Shaw Bridget (Orcid ID: 0000-0002-8139-1001)

Title:

Advanced musculoskeletal physiotherapy: barriers and enablers to multi-site implementation

Short running title: Implementation in advanced physiotherapy

Author names and affiliations: Bridget R. Shaw,¹ Sophie E. Heywood,^{1,2} Carolyn J. Page,¹ Uyen M. Phan,³ Paula A. Harding,⁴ Kerrie Walter,⁴ Desiree L. Terrill⁵, Catherine Granger,^{3,6}

1 Department of Physiotherapy, St Vincent's Hospital (Melbourne), 41 Victoria Parade, Fitzroy, Vic. 3065, Australia

2 University of Sunshine Coast, 90 Sippy Downs Drive, Sippy Downs, Queensland 4556, Australia

3 Department of Physiotherapy, Royal Melbourne Hospital, Grattan Street, Parkville, Vic. 3052, Australia

4 Department of Physiotherapy, The Alfred, PO Box 315, Prahran, Vic. 3181, Australia.

5 Health and Wellbeing Workforce Reform, Department of Health and Human Services, 50 Lonsdale Street, Melbourne, Vic. 3000, Australia

6 Department of Physiotherapy, The University of Melbourne, 161 Barry Street, Parkville, Vic. 3010, Australia

Corresponding author details:

Name: Ms Bridget Shaw

Postal Address: Department of Physiotherapy, St Vincent's Hospital (Melbourne), 41 Victoria Parade, Fitzroy, Vic. 3065, Australia

Email address: Bridget.Shaw@svha.org.au

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ORCID: orcid.org/0000-0002-8139-1001

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6 Department of Physiotherapy, The University of Melbourne, 161 Barry Street, Parkville, Vic. 3010, Australia

Corresponding author details:

Name: Ms Bridget Shaw

Postal Address: Department of Physiotherapy, St Vincent's Hospital (Melbourne), 41 Victoria Parade, Fitzroy, Vic. 3065, Australia

Email address: Bridget.Shaw@svha.org.au

Telephone number: Tel: +61 3 9288 3805; Fax: +61 3 9288 3825

ORCID: orcid.org/0000-0002-8139-1001

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MAIN TEXT FILE

Title: Advanced musculoskeletal physiotherapy: barriers and enablers to multi-site implementation

Abstract:

Rationale: Advanced musculoskeletal physiotherapy (AMP) services are a safe, effective model of care, but without broad scale healthcare implementation to date. **Objectives:** To identify the barriers and enablers to implementation of 12 AMP services from the perspective of clinical staff.

Methods: Qualitative study. 12 participants (physiotherapists) from 12 different healthcare networks (seven metropolitan, three regional, two rural) were included. These services implemented advanced musculoskeletal physiotherapy services (orthopaedics postoperative joint replacement review n=10, general orthopaedics n=1, emergency n=1 and neurosurgery n=1) over a 12 month period. Participants completed a structured survey specifically designed for the study. Thematic analysis was used with themes mapped to the validated Theoretical Domains Framework. **Main**

results: Nine major themes regarding barriers and enablers to the implementation of the advanced musculoskeletal physiotherapy services from the perspective of clinical staff emerged from the data. These were: demand/capacity; model of care; the organisation; stakeholders; communication; planning and processes; evaluation; workforce; and learning and assessment framework. Important enablers included engagement and buy-in from key stakeholders and medical staff, and well-established advanced musculoskeletal physiotherapy learning frameworks for training and operational frameworks. Barriers included competitive funding environment, and issues that hindered effective communication. The knowledge, skills, availability, motivation and experience of the advanced musculoskeletal physiotherapists had a large impact on the implementation.

Conclusions: This study has identified a number of factors that should be considered for successful

implementation of advanced musculoskeletal physiotherapy services across healthcare services or wider healthcare networks.

Key words: advanced musculoskeletal physiotherapy; implementation; barriers; enablers.

Introduction

Over the past decade, experienced advanced musculoskeletal physiotherapists, with additional training, have delivered clinical services that include roles traditionally performed by medical specialists. In this advanced musculoskeletal physiotherapy (AMP) model of care these physiotherapists conduct primary contact assessments, initiation and interpretation of investigations, differential diagnosis, communicating diagnosis, and develop suitable management plans, such as fast track referral for surgical review, fracture management, discharge and consulting with medical staff as needed (Ashmore, Smart, O'Toole, & Doody, 2014; Stute et al., 2017).

The AMP service model of care has been implemented across a broad range of specialities in public hospitals with emerging evidence for improved cost efficiency (Comans, Raymer, O'Leary, Smith, & Scuffham, 2014; PwC, 2015). Positive outcomes of effectiveness outcomes included improving access through reduction in wait times and improved patient flow (Bird, Thompson, & Williams, 2016; J.Razmjou et al., 2013; K. Samsson & Larsson, 2014; J. Thompson, Yoward, & Dawson, 2017) and high levels of patient satisfaction. AMP services are a safe model of care (Sutton, Govier, Prince, & Morphet, 2015; J. Morris et al., 2015; PwC, 2015). Advanced musculoskeletal physiotherapists are able to work autonomously (Ashmore et al., 2014; de Gruchy et al., 2015; Razmjou et al., 2013; and decrease the numbers of non-surgical patients seen by surgeons (Large et al., 2014; O'Farrell et al., 2014; Wood et al., 2016). These outcomes are important in the current climate of increasing

demands for outpatient specialist medical appointments and the resultant delay in access to outpatient care and poorer health outcomes (Travis, 2015; Victorian Government, 2015).

Usually advanced musculoskeletal physiotherapists are preferred to have post-graduate (Masters) qualifications in musculoskeletal physiotherapy and have undertaken work based training within their health service (Harding, Prescott, Sayer, & Pearce, 2015). Within health services with existing AMP services, experienced and qualified musculoskeletal physiotherapists have a pathway to achieve full advanced practice competency, supported by a competency based training and assessment framework leading to credentialing (Department of Health, 2014a). This has resulted in formation of a capable workforce which has further potential to improve patient outcomes and the efficiency and cost effectiveness of service delivery (Chang, Gavaghan, O'Leary, McBride, & Raymer, 2017).

AMP services are often implemented inconsistently, in isolation and generally in larger healthcare networks. This study was based on an opportunity for larger scale implementation of multiple new AMP services. These new services planned to use a standardised competency pathway and to be sustainable and embedded as routine care in a diverse selection of hospitals including in rural and regional areas (Travis, 2015). The services included physiotherapy led neurosurgery screening clinics, soft tissue injury review clinic, primary contact physiotherapists in emergency, and post arthroplasty review clinics. These new AMP services were shown to be a safe, cost-efficient model of care that improved patient access and quality of care (Harding et al., 2017). However, to maximise the potential success of wider implementation, we were interested in clinicians' perspectives on successful implementation. Therefore, the objectives of this study were to explore the barriers and enablers of this large-scale implementation of AMP services from the perspective of clinical staff.

These data are of great value to inform the success of translation of evidence into practice across different services in an efficient and sustainable manner.

Methods

To address the research objectives, a qualitative study design was used. The rationale underpinning the use of qualitative methods was to explore staff experiences and gain insight into their attitude and perceptions. This design enabled staff to provide their views in their own words rather than constraining them to terms imposed on them by others (Tong, Sainsbury, & Craig, 2007). The philosophical approach utilised was Pragmatism, utilising the concepts of experience, inquiry into the present situation, meaning, consequences and focussed by solutions that inform where we want to go in the future (Cherryholmes, 1992; Elkjaer and Simpson, 2011). The consolidated criteria for reporting qualitative research (COREQ) guidelines (Tong et al., 2007) were followed to conduct and report this study.

Ethics, consents and permission

Ethical approval was obtained (Alfred Hospital Human Research Ethics Committee, Project Number: 420/14). All participants provided informed consent.

Study design, clinician selection and setting

The methodological orientation and theory underpinning this study was content analysis (Hsieh & Shannon, 2005). Participants were selected using purposive sampling (Portney & Watkins, 2000) based on specific criteria to ensure the sample included the key staff working at each of the 12 sites

where the new service was implemented. Participants were eligible to be included if they were a physiotherapist managing or working clinically in a newly implemented AMP service.

Implementation of the AMP services

Healthcare networks were selected as implementation sites based on the following criteria: clear need for the new service; support of key stakeholders; achievable aims and objectives for the service model; organisational commitment to sustainability and capacity to adopt the AMP model of care and undertake the AMP Clinical Education Framework (CEF) (Department of Health, 2014a) and the AMP Operational Framework (Department of Health, 2014b). Thirteen AMP services were implemented at 12 healthcare services over approximately a 12 month period (June 2014 to June 2015). All participating health networks attended four separate training days. Sessions included introduction and training in previously developed AMP frameworks and discussion of evaluation, enablers and barriers (Department of Health, 2014a, 2014b; Harding, Prescott, et al., 2015). The AMP CEF provides service specific competency-based training and assessment criteria and recommendations for staff training and competence (Department of Health, 2014a). A project lead group was established by DHHS to facilitate the AMP implementation program to provide governance and support. This consisted of clinical experts from three major metropolitan hospitals with embedded AMP services and representatives from the DHHS, who also provided a direct link between policy and clinical practice. Regular communication was established between lead sites and implementation sites throughout the program duration. The sites determined their own cost models, patient inclusion criteria for entry into the service, and local processes, with mentoring support from lead sites to optimise a consistent and proven approach. The effectiveness on patient outcomes of the new model was recently published (Harding et al., 2017; Harding, Walter, et al.,

2015; PwC, 2015) with the new AMP services shown to be a safe and cost-efficient model of care that improved patient access and quality of care compared to traditional models.

Data collection

To collect qualitative data on the barriers and enablers to the implementation of the AMP services from the perspective of clinical staff a structured survey schedule was utilised. In the absence of a validated questionnaire designed for this purpose a survey was developed by the project leaders and used open questions with free text as considered suitable for exploring individual beliefs and views (McColl., et al 2001) (Appendix 1). The same survey schedule was used for all participants. The surveys were administered via email using a report format and completed over one month (May 2016), which was 9-11 months following implementation of the AMP services. Characteristics of participants were obtained including years worked, education level, classification of workplace and role (Table 1).

Qualitative data analysis and reporting

All survey responses were de-identified. Content analysis methodologies were used to analyse text of each response (Hsieh & Shannon, 2005). Two researchers (BS, SH) independently performed data coding and thematic analyses. Data were analysed using line-by-line analysis and assigning codes to key thoughts and ideas. Both data coding and thematic analysis were cross-checked and discrepancies resolved by discussion or a third researcher if needed (CG). No software programs were used. Following agreement of the coding, codes were then sub-themed and matched to domains within the Theoretical Domains Framework (Cane, O'Connor, & Michie, 2012; Michie, van Stralen, & West, 2011) and to the category of an 'enabler' and or 'barrier'. Sub-themes were refined

until there was consensus between the three researchers (BS, SH, CG). The Theoretical Domains Framework includes three main components: capability, opportunity and motivation (Cane et al., 2012; Michie et al., 2011). Capability refers to the capacity to engage in the behaviour; motivation refers to brain processes that energise and direct behaviour; and opportunity refers to factors external to the person/clinician that act as a barrier or enabler to the behaviour (Cane et al., 2012; Michie et al., 2011). This framework is a valid and commonly used method to assess implementation problems in clinical services (Cane et al., 2012; Michie et al., 2011).

Results

Twelve physiotherapists, one from each site, were eligible and agreed to participate. All participants completed the study. There were 7 males and 5 female participants (Table 1). They had a median [interquartile range] of 13 [7 – 15] years of physiotherapy experience. The 12 participants were from the 12 different healthcare networks (seven metropolitan, three regional and two rural health services). Prior to implementation, nine of these sites (n=9 participants) had other existing AMP services; whereas three sites (n=3 participants) implemented an AMP service for the first time. The majority of the implemented models involved delivery of clinical services in roles traditionally performed by medical doctors in orthopaedics postoperative joint replacement reviews (n=10, 76%), with the remainder in orthopaedics (n=1, 8%), emergency (n=1, 8%) and neurosurgery (n=1, 8%).

INSERT TABLE 1

Nine major themes regarding barriers and enablers to the implementation of the AMP services from the viewpoint of clinical staff were identified from the data. These were: demand/capacity; model of care; the healthcare organisation; stakeholders; communication; planning and processes; evaluation;

workforce; and learning and assessment framework. Among the major themes, there were 36 sub-themes considered to be enablers and 19 sub-themes considered to be barriers. These major themes and sub-themes are discussed below, and presented in Table 2 mapped to the Theoretical Domains Framework (Cane et al., 2012; Michie et al., 2011).

INSERT TABLE 2

Demand and Capacity

Participants felt that motivation to implement the AMP service came from the high levels of demand and poor patient access to Specialist Clinic services in their workplaces. *“[The] high demand on orthopaedic specialist clinics and [the] system difficulty in catering to urgent new assessments”(P12) and, “the exponential growth in demand for these services” (P6).* Participants described the service was a *“solution to the ongoing concerns around access and difficulty scheduling new patient appointments with surgeons”(P6).* These factors were described as important facilitators for implementation.

Model of Care

The advanced musculoskeletal physiotherapists were highly motivated to improve patient outcomes using the new AMP model of care. They described the need for a clear AMP scope of practice to minimise risk and felt that having a clear scope of practice supported the creation of an efficient model of care. *“Following successful initial implementation of the project for the uncomplicated pathway, we can now review pathway model and define more concisely a pathway for patients defined as more complicated, or perhaps at risk of becoming complicated”(P2); “AMP is continually aware of scope of practice and able to articulate exclusion criteria to nursing and medical staff”(P7).*

The best/most sustainable perceived model of care was achieved with engagement of medical staff in its refinement; *“the full orthopaedic team [were] involved, along with their endorsement of the model of care and their participation” (P4)* . One participant described holding *“formal meetings with medical director and legal counsel to ensure the model of care minimised risks associated with reviewing arthroplasty” (P11)*.

The Organisation

The organisational environment was a key factor in success of implementation. In particular, support from the Hospital Executive Staff was seen as a vital enabler for ongoing success of the service and their buy-in was believed to be associated to potential hospital benefits as a consequence of the new service. *“The most important outcomes for the executive directors included reducing costs, improving efficiency and improving access for patients” (P11)*. Support from the Directors of Allied Health, Directors of Outpatients and Surgery and responsible Executives were also facilitators. Having a clear and comprehensive clinical governance structure was an enabler. However, one participant described problems within their organisation with restricted organisational imaging (Xray) approval for the AMP role which impacted on the efficiency of their model of care. *“Advanced musculoskeletal physiotherapists [were not able] to request suitable imaging for their own patients” (P4)*. No other organisation had this restriction. Funding was significant barrier for many services due to the *“budget bid process...is an extremely competitive process” (P2)*. This uncertainty restricted longer term planning and sustainability of the service.

Stakeholders

Contrasting views emerged from participants regarding stakeholders in the 'motivation' and 'opportunity' domains. Broadly, strong established stakeholder support, good relationships and early open dialogue were enablers. *"The greatest enabler is having good relationships with and support from stakeholders"*(P8). Medical stakeholders' knowledge of the advanced musculoskeletal physiotherapists and AMP services over the period of the implementation enabled the AMP clinic to evolve. *"Early relationship building and liaison with key stakeholders is important significantly prior to any attempt at establishing a clinic"*(P9). Some services identified challenges with medical staff including difficulty with agreement amongst specialists, poor understanding of the service from junior medical referrers and, on occasions, limited confidence in advanced musculoskeletal physiotherapists' competence. *"Agreement to [the] model amongst groups of Visiting Specialists can be challenging. This may be easier in an organisation who has Organisation employed Craft group lead"*(P2).

Communication

Communication was perceived as both barrier and enabler in all three major domains of capability, opportunity and motivation. Advanced musculoskeletal physiotherapists with strong communication skills were a capability enabler. *"The individual attributes of a clinician in regards to skill level and communication style impact on the success of the role"*(P6); *"Planning a good communication strategy that is appropriate for the audience you are addressing and commence early. A successful communication strategy hinges on staff being clear in regards to the aims of the initiative and how these aims benefit the key parties involved"*(P6). Changes to physiotherapy staffing created challenges for communication, especially for communication with medical stakeholders. Regular scheduled communication with key stakeholders assisted with learning, and with development and

refinement of the new service. Participants reflected that it was important to *“gain feedback early regarding clinic systems to ensure consistency across multiple clinicians”(P12)*. Regular communication with other similar services for support, sharing ideas and lessons learnt was also seen to be beneficial. *“I have been able to meet continuously with our stakeholders to learn from, develop and refine the service”(P8)*.

Planning and processes

Adaptability and flexibility of approach was identified as an enabling capability for the advanced musculoskeletal physiotherapist implementing the new service. A number of planning and process factors impacting the opportunity domain were reported. *“Importance of planning and making sure your local systems and processes are clear, set-up and robust”(P5)*. Allocation of space for the clinic was a barrier but a clear referral process was an enabler. Other facilitators in the implementation of the service included initially restricting capacity to allow for refinement of processes needed to support the clinic. *“Plan a build-up, don’t attempt to implement at full capacity – without doubt there will be teething issues that will take some time to iron out, and plenty of learning experiences that will guide the refinement of the service”(P1)*. Allocation of time and support for planning and administration with specified timeframes for milestones was also recommended as an enabler for the initial implementation; *“having a thorough, detailed plan in place with specified timeframes for tasks prior to set up and implementation will help things run more smoothly”(P1)*.

Evaluation

Participants believed that data collection to monitor and improve performance was essential. *“[Data collection should be] regular and ongoing... there will always be ideas and areas for*

improvement”(P1). *“Review data to establish issues and how to refine them into an efficient model of care”(P12)*. However, it was also identified that benchmarking between health services is challenging due to difficulties accessing meaningful and comparable individual organisational data. *“In a multi centre trial such as this it is important to have consistency” (P2)*.

Workforce

Contrasting views emerged from participants depending on their local experience. Some services experienced challenges related to availability and recruitment of appropriately qualified staff; *“[lack of] availability of appropriately qualified staff, recruitment of appropriately qualified staff.... are all barriers” (P1)*. Others had a pool of appropriately skilled physiotherapists from within and outside of their health service to draw from and multiple staff willing to take on the role to advance their own knowledge and skills. *“Diligent and dedicated advanced musculoskeletal physiotherapists driving [the service]”(P2)*. Creating a team of advanced musculoskeletal physiotherapists within the health network supported by a senior AMP leader was identified as facilitator, as was experienced clinicians to drive the service and implementation on the ground; *“team of highly skilled and motivated Advanced Practice Physiotherapists working in a number of well-developed and successful roles that make this area of work seem very appealing to other musculoskeletal staff members both internal and external”(P6)*. Succession planning was described as being an important enabler for sustainability; having a *“large team of physiotherapists with interest in musculoskeletal and AMP services”(P9)*. Other workforce barriers identified by advanced musculoskeletal physiotherapists included their high workload; high stress associated with workplace assessments with consultant medical staff; conflicting priorities with implementation; high clinical load; and staff turnover.

Clinical Education Framework

Participants expressed a number of beliefs about the Clinical Education Framework which was used in the implementation of the services. The framework was noted to create a clear standard of training and assessment for credentialing of advanced musculoskeletal physiotherapists which was adaptable to the individual clinician and health network, and in turn gave the clinician confidence in their skill level. *"The framework is incredibly detailed and specific and provides a good structure to identify strengths and weaknesses of a variety of clinicians' experience and expertise."*(P9); it *"provides known standard of competency across the state for facilities looking to implement AMP services and for facilities looking to employ clinicians who have previously completed credentialing process"*(P7). However, the high time commitment required for learning was perceived as a barrier for many people who were time poor. It was also perceived that the learning modules were complex, lengthy and repetitive. The need for organisational recognition of the time for training requirements was noted. *"The main challenge was the time to undertake the tasks for the learning and then also the timing to schedule and conduct relevant [competency] assessment"*(P4). The involvement of senior medical staff to assess the advanced musculoskeletal physiotherapist's competency was described positively and was seen to build the confidence of the advanced musculoskeletal physiotherapists; however, challenges were described in the restricted time of senior medical staff to conduct these formal assessment tasks. In addition, the question was raised about the difficulty in determining when independent practice is achieved by the advanced musculoskeletal physiotherapists. Mentor sites were described as invaluable for advice with clinical education and provided support for the training program. *[This implementation] "emphasised the importance of competency achievement and was supported by a mentor site making it a success"*P11.

Discussion

Implementation of evidence into healthcare practice is important but challenging (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012; Z. S. Morris, Wooding, & Grant, 2011; Woolf, 2008). AMP workforce innovation implementation is often inconsistent (Philip, 2015). Our study evaluated the barriers and enablers to implementation of AMP services following the coordinated and supported implementation and roll-out of 12 new AMP services in Australia. The barriers and enablers span a number of complex areas including capacity and demand, model of care, organisation, stakeholders, communication, planning, evaluation, workforce and competency training and assessment. These advanced practice physiotherapy enabler and barrier themes are not dissimilar to those of previous research. A recent qualitative study of a range health professionals found the main barriers to be legislative, workplace cultures, competition regarding roles, workforce and funding impacted on sustainability (Wiles & Milanese, 2016). A qualitative investigation of a number of different health professionals involved in one Australian hospital AMP service made recommendations for guiding sustainable extended scope of physiotherapy practice implementation. These were proactively addressing credibility, marketing, concerns, quality and safety, outcomes, training, recruitment and support (J. Morris et al., 2014). In a mixed methods study examining satisfaction in multi centre Irish advanced musculoskeletal physiotherapists relationships with medical teams and educational opportunities were primary themes (O'Mahony & Blake, 2017). The themes found in this study give us further detail on areas to capitalise on and target for future effective and sustainable implementation of AMP services as well as implementation of other similar services.

This study demonstrated a key factor in motivation for implementation of AMP services was to increase access, capacity, and throughput to address the rising demand and burden of patients with

musculoskeletal conditions presenting to individual public health services. This goal aligns well with health care priorities of public hospitals and the relevant Health Department (Victorian Government, 2015) specifically better access to care, and strengthen the workforce. It was clear that reinforcement of the benefits of AMP services, both financial and to patient flow, needed to be effectively communicated to key stakeholders (most often senior executives and directors) to facilitate organisational commitment. AMP models of care are best embedded into normal clinical care (Coyle & Gill, 2017) and are maximally efficient, effective and sustainable if operating within, rather than in parallel, to the main delivery of medical services. An important enabler for inter-professional confidence was collaboration with medical staff in the development of the new model of care, so that the full scope of practice of the AMP was well understood and risk minimised. Having an early and ongoing communication strategy and regular open dialogue with key stakeholders and medical staff was vital. Similar to previous studies, (Dawson & Ghazi, 2004) the importance cannot be overestimated for AMP implementation sites to understand their local environment, to engage and communicate as early as possible with key stakeholders and subject matter experts in order to establish strong support and understanding of the full scope of AMP model, .

Advanced musculoskeletal physiotherapists key capabilities were to be highly clinically skilled and knowledgeable, hardworking, adaptable and flexible, and have strong communication skills. Easy going, hardworking physiotherapists with good communication skills have previously identified as being linked to successful advanced scope roles (Coyle & Gill, 2017), reinforcing the importance of characteristics of the individual clinician in being accepted in these roles. The capacity of the physiotherapists to develop strong relationships with key stakeholders in this study was highly valued. Barriers associated with the advanced musculoskeletal physiotherapist workforce in some sites included recruitment, turnover, conflicting priorities and space. Various health services

recommended support by a lead advanced musculoskeletal physiotherapist and early succession planning to address these barriers to implementation and evaluation of a new service. A comprehensive governance, operational and evaluation structure supported throughout the implementation sites, enabled engagement and endorsement by key stakeholders and demonstrated the value of implementing AMP services for the patient, staff, healthcare organisation and broader health care community.

The AMP Clinical Education Framework (Department of Health, 2014a) was perceived to successfully provide the training and competency assessment of physiotherapists working in AMP roles across a diverse range of hospital settings. The resources are extensive and comprehensive and considerable time is required for training and this should be taken into account in implementation. Increasing the number of experienced physiotherapists undertaking the training and assessment program was seen to be a facilitator of sustainability. An external mentor or supervising senior AMP was seen as valuable to assist with implementation and documentation associated with competency training and assessment. This has been noted in previous studies (Dawson & Ghazi, 2004; Keil & Brown, 2015; Wiles & Milanese, 2016). Involvement of medical staff in competency assessment was highly valued, because it engaged medical stakeholders and promoted confidence in the AMP service and its physiotherapists. There were some challenges, particularly competing time pressures for medical staff.

An important barrier commonly experienced was internal individual healthcare network competition for funding for the new AMP service, particularly if there were few financial incentives for health services to improve access for patients awaiting outpatient Specialist Clinics. Economic evaluation as part of any AMP service implementation project is critical to include, strengthening business cases

and gaining organisational funding and support for ongoing sustainable AMP services. The economic evaluation in this project focussed on costs, efficiency and effectiveness (Harding et al., 2017; Harding, Walter, et al., 2015; PwC, 2015) underpinning early success of sites securing ongoing funding. AMP models should be considered as part of workforce reform for key priority outpatient areas identified by each health service.

In some sites, opportunity was greatly affected by difficulty with communication with key stakeholders, specifically availability, agreement and understanding. Medical stakeholder relationships were perceived as pivotally important, and could become either major barrier or major enabler as a consequence. These relationships with medical staff have been previously found to provide critical support, training and affirmation (Dawson & Ghazi, 2004; Wiles & Milanese, 2016). Early, regular, collaborative, planned or opportunistic communication must be a high priority. As one advanced musculoskeletal physiotherapist noted “communicate, communicate, communicate”.

Although only one participant’s organisation restricted requesting of simple imaging, this was an example of an organisational barrier limiting practice and impacting efficiency. AMP model of care could be further enhanced by removal of legislative and organisational barriers (Wiles & Milanese, 2016), for example, those that currently restrict physiotherapists from prescribing simple medication needs of patients with musculoskeletal conditions, from requesting diagnostic investigations , such as certain imaging and pathology (Keil & Brown, 2015) and some forms of certification.

The strengths of this study are that we followed the guidelines for qualitative studies (Tong et al., 2007) and incorporated duplicate data analysis. The major limitations are the use of online surveys to collect data and small sample size. Whilst there was no external review of the data, the third independent data coder was external to the clinical area. Future studies would be strengthened by

the use of focus groups or semi-structured interviews to collect data as these methods provide less risk of bias. The small number of participants is reflective of the number of new services implemented. Future studies could include participants from other disciplines such as medicine, health service executives, as well as consumers, to gain further insight into implementation challenges and issues specific to the consumer need. Additionally, this study included participants working in one state of Australia and therefore may not be generalizable across all practice settings worldwide.

Conclusion

Clinician-identified enablers for Advanced Musculoskeletal Physiotherapy (AMP) services to assist their organisation to improve access for musculoskeletal patients were having key stakeholder support and well-established AMP learning and operational frameworks. Clinician identified barriers to implementation were the competitive funding environment, and the impact of issues with effective communication. The knowledge, skills, availability, motivation and experience of the advanced musculoskeletal physiotherapists had a large impact on the implementation. These factors should be considered when implementing AMP services or other healthcare services with the view to improve success of implementation.

Table 1: Characteristics of clinicians (n=12)

Participant	Gender	Years working in physiotherapy (range)	Rural, regional or metropolitan	Highest educational level obtained			Works in AMP	Clinical AMP for this project
				Bachelor	Post graduate diploma	Master		
P1	F	11-15	Metro			Y	Y	Y
P2	M	6-10	Regional	Y			Y	Y
P3	F	6-10	Regional		Y		Y	Y
P4	M	6-10	Metro			Y	Y	Y
P5	M	16+	Metro		Y		N	N
P6	F	11-15	Metro			Y	Y	N
P7	M	16+	Rural			Y	Y	Y
P8	M	6-10	Regional	Y			Y	Y
P9	F	6-10	Metro			Y	Y	N
P10	M	16+	Rural		Y		Y	Y
P11	M	11-15	Metro			Y	Y	Y
P12	F	11-15	Regional			Y	Y	Y

Abbreviations: AMP:Advanced Musculoskeletal Physiotherapy; F:Female; M:Male; Metro: Metropolitan; Y: Yes; N: No.

Table 2: Overview of major themes and sub-themes linked to the Theoretical Domains Framework (Cane et al., 2012; Michie et al., 2011)

Domain		Major Theme	Enablers – sub themes	Barriers – sub themes
Capability	<i>Knowledge</i>	Learning and assessment framework	Detailed, relevant, thorough, well-structured	
		Workforce		Recruitment
		Organisation	Understanding key issues	
		Evaluation	Monitor and improve performance	
	<i>Skills</i>	Learning and assessment framework	Senior medical staff involvement in assessment; Mentors; AMP confidence in skill; Known credentialing standard	Complex, lengthy, repetitive; Limited time from medical staff for assessments; Achieving independent practice
		Workforce	Pool of appropriately skilled physiotherapists; Experienced and dedicated	
		Communication	AMP Clinicians with strong communication skills	
	<i>Memory/attention/Decision Processes</i>	Learning and assessment framework	Time for training	Competing demands
		Planning and processes	Adaptability and flexibility	
	<i>Action planning/ Behaviour Regulation</i>	Learning and assessment framework	Adaptable to the individual clinician and health network	
		Workforce	Succession planning; Team of AMP Clinicians	

		Organisation	Comprehensive clinical governance structure	
Motivation	<i>Social/Professional Role and Identity</i>	Communication		Delays caused by lack of effective communication with key medical stakeholders
		Stakeholders	Stakeholders' knowledge of the AMP and service	Agreement amongst group of Visiting Specialists
	<i>Beliefs about capabilities</i>	Stakeholders		Confidence in AMP Clinician competence
	<i>Motivation and goals / Optimism</i>	Workforce	Multiple staff willing to further knowledge and skills	
	<i>Beliefs about consequences</i>	Organisation	Solution to access blocks in Specialist clinics; Reducing costs and improving efficiency	
		Capacity/demand		High demand and poor access to specialist clinics
		Model of Care	Efficient model with clear scope of practice minimises risk	
	<i>Reinforcement</i>	Stakeholders	Maximise early and open dialogue with all stakeholders	
		Model of Care	Benefits from engagement of medical staff; Improving patient outcomes	
	<i>Intentions</i>	Model of Care	Engagement of medical staff in refinement	
	<i>Goals</i>	Model of Care	Clear scope of practice minimises risk	

	<i>Emotion</i>	Workforce		Work based assessments by Consultants stressful; Conflicting priorities - set-up, clinical load and learning
Opportunity	<i>Environmental Context and Resources</i>	Planning and processes	Clear referral processes; Allocate time; Thorough plan	Allocation of clinic space
		Organisation		Funding; Radiology privileges
		Stakeholders		Referrer misunderstanding
		Communication	Regular schedule with key stakeholders	
		Workforce		Staff turnover and recruitment
		Capacity/demand	Initial restriction of clinic capacity	
		Evaluation		Data collection
	<i>Social influences</i>	Communication	Strategy; Regular meetings	Changes in staff; Accessing key medical staff
		Organisation	Support	
		Stakeholders	Support; Relationships	

Appendix 1 Topic Guide

The participants completed a survey on the completion of implementation of the service as part of the final reporting. Related to the barriers or challenges and enablers or key learnings, and the Theoretical Domains of capability, opportunity and motivation (Cane et al., 2012; Michie et al., 2011) the following specific topics were covered

1. Succession planning (“What do you think are enablers to succession planning?”; “What do your think are barriers to succession planning?”)
2. Implementing the clinical education framework (“What challenges and barriers were faced when implementing the clinical education framework?”; “What was your perception of the strengths/areas of improvement for the clinical education framework?”)
3. Set-up phase; Implementation phase; Refinement phase (“What was your key learning from this phase?”; “What changes would optimise implementing an AMP service in the future?”)

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Author/s:

Shaw, BR;Heywood, SE;Page, CJ;Phan, UM;Harding, PA;Walter, K;Terrill, DL;Granger, CL

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