevented the completion of some projects, and the sustainability of other successful projects due to realignment of priorities at policy and decision-making levels.
- Leadership in the form of change management training for AHPs and other staff, and support for AHA staff to undertake certificate training, was noted to have contributed to the success of projects.
- Strong executive sponsorship was associated with project success, whereas projects without executive support were discontinued or did not receive recurrent funding.

1.4 Better success of the new MoC is associated with legislative scaffolding to reinforce the new approach, such as award and pay structures, which are supported in industrial agreements, and ratified at the highest possible levels of government to avoid undermining by professional boundary arguments.

Support for the development and introduction of the new roles came from national and state initiatives. The recommendations in the *Australia's Health Workforce Productivity Commission Research Report* [30] was a driver and led to enterprise bargaining which examined the scope of practice for AHA. However, in six cases the regulatory structure was not supportive of the required outcome. A disconnect was identified between the local initiative (such as extended scope of practice) and limits imposed by professional registration bodies.

1.5 Better sustainability of the new MoC is associated with codification of the processes, practices, and training used to implement the role.

One of the major outputs from the QH MoC projects was the codification of processes necessary to implement new roles; specifically this involved role definitions, service definitions, new competencies and competency frameworks, and new tools and pathways to support implementation of the new MoC. The codification of processes was important to help both the sustainability of the project in times of change, as well as the transfer of the project into a new environment/service/context. This was exemplified in one project which specifically identified that having poorly defined role descriptions, objectives, and goals at the commencement of the project substantially slowed progress of the project; role descriptions were negotiated late in the project, delaying staff and patient recruitment.

Five projects used the Calderdale Framework [31] in the development of AHA roles. This was found to help with the service and task analysis that underpinned the development of the role, and the competency identification and training necessary to implement and sustain it. Projects using this framework were able to develop appropriate processes which were successfully implemented and sustained.

1.6 Better success of the MoC is associated with having powerful allies to drive the role forward.

As previously noted, the engagement of key and powerful allies (predominantly medical champions) within an organisation was paramount to the success of new roles and MoC. Support from these individuals can enable the necessary legislative changes required for acceptance of the new role and scope of practice by

the regulatory body. They can also foster acceptance of the new MoC by others whose practice maybe affected by the role changes.

1.7 Better success is associated with implementing new MoC that are appropriate for the context (including local, geographic, population, clinical, professional, regulatory contexts).

The context into which the new MoC is implemented needs to be receptive to and supportive of the need for change. The characteristics of contexts which were identified as associated with successful implementation were:

- Willingness to discuss the potential to implement change. This required being flexible, open minded, and openly engaging with new ideas.
- Having a mindset that supports change.
- Willingness of team members to work with the change leader throughout the entire process.
- Ability to focus changes around those that will positively impact on patient outcomes.
- Having the relevant participants located in close proximity to each other.

A number of unsuccessful projects were initially started in contexts that were not receptive or supportive of the proposed changes and were discontinued; when moved to more supportive contexts that demonstrated the above characteristics and they were expected to be successful.

2.1 More efficient use of the role is associated with clearly defined roles within the model of care

There was evidence from 15 projects that having a clearly defined worker role within the MoC was associated with increased efficiency and sustainability of the role. In particular, it was important to have clearly defined role descriptions and identified training needs. In the absence of role clarity, role protection was more likely to arise, as well as inefficient delegation of tasks to new practitioners. An important area requiring further clarity was the differentiation between advanced roles and full scope of practice.

2.2 More efficient use of the role is associated with a clearly defined, understood, and unambiguous delegatory or allocatory MoC

Following on from 2.1, the need for a clearly defined delegatory or allocatory MoC was an important indicator of project success (8 projects). In particular, it was important to clearly identify tasks which could be delegated. These projects also showed that professional readiness for taking on extended practice varied between practitioners.

2.3 More efficient use of the role is associated with delegating practitioners having confidence in delegation and trust in the practitioner, which comes from understanding the roles, training, and competencies of the practitioners to whom they are delegating.

Trust between practitioners was an important component of efficient delegation. This arose from having a clear understanding of the extent of training received. Lack of trust resulted in a lack of confidence in the delegating practitioner, and consequently, inefficient delegation.

2.4 More efficient use of the role is associated with allowing practitioners to work to their full scope of practice, and having structures that reinforce this.

Enabling staff to work to their full scope of practice was associated with increased efficiency (6 projects). One of the strongest examples of this was the orthopaedic podiatry triage service which enabled podiatrists to work to their full scope of practice and led to substantial reductions in orthopaedic surgery waiting lists and more efficient use of the orthopaedic surgeon's time.

Conversely, the inability or unwillingness of AHP to delegate parts of their role to others, predominantly AHAs, resulted in inefficient use of the newly created roles. These challenges were related to:

- Lack of clarity with overlapping roles.
- Lack of understanding of how to delegate, and the need for education, supervision, and frameworks to support delegation. These structures needed to be in place from the beginning of the project.
- Lack of trust in assistants and engagement with the training provided to assistants by AHPs.
- Turf protection and reluctance to let go of some tasks to a workforce perceived to be less skilled.

It was noted that the use of the Calderdale Framework assisted in resolving these challenges as it allowed AHPs to understand how they could improve their own patient care by delegating specific tasks and functions to AHAs.

3.1 Greater staff satisfaction is associated with MoC that provides for better career development opportunities.

The implementation of new MoC improved career opportunities and led to greater staff satisfaction. Surveys to measure staff satisfaction with the new MoC were undertaken in some projects as part of their evaluation processes. The following outcomes were identified:

- Development of more sustainable roles within the organisation.
- Perceived ability by allied health team members to complete more quality activities, therapy interventions and patient education, thus improving their job satisfaction.
- More appropriate task to skill matching.
- Increased sense of achievement through the learning of new skills and acquiring a broader knowledge base, particularly for AHA.
- A perception of inclusion into a multidisciplinary team.
- Improved staff morale.

However, in projects where turbulent leadership, poor recruitment to leadership roles, and an influx of junior/inexperienced staff were reported, the staff satisfaction with the new MoC was poor. These barriers overshadowed the positive impacts the new MoC may have had on team members.

3.2 Greater staff satisfaction is associated with role clarity

The data did not demonstrate a direct link between increased staff satisfaction and role clarity. However, the data did demonstrate that improved understanding and acceptance of the new roles arose, in part, through appropriate consultative processes which were reinforced through processes of role clarity. This is consistent with findings from other studies that examined role clarity issues associated with role boundaries for workplaces with multi-disciplinary teams [32]. Issues of role clarity were also upheld through union negotiations.

Better understanding and acceptance of new roles was associated with: 1) AHPs having the increased knowledge and ability to identify appropriate tasks for the proposed assistant role, 2) building trust in delegation models and a multi-professional assistant workforce, and 3) changes that resulted in more advanced AHP and advanced AHA positions being incorporated into services to improve efficiencies and reduce costs. Staff acceptance of these new roles within the teams was demonstrated in six projects with the majority of these projects being continued.

This proposition is, therefore not upheld in this context, but reinforces aspects of propositions 1.1 and 2.4

3.3 Greater staff satisfaction is associated with seeing value in / impact of the new MoC.

Appreciating the value and impact of a new role is largely associated with the new MoC being driven by a locally identified need or being driven from the bottom-up. The other main factor impacting on this is engagement. Both of these factors have been described and discussed previously under proposition 1.

3.4 Greater staff satisfaction is associated with appropriate support for the development and implementation of the new MoC.

This factor is also closely related to the importance of engagement of key stakeholders from across a multitude of levels within the organisation so is closely related to proposition 1.

4.1 Better patient outcomes are associated with greater engagement of patients in the decision making associated with their care delivery.

Few of the projects reported the patient perspective; therefore there is limited data to assess this proposition. Failure to facilitate patient engagement was highlighted in one unsuccessful project; the patients using the service did not feel that there was a need for additional services therefore did not support them.

4.2 Better patient outcomes are associated with putting the patient at the centre of the new MoC, rather than the practitioner.

This study found evidence that if patients were not involved in driving the new services then patient outcomes were less likely to be the specific focus of the project, or were not improved. In particular one project, driven from the top-down, with the goal of reducing unplanned hospitalisations in a paediatric population was not successful because the patients (parents) did not see a need for more services, therefore did not make use of the new services. Another project used a multidisciplinary team to shift the approach from professionally centred to patient centred. Some projects were focused on decreasing wait times for patient and improving patient safety; however, the outcome evaluations were generally based on the staff's perceptions that patient outcomes improved.

4.3 Better patient outcomes are associated with providing any care or service where the alternative is no service, or a long waiting list.

The data from this study predominantly related to providers and identified outcomes from the provider perspective; however, there was some empirical evidence to support this proposition. Eleven projects provided care or services where there was limited or no service provided previously. This was because long waitlists prevented service availability or due to geographic inequities in service distribution. However, because of the lack of data collected to describe outcomes from the patient's perspective, we recommend that in future workforce change projects, data is captured which focuses on the patient's perspective of new MoC.

Discussion

This project identified and tested empirically a series of propositions associated with successful workforce change. The propositions that were supported by the data are:

1. Better sustainability of a new MoC is associated with:
 - Full engagement of all key stakeholders first
 - Bottom-up drivers (rather than top-down)

- Top-down support to drive, underpin, and sustain the new MoC
 - Legislative scaffolding to reinforce the new MoC, including award and pay structures supported in industrial agreements, and ratified at the highest possible levels of government, to avoid undermining by professional boundary arguments
 - Codification of the processes, practices, and training used to implement the role
 - Powerful allies to drive the role forward
 - Implementing new MoC that are appropriate for the context (local, geographic, population, clinical, professional, and regulatory).
2. More efficient use of health practitioner roles is associated with:
- Clearly defined roles within the MoC
 - Clearly defined, understood, and unambiguous delegatory or allocatory MoC
 - Delegating practitioners having confidence in their delegation, which comes from understanding the roles, training, and competencies of the practitioners to whom they are delegating
 - Trust, derived from time and exposure to the new MoC, is important for establishing appropriate delegation/collaboration/referring practices
 - Allowing practitioners to work to their full scope of practice and having structures that reinforce this.
3. Greater staff satisfaction is associated with:
- Better career development opportunities
 - Appreciating value / impact of the role
 - Appropriate support for the development and implementation of the MoC.
4. Better patient outcomes are associated with:
- Greater engagement of patients in the decision making associated with their care delivery
 - Putting the patient at the centre of the MoC, rather than the practitioner
 - Providing any care or service where the alternative is no service, or a long waiting list.

These propositions have been further synthesised into three broad principles of workforce change:

(1) Drivers for change need to be closely linked to clinical practice and patient care. Workforce change needs to be driven by perceived or potential benefits to patients, staff and /or services at the local level.

(2) The context for workforce change must be supportive at all levels. This includes a supportive legislative and industrial environment, professional environment, and leadership and champions.

(3) Mechanisms for workforce change should include engagement of key stakeholders, access to resources to support the implementation and performance of the role, a facilitated change management process, and appropriate governance and support structures.

The first two propositions had the greatest volume of data to support them. While there was evidence to support the propositions within statements 3 and 4, they were not mutually exclusive to these domains, and tended to reinforce the statements within propositions 1 and 2. The

The strength of the evidence largely reflects the nature and volume of data collected relating to each factor. In other words, 'weak' evidence was likely to be due to a lack of available data rather than findings that refuted the propositions. We were surprised by (a) the lack of patient engagement and (b) the lack of patient focus in the projects. Consistent with the literature in this field, the majority of the projects focus on professions and changing role boundaries or developing new MoC. This focus, by definition, leads to interdisciplinary challenges and rivalry because the emphasis of change becomes the renegotiation of roles, rather than the best way of allocating care to meet the needs of the patient. The lack of a clear patient focus meant that goals were often process based, rather than outcome focussed.

This project developed and tested a novel method, Inductive Logic Reasoning, to create and empirically test theories of workforce change. This method has the advantage that it enabled us to develop and develop theories from the existing literature to create a series of propositions which were then tested empirically and transparently against a large dataset. This method aimed to address some of the limitations of the existing theory based evaluation approaches by using logic models in a transparent way to develop theories of change which can be transparently tested. The dataset incorporated a large range and volume of data sources of varying structure, content, and quality and we were able to transparently extract data against a pre-defined themes to create the initial logic model.

This study involved the analysis and synthesis of a large volume of data from a range of sources, in varying formats, and over a short period of time. The combination of the logic model and proposition development and testing appears to have been an effective and transparent way to arrive at a high level synthesis of the data, which was the goal of this study. However, in achieving that goal, we have lost a great deal of depth and detail of the raw data.

One of the challenges of the evaluation was identifying measures of success due to the heterogeneity of the projects and their large range of potential impacts. We were unable to draw firm conclusions about the outcomes of the workforce projects for reasons identified above; however, there were clear process indicators associated with project success. The nature of the evidence of change makes it difficult to draw causal relationships.

As with all research, there is the risk of researcher bias. Workforce research is highly contextually dependent and we have framed this research within the Australian health workforce context. This approach automatically biased the researchers towards certain norms. We attempted to ensure objectivity by embedding our propositions within the literature first, and then testing them empirically against the data arising from the projects; however, the research still has the Australian healthcare context as its normative setting.

The project reports used as data were not written with the expectation that they would form part of a large-scale evaluation; hence, have presented their findings in different ways. We have triangulated a

range of primary and secondary data sources from a variety of participants to try to ensure the validity of our findings.

We acknowledge that methods to empirically develop and test theories of change require further development and refinement.

CONCLUSION

The implementation of new MoC is a complex process and broad principles of change management apply. Based on the findings of this study, we developed a comprehensive Workforce Change Checklist: An Evidence Based Practice Guide for Implementing Successful Workforce Change [33] and available from the authors on request. This tool draws together the data developed in the logic model, propositions and principles in a tool to support workforce change agents, funders, and commissioners to deliver successful workforce change projects.

Competing interests

Kerry Vanniekerk-Lyons was employed as a project officer by Queensland Health and was involved in the project management of the overall Models of Care projects. Her role in this research has been to help broker access to the data, provide support for the multiple site specific research governance requirements, and provide clarification of facts relating to the data. To maintain objectivity, the remaining members of the research team, who were external to the Queensland Health MoC processes and undertook the majority of interpretation and analysis of the data and have no competing interests.

Authors Contribution

SN conceived the original project, obtained the funding, developed the methodology and was involved in the data analysis and synthesis and drafted the paper. AR was overall project manager and was responsible for much of the data management, synthesis and analysis. AM and SG were involved in the data analysis and synthesis. KV provided ethics and governance support. All authors provided input into the conceptual development and ongoing drafts of the paper.

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Table 1: The logic model and developing theories of change

Drivers	Contexts	Mechanisms	Outputs	Outcomes
Workforce drivers Workforce recruitment and retention, Skills shortages, Workforce participation rates (particularly in rural areas), Inefficient use of staff, Improved models of care, Improved quality	Support from existing workforce Support from “powerful elites”, Inter-disciplinary support, Inter-institutional support, Willingness to delegate, Organisational culture which is supportive of change.	Engagement Team buy in, Corporate sponsorship and senior management support, Medical support, Engage staff / clinicians		Workforce outcomes Working to full scope of practice, Wider uptake of role, Enhanced team processes / working, Engagement of rural practitioners, Improved relationships
Policy drivers Industrial agreements, Productivity Commission health workforce position paper, Need to meet national targets	Clarity of role definition, Supportive HR policies, Appropriate legislative scaffolding, Funding secured, Clear strategic direction, Governance structures established	Resources to facilitate new roles Sufficient funding, Data quality and compatibility, Dedicated resources and facilities, Sufficient staffing, Sufficient time, Appropriate tools to support implementation, Access to training and support, Calderdale Framework, Evidence of success from other areas (literature / other sites) and resources.	New resources to support the development and implementation of new roles, Codified processes, Training, Creation of new positions.	Service outcomes Implementation of new roles and ability to work to full scope of practice, Acceptance of new roles, Better understanding of roles, Improved service efficiencies Increased service capacity, Reduced waiting lists, Cost savings,
Population drivers Demographics of the population, Changing health needs, Changing patient expectations, Need to increase patient safety, Need to increase accessibility. Service drivers Waiting lists, Address service gaps, Improve patient outcomes, Improved efficiency of services, Meeting demand / overcoming shortages		Engagement Local engagement, Patient engagement		Population / patient outcomes Improved patient satisfaction & functional outcomes Improved pathways of care, Improved diagnostic accuracy, Improved accessibility.
	Remove strategic uncertainty Minimise disruption from organisational changes, Limit competing projects / priorities, Limit implementation of new roles in times of substantial changes.	Project management Clearly defined problem and scope, Realistic project expectations, Consistent expectations, Skilled project management, Project manager on site and connected to management and reporting structures.		Sustainability and transfer of learning, Other service redesign spin-offs, Organisational learning, Understanding the change process.

Table 2: Definitions used to develop the logic models

Concept	Definition
Drivers	The underlying motivation for the changes under review, and tend to answer the question “why is this intervention taking place”. The drivers and outcomes are important, and tend to form the ‘anchors’ for your logic model. The drivers and outcomes will normally be closely related.
Contexts	The physical, material, organisation and / or social environment in which the change is taking place. These become the enabling / disabling environments for the change to take place.
Mechanisms	Mechanisms can be a complex idea to distil on their own. Instead, we extracted the barriers and facilitators to change. Often (but not always) the barriers and facilitators are the opposite of each other, and when written as a positive statement, they become the mechanisms to support change .
Outputs	The outputs as the material or measurable products of undertaking the process or project under investigation. They tend to be tangible, countable, and relatively uncontentious products of the research and they are often the clearly codifiable components of the process.
Outcomes	Outcomes are the changes resulting from the intervention, and should be closely related to the drivers. Outcomes often require a formal process of evaluation / research to measure these in a meaningful way.

Table 3: Propositions testing

<i>Proposition</i>	<i>Proposition supported (Y/N)</i>
1. <i>Better sustainability of the model of care is associated with:</i>	
1.1. Full engagement of all key stakeholders first	Yes
1.2. Bottom-up drivers (rather than top-down)	Yes
1.3. Top-down support - Legislative support to drive, underpin, and sustain the new MoC created	Yes
1.4. Legislative scaffolding to reinforce the new MoC, such as award and pay structures, that are supported in industrial agreements, and ratified at the highest possible levels of government to avoid undermining by professional boundary arguments	Yes
1.5. Codification of the processes, practices and training used to implement the role	Yes
1.6. Having powerful allies to drive the role forward	Yes
1.7. Implementing new MoC that are appropriate for the context (including local, geographic, population, clinical, professional, regulatory contexts)	Yes
2. <i>More / less efficient use of the role is associated with:</i>	
2.1. Clearly defined roles within the MoC	Yes
2.2. Clearly defined and understood, unambiguous delegatory or allocatory MoC	Yes
2.3. Delegating practitioners having confidence in delegation, which comes from understanding the roles, training, and competencies of the practitioners to whom they are delegating	Yes
2.4. Trust, derived from time and exposure to the new model of care, is important for establishing appropriate delegation/collaboration/referring practices	Yes
3. <i>Greater staff satisfaction is associated with:</i>	
4.1 Better career development opportunities	Yes
4.2 Role clarity	No
4.3 Appreciating value in / impact of the role	Yes
4.4 Appropriate support for the development and implementation of the MoC	Yes
4. <i>Better patient outcomes are associated with:</i>	
4.1. Greater engagement of patients in the decision making associated with their care delivery	Yes
4.2. Putting the patient at the centre of the MoC, rather than the practitioner	Yes
4.3. Providing any care or service where the alternative is no service, or a long waiting list	Yes

Appendix 1 – Queensland Health Models of Care Project Summaries

Project ID	Project Name (de-identified)	Location (Rural / regional / metro)	Project Aim	Practitioner Type (if specific)
Advanced practice role for existing staff (AHP)				
1	Rehabilitation MoC project - Advanced AHP in Rehab	Metropolitan	Develop advanced AHP role	PT
2	Allied Health Clinical Lead - (Phase 1 project re-designed)	Metropolitan	Evaluate the effects of an allied health clinical lead on patient journey, flow and service integration.	OT
3	Advanced AHP trial Emergency (ER)	Metropolitan	Develop an Advanced AHP role in ER	SW, OT, PT
4	Advanced AHP trial Acute Aged Care	Metropolitan	Develop an Advanced AH role on Medical Ward	SW, OT, PT
5	Acute Medical Services Model of Care	Regional	Develop Advanced AHP role using learning from Phase 1 project	OT, SW
6	Musculoskeletal pathway prescribing	Metropolitan	Prescribing and admin of anti-inflammatory medications	PT
7	Prescribing Trial - Botox for Neurology by PT / OT	Metropolitan	Develop role for prescribing / administering Botox	OT / PT
8	Advanced AHP - Aged care	Regional	Developed advanced AHP role supported by AH assistant role	OT/PT/Psychologist
Full scope of practice				
9	Telerehabilitation (eHAB)	Regional	Integrate the use of eHAB services, delivery of services to rural clients, improve access in cost effective manner, effectiveness of techno in providing clinical support and supervision	OT, PT, Speech Pathology - rural based practitioners
10	Designing & implementing an innovative MoC in Mental Health	Regional	Develop a new service delivery model for existing clinicians; work to full scope of practice	Mental health clinicians
11	Radiography Abnormality Description	Metropolitan	Improve radiographer ability for abnormality description, improve timely reporting;	Radiographers
New Support Role				
12	AHA in internal medicine - Eat-Walk- Engage Program	Metropolitan	Trial of new role	AHA
13	Pharmacy Assistant (PA) in Renal Unit	Metropolitan	Validate use of PA to maximise patient medication understanding/ minimise medication waste	Pharmacy Assistants (PA)
14	SW Assistant Trial Project	Metropolitan	Introduce assistant role to improve patient flow and decrease job dissatisfaction	Social Work Assistant
15	Redesigning ENT care paths through Innovative audiology practice	Metropolitan	Develop assistant role	Audiology Assistant
16	Developing partnerships to improve patient journey from isolated sites	Rural / remote	Build partnerships to streamline patient journey for people with chronic diseases from isolated sites	

17	AHA Project	Metropolitan	6 different trials of 12 different assistant roles across diverse settings – hospital / community	
19	Use of AHA for service provision in rural areas	Rural / remote	Train a AHA across group of AHP to improve service provision	General AHA
18	Advanced AHA - rural outreach model	Rural / remote	Develop a role to support rural / remote practitioners	AHA - Chronic Disease
Other - Educational (AHP)				
20	AHP / student partnership - in chronic disease management	Regional	Improve access for patients	Students - Dietetics, Exercise Physiology, OT, Podiatry, Pharmacy, SW
21	Student assisted clinic in Child Development Clinic	Regional	Feasibility of student clinic model for child development clients	Psychology
22	Clinical Measurement Practitioner	Regional	Develop a graduate program for sleep sciences, respiratory, cardiac and neurology services ; Define graduate competencies	Clinical Measurement Practitioner
Service - Role Redesign				
23, 24	High Intensity Aphasia Clinics	Metropolitan	Trials three methods of increasing intensity of aphasia services	Speech Pathology
25	Advanced AHP in persistent pain management	Metropolitan	Re-design of clinic services	PT, OT, Psych
26	Teleradiography	Metropolitan / Rural	Trial of supervision of licensed operators using telehealth	Radiography
27	Allied Health Supportive Care Initiative (Palliative care)	Metropolitan	Improve AH support for Advanced Care planning	PT, OT, SW, Pharmacy, Dietitian, AHA
28	Paediatric Outpatient service delivery	Metropolitan	Improve wait time, simplify referral process, enhance info flow, reduce duplication	Multi-disciplinary team
29, 30	Allied Health Coordinated Respiratory Outpatient Support Service (ACROSS)	Metropolitan	Improve health outcomes for children with chronic conditions	Nutrition/Dietetics, OT, PT, Pharmacy, SW
31	Hospital to Home Outreach for Malnourished Elderly	Metropolitan	Identify barriers and enablers to new MoC. Refocus dietitians time for increased discharge planning and post hospital follow up by partnering with, training and supporting community service providers,	Dietitian - community agencies/support workers
32	AH Assistant	Metropolitan	Developed roles with new or higher level tasks	Nutrition/Dietetics, OT, PT, Speech Pathology
33	Rural Remote outreach - Central West - Advanced AHA in rural health	Rural outreach	Explore development of advanced role using telehealth	AHA
34	AHA	Rural / remote	Support existing professional staff, provide more consistent & cost-effective services to all communities	Multi-disciplinary AHA
35, 36	Medical Imaging Assistant (MIA)	Metropolitan	Develop career pathway, tasks and education for MIA	Medical Imaging
Service -Role Re-design/ Advanced level role for existing support staff (AHA)				

37	New Models of pharmacy practice, Pharmacy Assistants roles	Rural / remote	Expand scope of PA to be in line with overseas countries	Pharmacy tech / assistants
38	New Models of pharmacy practice, Pharmacy Assistants roles	Metropolitan	Expand scope of PA to be in line with overseas countries	Pharmacy tech / assistants
39	Advanced AHA in management of diabetes & renal disease	Regional	Develop and trial an appropriate and sustainable MoC for managing aspects of chronic disease including development of an AHA role	Podiatry, Dietetics
40	Occupational Therapy service re-design - medical wards / Community	Regional	Service re-design to provide in-reach to hospital from community - OT assistant in hospital / OT in community	OT/OT Assistant
Transprofessional/ Integrated - skill development (AHP)				
41, 42, 45, 46	Rural Generalist AHP	Rural / remote	Create a rural generalist AHP role - own discipline then pick up skills from other disciplines, e.g. OT / PT ; Transprofessional practice / shared competencies	PT, OT, SW, Pharmacy, Dietitian
43	Allied Health (AH) service to ER through mobile AH Team in-reach	Rural / remote	Used Calderdale Framework to develop shared competencies and delegated practice	Allied health team
44	New MoC for Community Rehab services	Rural / remote	Transprofessional care support for self-management models for chronic disease	AHP
Triage / Treatment (AHP)				
47	General Paediatrics AH Screening Service	Metropolitan	Screening and intervention service	AHP
48	Orthoptist led Ophthalmic Clinic	Metropolitan	Screening and intervention service	Orthoptist
49	Oral Health Service for Adults with diabetes mellitus	Metropolitan	Improve oral health care to patient with diabetes mellitus	Oral Health Therapist, Dentists
50	Paediatric Podiatry	Regional	Study to determine need for statewide paediatric podiatry clinic	Podiatry
51	Virtual Foot Ulcer ER Services	Metropolitan	Feasibility of podiatry services in ER	Podiatry
52, 53, 54	Orthopaedic Podiatry Triage Clinic (OPodTC)	Metropolitan	Manage non-urgent foot problems with conservative interventions; Phase 2 - statewide implementation	Podiatry
55	Persistent Pain Advanced AHP - Pain Clinic	Regional	New clinic - triaging / assessing - taking on larger role with advanced Scope of practice	PT, OT, Psych
Did not participate	Neurological screening for spinal pain	Metropolitan	Improve timely access, decrease waitlists, develop a non-surgical pathway, improve patient and provider satisfaction	PT, pharmacy, dietitian, OT, psychologist
Did not participate	Pathology, Forensic & Scientific services	Statewide	Training of 3 new roles - Analytical assistant, Cross-trained specimen collection / reception officer, operational staff supervisor	Laboratory staff
Did not participate	Exploring rights to private practice - Paediatric Therapy services	Regional		
Did not participate	Dietetic led Gastroenterology clinic	Metropolitan	Triage of patients for Gastro-Enterology consultant	Dietitian

Appendix 2 Summary of Project Outcomes

	YES	NO	Comment
Projects that were successful	11(1 site), 12, 13, 14, 16, 17, 19, 20, 23/24, 26, 27, 28, 32, 37, 38, 39, 48, 49, 51, 52-54	3, 4, 7, 9, 10, 11(1 site), 29, 35, 36	• 2 projects from phase 1 failed but moved into phase 2 as re-designed projects; • Phase 2 projects still underway; • Technology challenges, lack of staffing; • Ahp resistance to expanded aha role (turf protection); • Project did not have a identified patient need
Projects that were sustained	11, 12, 13, 14, 16, 17, 23/24, 20, 27, 28, 32, 48, 52-54	19, 26, 34, 37, 38, 39, 49, 51	• Sustainability dependent on demonstration of efficiencies & cost savings, new funding source needed for continuation; • Issues with staff retention, generic role too broad, need to focus on only 1-2 disciplines; • Some projects never designed to be sustained; • More training required for advanced assistant roles; • Supervision and training issues; • Appeared very successful but discontinued due to lack of executive support; • Scoping for project only, no funding
Projects in progress	1, 2, 5, 6, 8, 15, 18, 25, 40, 41, 43, 44, 46, 47, 51, 55		
Projects that were replicated	12, 13, 14, 23/24, 48, 52 – 54		• Expanding to other wards; • Planning to expand across state; • Trying to be replicated at 12 sites; • Planned expansion

Appendix 3 Proposition Summaries and Supporting Evidence

Proposition 1: Better Sustainability of Model of Care is associated with:

Factors influencing sustainability	Projects with positive evidence supporting proposition	Refuting data	Evidence / Comments
1.1 Full engagement of stakeholders	1, 2, 5, 11, 13, 48, 52, 53, 54, 12, 14, 16, 17, 19, 32, 37, 38, 27, 44, 20, 28		<i>Calderdale Framework</i>: Use facilitated sustainability and was found helpful <i>Stakeholders</i>: Stakeholder analysis undertaken – to identify potential facilitators/barriers and work done to enhance /alleviate; training, involvement & integration of key stakeholders very important (e.g. medical, nursing, AHS, health information, educators); success requires significant involvement, engagement and understanding from large number of stakeholders; stakeholders need to understand the difference between advanced scope and expanded scope; need for clear communication with all stakeholders re barriers; too many competing priorities prevent key stakeholders from investing necessary time in new MoC; Expanded scope roles are more difficult to enact; AHP need to support the full use of AHAs; Newer AHPs more receptive, enthusiastic and creative; New MoC need to be supported by clinical staff and have an identified ‘patient problem’ that they are to address (if staff /patients don’t think there is a need, the new MoC won’t succeed);
1.2 Bottom-up drivers	1, 2, 10, 39, 52, 53, 54, 17, 23/24, 31, 49, 5		Projects more successful if driven from quality of care and workplace pressures issues; Bottom-up drivers need top-down support; Bottom-up driver created ownership of new MoC; Most projects had top down drivers to define Scope of practice, reduce costs, increased quality of patient outcomes; Role needs to be designed with input from local AHPs; Most successful changes in services/roles were bottom-up driven.
1.3 Top-down support	2, 5, 13, 25, 47, 48, 14, 19, 23/24, 27, 20		Supported at state and federal level with funding; Support for new MoC required from top levels of hospital/ health district; Executive sponsor strongly active in guiding projects (lack of executive support – new MoC discontinued); Early focus on identification of potential resources to continue new MoC; Funding not available to continue new MoC
1.4 Legislative “scaffolding”	1, 5, 14, 51		Current regulation can prohibit new MoC/ Recognised need for regulatory changes; Legislative changes need to be undertaken first; Negotiations needed with unions and regulatory bodies; Need for national standards for roles;

1.5 Codification of processes, practices, training	1,5, 6, 11, 18, 32, 52, 53, 54, 55, 12, 14,15, 18, 37/38, 55, 20		New practices should be codified through development of role descriptions, short courses with formalised credentials developed, and policy framework to support all these processes; Clearly defined scope of practice ensured robust measurements of success of new MoC; Need for scope of practice, role statements/ boundaries to be defined and endorsed by all; Governance model developed; Training packages developed; Training AHA roles can be time consuming for AHPs, do not expect to be done on site by AHPs; Need for consistent standards, titles, remuneration for AHA roles; Need to define differences between basic scope, full scope and advanced scope AHA roles; Processes fully documented.
1.6 Powerful allies	11, 32, 48, 52, 53, 54, 19, 32, 27, 55, 20		Success or failure of project can be related to degree of medical / nursing support; Support from medical champions; AHPs resistant to development of career progression for AHA roles when they do not have their own career progression.
1.7 Appropriate for context	1,5, 48, 14, 15, 16, 19, 26, 20		Environment too complex to enact extended scope of practice role when other supports are not present; Generalist roles in rural areas more difficult to maintain due to recruitment, training, supervision concerns; New MoC need to meet individual community needs; AHA roles easier to establish in urban areas; Site/local ownership of new role important for success of MoC; Equipment, training, and support needs to be appropriate for context; Fear of change; Organisation needs to be ready for change; Don't try to take on too much change at one time; Used to assist future recruitment to rural areas.
Other	6		Liability concerns factor in project failure Need for many agreements when change involves community based individual practice owners Supervision issues – framework for supervision helpful

Proposition 2: More / less efficient use of the role is associated with:

Factors influencing efficiency	Projects with positive evidence supporting proposition	Refuting data	Evidence / Comment
2.1 Clearly defined roles	1, 5, 12, 13, 14, 15, 16, 17, 25, 32, 37, 38, 39, 46, 52, 53, 54, 55		Role description and training needs identified, including training manuals need to clearly defines roles; Use of Calderdale Framework improved role definitions and identified trans-disciplinary tasks; Administrative & clinical support roles need to be defined separately; Negotiated partnerships improve role clarity; Role / turf protection can occur; Defining the meaning of full scope versus advance scope important - how scope of practice is defined can limit use / expansion of the role; Improved role definitions can lead to role reclassification and improved remuneration; Lack of professional experience impeded clear role definitions; Time spent understanding current roles leads to clearer descriptions of new roles (limited time prevents roles from being appropriately defined); Teamwork required to scope, purpose and positioning of interdisciplinary AHP roles; Role defined early in development of new MoC; Stepping outside of own discipline can be challenging.
2.2 Clearly defined and understood MoC (Bottom-up drivers)	1, 5, 12, 14, 16, 17, 23/24 32, 47, 48, 52, 53, 54		Tasks for delegation identified; Professional readiness for taking on extended roles varies between practitioners; Role underutilized due to resistance to new AHA role; AHA role to utilise more technology so less supervision is required; Roles lacked clear understanding of scope of practice; Lack of experience impacted on success with new MoC; Top down support for new MoC enhanced bottom-up drivers; Transprofessional MoC still in trial – limited results available.
2.3 Delegating practitioners have confidence in delegation	5, 14, 23/24, 48, 52, 53, 54	7, 8, 11	Lack of confidence in delegation of clinical tasks; Need to have credentialed practitioner to support delegation of clinical duties; Instigation of formal governance arrangements help with delegation; Supervision and delegatory frameworks improve confidence in delegation; Transprofessional MoC still in trial – limited results available.
2.4 Trust based on time and exposure to new MoC	5, 14, 23/24, 48, 52, 53, 54	3/4, 7, 32	Despite time in the role trust with some AHA roles did not improve; Lack of support-> lack of trust; Transprofessional MoC still in trial – limited results available.
2.5	13, 14, 31, 44, 46, 48,	3/4, 34	Support staff encouraged to work to full scope and

Practitioners allowed to work to full scope of practice	52, 53, 54		therefore minimise duplication of services; Executive level support to work to full SoP; Increasing demand for services supporting working to full scope; Support from medical champions; AHP did not have confidence in roles that cross professional boundaries; Allowed time of other practitioners to be re-prioritised Transprofessional MoC still in trial – limited results available.
Other		11	Concerns re risk of delegation to uncertified practitioner

Proposition 3: Greater staff satisfaction is associated with

Factors influencing staff satisfaction	Projects with positive evidence supporting proposition	Refuting data	Comments / Evidence
3.1 Better career development opportunities	2, 5, 16, 25, 32, 35, 36, 44, 46, 48, 50, 52, 53, 54, 55		Advancement opportunities enhanced (leadership roles); Advanced AHA were “keener” on roles than AHP, believed they lead to increased career opportunities; New leadership positions created; Rural generalist role enhanced sustainability of AHP services in community (development of HP5 level role); Potential for improvement in recruitment and retention
3.2 Role clarity	32, 52, 53, 54		Multiple recruitments / large amount of sick leave indicative of high level of stress
3.3 Seeing value / impact of role	8, 9, 11, 14, 15, 16, 17, 19, 23/24, 27, 32, 37, 38, 46, 52, 53, 54		Medical staff see value in role; Surveys indicated staff and stakeholders found value in new role; New access to technology appeared to provide staff satisfaction; Surveys indicated staff valued new services; Enhanced collaboration between staff in rural /remote areas; Staff recognising the importance of working together and intervening earlier with patients; Development of skills that are transferable across sites in rural areas
Appropriate support for development/ implementation of role	1,2,5, 9, 13, 14, 15, 16, 18, 19, 23/24, 27, 32, 39, 44, 46, 48, 50, 52, 53, 54, 55		Active support provided for role developments; Associated training programs enhanced staff’s ability to provide patient centred care; Staff surveys indicate high level of support for new role; Surveys indicated staff found satisfaction with new services; Improved staff integration

Proposition 4: Better outcomes are associated with:

Factors influencing patient outcomes	Projects with positive evidence supporting proposition	Projects with negative evidence supporting proposition	Comments / Evidence
4.1 Greater patient engagement in decision making	13, 15		Few of the reports had a patient focus or reported a patient perspective
4.2 Patient-centred MoC	10, 13, 15, 16, 18, 28, 29/30, 35, 36, 39, 44		Decreased wait times for patients improved patient safety; MoC developed based on consumer need, however no follow-up study done to confirm effectiveness; Teamwork created a shift from professional centred approach to patient centred
4.3 Providing any care or service where the alternative is no service	1,8, 9, 14, 16, 17, 18, 19, 23/24, 25, 27, 31, 32, 46, 47, 48, 49, 52, 53, 54		Creation of AHA role increased access to care; Increasing demand has created a situation where little to no service is available to many patients
Other	11, 13		Project identified gaps in the current systems that could provide potential risks for health care system; Improved patient safety, addition of AHA role allowed increased direct patient care to be provided by AHP. .