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Rural physiotherapy service provision and service level decision making:  
An exploration of rural physiotherapy stakeholders' perceptions

Thesis submitted by

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BAppSc (Phty)

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September 2014

For the degree of Doctor of Philosophy  
In the College of Healthcare Sciences  
James Cook University

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## Contributions to jointly authored works contained in the thesis

**Adams, R.,** Jones, A., Lefmann, S., & Sheppard, L. (2014). Utilising a collective case study system theory mixed method approach: a rural health example. *BMC Medical Research Methodology*, 14. doi:10.1186/1471-2288-14-94.

Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.

**Adams, R.,** Sheppard, L., Jones, A., & Lefmann, S. (2014). What factors influence physiotherapy service provision in rural communities? A pilot study. *Australian Journal of Rural Health*, 22(3), 133-138.

Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.

## Contributions by others to the thesis as a whole

Dr Lorraine Sheppard, Dr Anne Jones and Dr Sophie Lefmann (supervisors) contributed to the study design, data analysis and preparation of the manuscript. Stephanie van Ballygooyen and Haidi Beard provided assistance in sourcing key articles and Barbara van Houts provided technical assistance in the development of the Rural Physiotherapy Availability index diagram.

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Samantha Talbot provided professional editorial assistance with formatting the final thesis to achieve stylistic fluency only. No assistance with the content, conduct or interpretation of the research was provided. This is consistent with Standards D and E of the *Australian Standards for Editing Practice* as per the JCU policy on proof reading and editing of theses and dissertations.

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Articles under review by the author incorporated into the thesis, including contributions to jointly authored works

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## Statement of Ethics

The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the *National Statement on Ethics Conduct in Research Involving Humans (1999)*, the *Joint NHMRC/AVCC Statement and Guidelines on Research Practice (1997)*, the *James Cook University Policy on Experimentation Ethics: Standard Practices and Guidelines (2001)* and the *James Cook University Statement and Guidelines on Research Practice (2001)*. The proposed research methodology received clearance from the James Cook University Experimentation Ethics Review Committee (approval number H3799) and Offices of the Human Research offices of the pilot site (approval number HREC/10/QCH/103-695) and the investigation site (approval number HREC/10/GWAHS/42).

*16 September 2014*

Signature

Date

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This thesis is also dedicated to the memory of my parents. My achievements are your achievements.

*What a journey: thank you all*

## Abstract

The principal aim of this research was to understand how decisions are made about which physiotherapy services are provided in regional, rural and remote settings. Rural physiotherapy in Australia has been characterised by workforce challenges such as shortages and maldistribution, workload stress, tensions between specialist and generalist career options as well as a lack of positions. Descriptions of areas of work of rural physiotherapists, access, prioritisation and developing service models are available. However, the factors affecting decisions about service provision or how decisions are made about the range of physiotherapy services provided for a community is not readily evident in the literature.

The diversity that is a feature of the people and the environment in rural and remote Australia is reflected in the health services provided. Deciding what health services are provided is a key consideration in delivering appropriate and accessible health care for rural and remote populations. Obtaining insight into factors influencing both service provision and decision making about services such as physiotherapy in rural areas may inform such decisions. A range of stakeholders across the organisation and broader health system are likely to influence decisions about physiotherapy service provision.

The research design was shaped by the aim of obtaining perspectives of multiple physiotherapy service stakeholders. A priority-sequence mixed methods model was used to guide the practical integration of qualitative and quantitative approaches to explore rural physiotherapy service provision and service level decision making within a collective case study-system theory mixed methods research framework. An interpretivist approach within a qualitative research paradigm supported understanding of stakeholder perspectives. Stratified purposive sampling permitted exploration of subgroups of interest. The subgroups include physiotherapists, their colleagues, managers, other key decision makers and consumers.

Combining systems theory and case study methodology enabled a focus on the issue of interest and to consider that issue a system. This permitted exploration and description of a set of interrelated elements that together form a system. Adopting both qualitative and quantitative approaches enhanced exploration of the identified system. The system, which in this study is the rural physiotherapy service level decision making system, was then able to be explored within and across cases. The use of collective instrumental case studies maintained a

focus on the issue and permitted exploration of the issue in different contexts described by the definable aspects of the research.

Data collection included 39 surveys returned from physiotherapists [n=21] colleagues/managers [n=13] and consumers [n=5]. Nineteen semi-structured interviews enabled further exploration of issues identified in the surveys. Interviews were conducted with public sector physiotherapists [n=9], private physiotherapists [n=5], key decision makers [n=4] and, at the suggestion of a key decision maker, a colleague [n=1].

The data set provides rich and detailed descriptions about decision making and factors affecting physiotherapy service provision in the regional, rural and remote sites of the study. The focus on service level decision making adds a previously undocumented perspective to the current understanding of rural physiotherapy service provision. Consideration of research rigour guided the research conduct. The research design included data collection from multiple sources to enable triangulation of data and constant comparison. An auditable trail of evidence was maintained throughout the conduct of the research. Member checking, the use of a second coder, further add to the credibility of the findings.

Decisions informing rural physiotherapy service provision are made by multiple stakeholders at all levels of the health system. Decisions, conveyed in the language of the stakeholders' position and perspective, reveal varying levels of connectivity to the communities in which services are provided. A greater sense of community responsibility and accountability was expressed by participants embedded within their community. The greater the distance, geographically or organisationally from the service provider-recipient interface, the more the language of decisions reflected organisational objectives. The scope of physiotherapy led decision making about services they provide in rural areas varied with service sector, size and rurality. The research findings and current literature were considered in the development of conceptual models of decision making informing rural physiotherapy service provision.

The tension that was evident between centralised service models and locally based services has the potential to continue to grow if factors impacting rural service provision are not systematically addressed. Funding models, service fragmentation, organisational imperatives and workforce availability are key drivers of service and workforce models. Fundamental decisions are required about the health services people in a regional, rural, or remote

community should be able to access. Decisions require continued consideration of broader collaborative frameworks to minimise service gaps arising as accessibility criteria are narrowed in line with system or business imperatives. New service and funding initiatives should not increase service and workforce fragmentation between services and sectors. Increasing gaps between services with narrowly defined criteria and target populations compounds issues of access in already underserved areas.

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# 1. Chapter 1: Study Synopsis

## 1.1 Research rationale

Rural physiotherapy research grew momentum following the emergence of rural health as an issue in its own right in the early 1990s in Australia (Humphreys, Hegney, Lipscombe, Gregory, & Chater, 2002). Research into Australian rural physiotherapy since this time has had a strong workforce focus (Lindsay, Hanson, Taylor, & McBurney, 2008; Miles, Adams, Anaf, & Sheppard, 2010; Mitchell, 1996; Sheppard, 2001; Williams, D'Amore, & McMeeken, 2007), with limited investigation into broader factors or decisions that influence rural physiotherapy service provision. By obtaining stakeholder perspectives of factors influencing rural physiotherapy service provision and service level decision making (SLDM), this study addresses an identified gap in the literature. This study also provides the first known use of sequential mixed methods approach within a systems theory-case study heuristic in physiotherapy research. Its significance lies in its commitment to using an interpretive systems approach to look beyond workforce and available data to recognise the many influences on rural physiotherapy service provision and SLDM within the local context. This study provides a rich and detailed description of rural physiotherapy service provision and factors influencing both service provision and SLDM.

Rural physiotherapy in Australia is typically defined in terms of workforce challenges. These challenges are well documented in the rural literature (Campbell, McAllister, & Eley, 2012; Lindsay et al., 2008; National Rural Health Alliance [NRHA], 2004; Roots & Li, 2013; Schoo, Stagnitti, Mercer, & Dunbar, 2005; Stagnitti, Schoo, Reid, & Dunbar, 2005), but there is little empirical research conducted in Australia to help explain how these and other factors influence physiotherapy service provision and SLDM in specific rural settings. While a small number of studies describe the range of physiotherapy services provided (Sheppard, 2001; Williams et al., 2007) and service priorities (Miller-Mifflin & Bzdell, 2010) in regional, rural, or remote areas, descriptions of factors other than workforce or how decisions are made about which services to provide is minimally described. Similarly, how rural physiotherapy service provision and SLDM is placed within the broader health system is not readily evident.

There is no succinct definition of rural physiotherapy, but rather it is described by a series of statements. Rural physiotherapy is said to be characterised by location, service implementation in a 'lower resource framework' and competency requirements across the clinical, administrative and professional domains (Sheppard & Nielsen, 2005; Williams et al., 2007). Physiotherapists working in rural settings are required to manage a broad range of clinical conditions across the age spectrum. Rural physiotherapy practice is often considered to be generalist in nature, spanning the scope of practice of the discipline (Minisini, Sheppard, & Jones, 2010). For the purpose of this study a working definition of rural physiotherapy will be:

Physiotherapy provided in non-metropolitan areas of Australia (regional, rural or remote) to people of all ages, across sectors (public, private and non-government organisations) and at all points of the care continuum (primary to tertiary).

Physiotherapy in Australia has been an autonomous profession since 1976 and has become a strong academic and clinical discipline (Chipchase et al., 2006, p. 6). The profession is held in high esteem in Australia, with a clear identity and professional status (Turner, 2001, p. 191). Physiotherapy is concerned with promotion of health and wellbeing and with prevention, treatment or rehabilitation of disorders or dysfunction of human movement (Higgs, Refshauge, & Ellis, 2001). Physiotherapy in Australia is available through both the public and the private health systems (Australian Institute of Health and Welfare [AIHW], 2013; Sheppard, 2001; Struber, 2003; Williams et al., 2007). The Australian physiotherapy workforce is increasing (AIHW, 2013, p. 44), yet the supply of physiotherapists varies with remoteness with only 20% working beyond major cities (AIHW, 2013; Ellis, Anderson, Gates, & Williams, 2005). Relevant to rural physiotherapy service provision is a greater reliance on public sector allied health services (including physiotherapy) in rural and remote regions of Australia (NRHA, 2004, p. 7). An increasing proportion of the physiotherapy workforce work in the private sector (AIHW, 2013, p. 51) and it has been suggested that the masculinisation of the physiotherapist workforce may further affect public sector staffing levels as male physiotherapists work less in the public and aged care sectors (Schofield & Fletcher, 2007, p. 151).

A search of the literature revealed a paucity of information specific to SLDM informing rural physiotherapy service provision. A wider approach was adopted to incorporate literature in spheres other than physiotherapy. Two key assumptions guided this approach: 1) that



decisions about physiotherapy service provision are likely to be influenced at multiple levels of the health care system; and, consistent with rural health care more broadly, 2) a relative resource scarcity requires decisions to be made about which physiotherapy services can be provided within local, rural communities. The background section (Chapter 2) provides an expanded discussion on rural physiotherapy and decision making is discussed more broadly within health system levels (macro, meso, and micro) and within the concept of service prioritisation. There is however, little documented reasoning as to why decisions about the provision of particular services (such as physiotherapy) are made and what motivates people in the 'system' when making decisions about service provision. This study seeks to contribute to this identified gap in the rural physiotherapy literature by exploring the perspectives of some of the people in the system (stakeholders) regarding rural physiotherapy.

Central to this thesis is the exploration of stakeholder perspectives on factors influencing rural physiotherapy service provision and related decision making. SLDM and factors influencing both SLDM and service provision were explored within a systems theory-case study heuristic. This heuristic framework supported the prioritised qualitative inquiry and the preceding quantitative component of this research. Stakeholder perspectives were obtained through surveys and in-depth interviews. Obtaining perspectives of stakeholders, such as multidisciplinary team colleagues, consumers, managers and other decision makers, avoids isolating the research to a physiotherapy-only perspective (Anaf, 2008).

A systems-focussed approach is considered useful to articulate interdependent components of health care interventions or programs and provides insight into questions of 'why', 'how' and 'what' of contexts (Alexander & Hearld, 2012). Perceiving one aspect, or specific issue, as a system within a more broadly conceived organisation can generate both a new representation of the issue and variety in the way the issue is thought about (Lane, 1999). Consideration of both human elements and less tangible elements such as policy and decision making as a system, provides a unique approach within rural physiotherapy research.

A collective case study design (Stake, 1995) was adopted as the researcher sought to understand service provision and SLDM across differing sized rural communities. This provided a structure to gain insight into decision making across settings as it allowed comparison within and between cases (Baxter & Jack, 2008). The cases were identified within a defined geographic area of one Australian state. This geographic area included regional, rural and

remote communities with a range of health services of varying sizes and was contained by the boundaries of a rural health service network.

Considering an issue of interest, such as rural physiotherapy, across a range of sites is an important direction in rural research, as the approach acknowledges the heterogeneity of rural communities (Farmer, Munoz, & Threlkeld, 2012; McGrail & Humphreys, 2009a). Variability and diversity are characteristic of rural Australia (Roufeil & Battye, 2008) and combine with the unique demography of rural and remote Australia as key determinants of health problems and health service needs (Larson, 2006). Consideration of context or place is therefore important when describing health services in rural and regional areas (Farmer, Munoz, & Threlkeld, 2012, p. 187). The self-evident phrase *'if you have seen one country town, you have seen only one country town'* (Larson, 2006, p.2) is often used to express the uniqueness of rural communities. How the uniqueness of place impacts on rural physiotherapy service provision is not evident in the literature. Rural physiotherapy workforce issues are well described; however there are few descriptions of how rural physiotherapy services differ between rural settings.

This innovative approach to physiotherapy research enables exploration of complex interacting system elements whilst recognising the importance of location. The systems theory-case study heuristic framework supported consideration of rural physiotherapy service provision and SLDM within a local context and within the broader health system. The approach also supported the development of conceptual models of rural physiotherapy SLDM to provide a way of thinking about rural physiotherapy service provision and SLDM.

The thesis structure is built around research findings aligned to the aims and objectives of the study and is grouped into four sections and eleven chapters (Figure 1.1). Following this synopsis highlighting the research aims, direction and findings, Section 2 presents the background, methodology, pilot study and concludes with the establishment of the cases. Section 3 contains 5 chapters of findings culminating in the development of conceptual models of rural physiotherapy service provision and SLDM. Section 4 concludes the thesis by aligning the key research aims with the findings and suggesting future directions for rural physiotherapy research.

## 1.2 Research aims, main objective and intended outcome

The following key aims provide structure to the research design, data collection, analysis and reporting:

1. Identify stakeholder perceptions of factors influencing rural physiotherapy service provision and SLDM:
  - 1.1. How do key stakeholders describe the factors influencing rural physiotherapy service provision?
  - 1.2. How do physiotherapists in rural Australia describe the impact of the identified factors on provision of physiotherapy services?

AND

2. To explore stakeholder decision making processes used to inform rural physiotherapy service provision:
  - 2.1. How do rural physiotherapy stakeholders decide which services to provide?
  - 2.2. What decision making processes do physiotherapists in rural Australia use to establish service priorities and the scope and range of their service?
  - 2.3. How does variation in the number of staff in rural physiotherapy service impact service provision and SLDM?
  - 2.4. How does the service provision and SLDM differ with increasing rurality?

Addressing these key aims facilitated the main objective of:

Developing and presenting conceptual models of SLDM informing rural physiotherapy service provision.

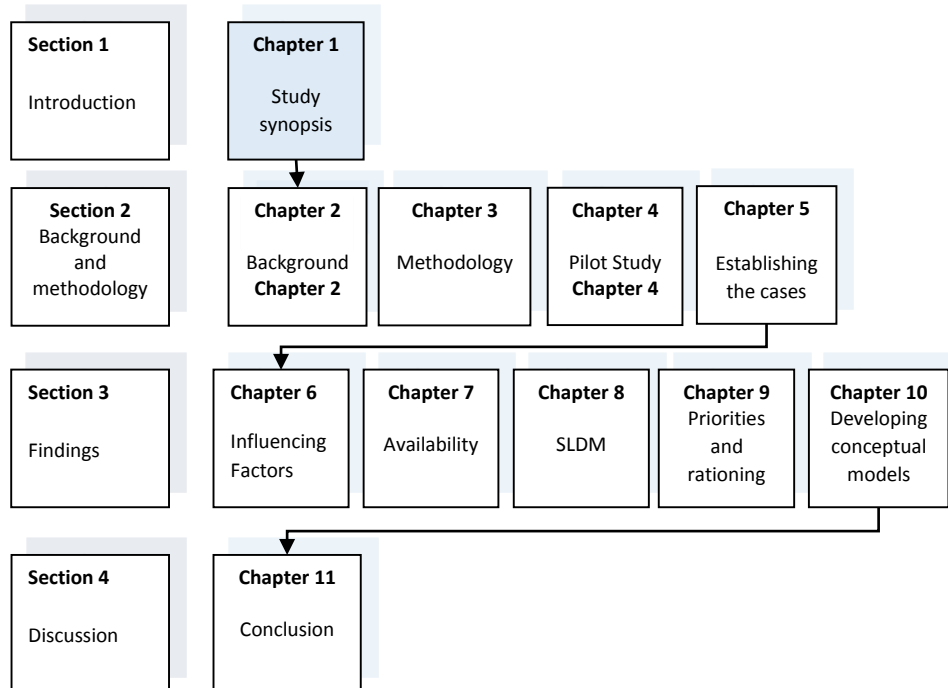


Figure 1.1 Thesis pathway

The intended outcome of achieving the aims and objective was original research that would address an identified gap in the rural physiotherapy literature and contribute to the evidence base to support future rural physiotherapy SLDM.

### 1.3 Research process

A sequential mixed methods approach within a systems theory-case study heuristic (Anaf, Drummond, & Sheppard, 2007; Anaf & Sheppard, 2007) was used to identify and explore factors affecting rural physiotherapy service provision and related SLDM. Adopting a sequential mixed methods approach provided a framework to investigate rural physiotherapy service provision and SLDM within the complex health system. The framework provided structure to obtain data from multiple sources. A preliminary quantitative component, preceded and guided the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration (Clark, 2000).

Stratified purposive sampling permitted the exploration of subgroups of interest (Patton, 2002). The subgroups included physiotherapists, their colleagues, managers and other key

decision makers and consumers. Use of an initial survey allowed the researcher to obtain the perspectives of a broader range of stakeholders than may have been feasible if only a qualitative approach was adopted. The survey respondents and results informed participant selection for the dominant qualitative exploration of the issue of interest. This supports a key intent of sampling within qualitative research, which is the selection of information rich cases (Liamputtong & Ezzy, 2005).

The perspectives of individuals (an interpretivist perspective) enabled the researcher to look for complexity of views and also to address processes of interaction among individuals (Creswell, 2009) and other system elements. Two key factors relevant to rural physiotherapy service provision were used to define the cases: rurality and the number of physiotherapists. The use of a matrix representing definable aspects of the research (Grbich, 1999) assisted in identification of case sites from the initial physiotherapy survey responses.

### **1.3.1 Place of the researcher**

The place of the researcher is particularly relevant to discuss within the prioritised qualitative component of this study. The principal researcher, a physiotherapist with many years of rural physiotherapy experience, can be considered an *insider researcher* (Morse, 2010). The value added by being 'an insider' researcher included knowledge of the profession, rural physiotherapy practice and the language of the profession. Additional advantages included credibility and rapid rapport building with participants. The disadvantages are consistent with those expressed by Morse (2010), namely, the inability to provide a naive perspective and the risk of making assumptions or taking some practices for granted. Opposing or conflicting views may emerge from different stakeholders or between perspectives of participants and the researcher. This is consistent with the plurality accepted within qualitative research (Mantzoukas, 2004, p. 1000), and where they emerge, multiple views are reported. The research findings and conceptual models, influenced as they are by the views and experience of the researcher, are presented in anticipation that they may resonate with experiences of the reader.

## **1.4 Findings**

### ***1.4.1 Chapters 4 and 5: Establishing the cases***

Two key factors relevant to rural physiotherapy were used to establish the case types in which to explore rural physiotherapy service provision. These were participant perspectives of rurality (regional, rural or remote) and the number of co-located physiotherapy colleagues. In view of the expressed limitations of geographic classification systems, the researcher was interested in how participants described the rurality of their service setting. The number of co-located colleagues was the second potential differentiating factor of rural physiotherapy service provision. This is consistent with the literature in which workforce and position shortages are recognised as characteristics of rural physiotherapy.

This approach was tested in a pilot study conducted in a state other than the investigation site and is described in Chapter 4. Chapter 5 describes the identification of cases in the investigation site using a sequential mixed methods approach within a systems theory-case study framework. The investigation site was a large area of one Australian state with a mix of regional, rural and remote communities. Six case types emerged from the responses using the dual measures of rurality and workforce numbers. Fewer case types would have emerged if a single measure of rurality was the only differentiating factor. The framework used to establish the cases provided a structure to explore physiotherapy service provision within and between case sites.

### ***1.4.2 Chapter 6: Influencing factors***

An assumption at the outset of this research was that factors influencing physiotherapy service provision would occur at multiple levels of the health system. This informed both the methodology (use of a systems approach) and research method (stratified purposive sampling and data collection using surveys and interviews). Obtaining perspectives of stakeholders, such as multidisciplinary team colleagues, consumers and managers avoided isolating the research to a physiotherapy-only perspective. The systems theory-case study heuristic framework supported exploration of rural physiotherapy service provision within the local context, as well as within the broader health system.

Workforce, higher system level decisions, location, sector and funding are some of the factors identified. Workforce factors, including recruitment challenges for both generalist and specialised physiotherapists, loss of positions and the impact of cumbersome recruitment processes raise issues of service availability and sustainability. Decisions, policies and directives from national and state level were identified as key influencing factors. Implementation of macro level decisions occurred at a regional and facility level. Factors at this level include service priorities and staffing levels. Managerial knowledge of the role and function of physiotherapy was an important factor at this level.

### ***1.4.3 Chapter 7: Rural physiotherapy availability***

Simply quantifying the number of health professionals in rural areas by geographic classification does not reveal localised issues of service availability or accessibility. Collectively reporting the individual professions considered to be an allied health profession and aggregating allied health workforce reports in broad geographical classifications limits visibility of the detail of local service availability and accessibility.

The relative invisibility of variation in physiotherapy capacity and service availability observed within the eleven rural communities of this study prompted the development of an index for conceptualising rural physiotherapy availability. Differentiating elements that emerged from participant comments include rurality, population, size of public hospitals, the number of public sector physiotherapists expressed in fulltime equivalents (FTE), the number of private practices and provision of specialised paediatric and rehabilitation services. Combining these elements forms a useful construct to consider physiotherapy availability. The rural physiotherapy availability index is offered as one measure that could form part of the suite of measures to describe access to primary care services in rural communities. Further testing would assist in assessing the applicability of the index.

### ***1.4.4 Chapter 8: Service level decision making***

Decisions about physiotherapy service provision occur within the context of organisations, locations and settings. Understanding the varying contexts of service provision, such as service location, size or sector, provided insights into decision making about service provision. Multiple interrelated factors informed SLDM about rural physiotherapy service provision.

System level influences from macro and meso level decision makers provide the framework within which micro level physiotherapy SLDM occurs.

Service sector, size and rurality then further qualify local service options and influence SLDM. Understanding context and diversity is important to understanding local implementation of health system decisions and gaining insight not only into physiotherapy SLDM but also into the variation in services provided between sites. The findings in this study are consistent with existing rural physiotherapy literature and reinforce the importance of physiotherapy workforce availability to service sustainability. The results of this study informed the development of a conceptual map of factors influencing rural physiotherapy SLDM.

#### ***1.4.5 Chapter 9: Priorities and rationing***

Despite residents of rural and remote communities experiencing poorer health outcomes and exhibiting higher health need, many rural and remote communities do not have access to the range of health services as large urban centres. The challenge then becomes one of deciding what health services should be provided, where and to whom. Where there is a demand-resource imbalance, decisions about resource allocation are required.

Participant perspectives revealed the impact of macro and meso level decisions on the capacity to provide physiotherapy services in the rural communities of this study. Increasing constraints meant that rationing of physiotherapy services, particularly within the public sector, was commonplace. This study revealed some consequences of service rationing that are relatively invisible at a system level yet so pertinent to individuals and communities. Decreased access to physiotherapy services was evident for example, for adults and children requiring neurological rehabilitation and for people requiring ongoing physiotherapy post-acute care.

#### ***1.4.6 Chapter 10: Conceptual models of rural physiotherapy SLDM***

SLDM is not a one dimensional process, but rather results from the complex interaction of clusters of systems issues. Framing SLDM as a 'system' enabled the researcher to: identify an issue of interest as a system; describe the system in terms of elements and interactions, both



internal and external to the system; gain insight into the context of the issue of interest; and to capture different stakeholder perspectives.

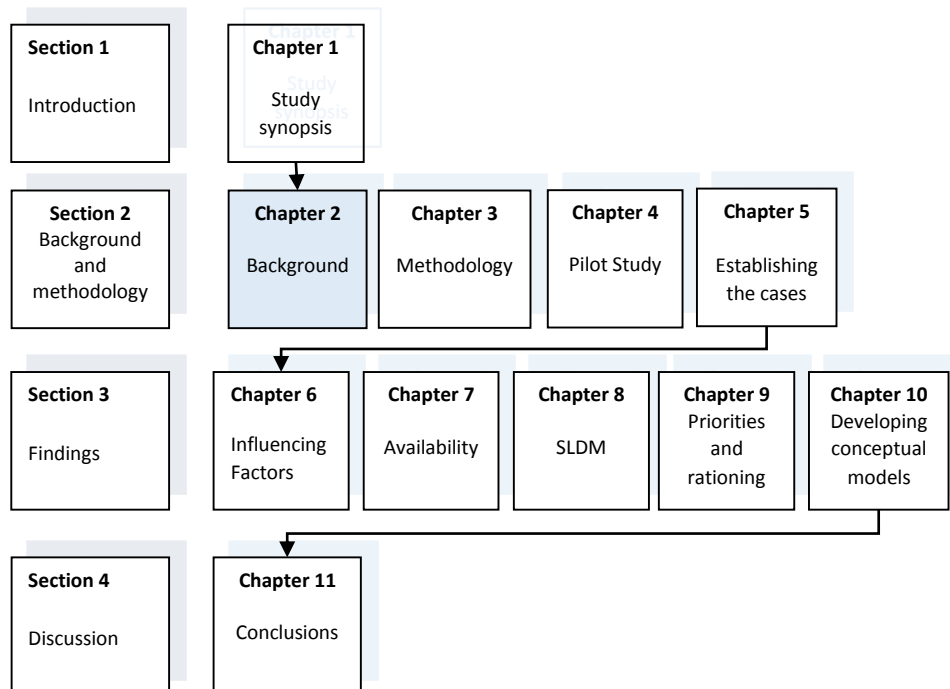
The adoption of a systems-approach revealed the interplay of the multiple factors and processes at both the local and broader systems level. The results in this study reveal complex interactions between overarching elements such as: workforce capacity and capability, contextual influences, layered decision making and issues impacting access. The development of conceptual models is a way of reflecting this complexity and the emerging picture provided by participants on rural physiotherapy SLDM.

## **1.5 Future research directions**

Rural physiotherapy SLDM is an underexplored area. Exploring decision making about rural physiotherapy service provision within a systems-theory case study heuristic should be explored further as it enables consideration of the impact of contextual factors on local service provision. This would form a basis for examining in more detail, access to specific physiotherapy services in different communities.

Mapping physiotherapy services in other areas using the Rural Physiotherapy Availability Index (RPAI) and further exploration of factors affecting service provision and access are recommended as future areas of rural physiotherapy research. It would also be informative to trial the conceptual SLDM models with rural physiotherapists and other key decision makers and to broaden the research focus to include professions other than physiotherapy.

## 2. Chapter 2: Background



### 2.1 Introduction

This chapter provides contextual background and literature relevant to the exploration of rural physiotherapy service level decision making (SLDM). Firstly, the background information seeks to provide the broader context for this research and addresses three key areas: physiotherapy in Australia, the Australian health care system, and rural health. Secondly, the paucity of literature specific to SLDM informing rural physiotherapy service provision necessitated the adoption of a wider approach to incorporate literature in spheres other than physiotherapy. The approach is guided by two key assumptions: 1) that decisions about physiotherapy service provision are likely to be influenced at multiple levels of the health care system; and, consistent with rural health care more broadly, 2) a relative resource scarcity requires decisions to be made about which physiotherapy services can be provided within local, rural communities. Yet there is little documented reasoning as to why these decisions are made and what motivates people in the 'system' when making decisions about service provision.

## 2.2 Context

This research is set within the context of physiotherapists working in Australia in regional, rural or remote settings. As physiotherapy is seen to be an integral part of the current health care delivery system, background contextual information is provided on physiotherapy, the Australian health care system and rural health.

### 2.2.1 Physiotherapy

*Physiotherapy as a profession integral to health promotion, prevention, acute care and rehabilitation physiotherapy plays an essential role in the health care system (Higgs, Refshauge, & Ellis, 2001).*

Physiotherapy is concerned with promotion of health and wellbeing and with prevention, treatment or rehabilitation of disorders or dysfunction of human movement (Higgs et al., 2001). As members of health care teams with an orientation to the communities and environments where they work, physiotherapists play a key part in the acute care and rehabilitation of their clients and the promotion of health in their communities (Higgs et al., 2001). Definitions of physiotherapy provided by national and international physiotherapy organisations reflect a consistency in approach, obligations and priority areas of the profession of physiotherapy (Table 2.1).

Table 2.1 Definitions of physiotherapy

<b>Organisation</b>	<b>Definition of physiotherapy (physical therapy)</b>
The World Confederation for Physical Therapy (WCPT)	Physical therapy provides services to individuals and populations to develop, maintain and restore maximum movement and functional ability throughout the lifespan. This includes providing services in circumstances where movement and function are threatened by ageing,

	<p>injury, pain, diseases, disorders, conditions or environmental factors.</p> <p>Functional movement is central to what it means to be healthy.</p> <p>Physical therapy is concerned with identifying and maximising quality of life and movement potential within the spheres of promotion, prevention, treatment/intervention, habilitation and rehabilitation. This encompasses physical, psychological, emotional, and social wellbeing.</p> <p>Physical therapy involves the interaction between the physical therapist, patients/clients, other health professionals, families, care givers and communities in a process where movement potential is assessed and goals are agreed upon, using knowledge and skills unique to physical therapists (WCPT, 2011).</p>
Australian Physiotherapy Council (APC)	<p>Physiotherapy in Australia involves a holistic approach to the prevention, diagnosis, and therapeutic management of pain, disorders of movement or optimisation of function to enhance the health and welfare of the community from an individual or population perspective (APC, 2006).</p>
The Australian Physiotherapy Association (APA)	<p>Physiotherapy is a profession with a holistic approach to the prevention, diagnosis and therapeutic management of conditions affecting human movement (APA, 2008).</p>

Physiotherapy in Australia is available through the public and the private health systems (Australian Institute of Health and Welfare [AIHW], 2012; Sheppard, 2001; Struber, 2003; Williams, D'Amore, McMeeken, 2007). Public sector services are primarily funded and provided through State and Territory health departments (Council of Australian Governments [COAG], 2011, p. 14), with the Australian Government funding programs to enhance access in underserved areas and specific service programs (COAG, 2011; Department of Health and Aging [DoHA], 2013, 2014; Services for Australian Rural and Remote Allied Health [SARRAH], 2013). Private physiotherapy services are funded by the individual in a fee-for-service environment (Struber, 2003), with a range of rebates or fee supports through private health insurance, third party insurance, Work Cover and the Chronic Disease Items (CDI) items within Medicare (Australia's universal public health funding system) (DoHA, 2013).

Outpatient, inpatient and community services are provided in the majority of publicly funded hospitals, with specialist physiotherapy services such as intensive care, burns, rheumatology, orthopaedics, geriatrics, paediatrics and rehabilitation established in metropolitan and larger regional facilities. Rural and remote health services provide a range of physiotherapy services with considerable variation between states (Sheppard, 2001; Williams et al., 2007).

Physiotherapists are educated within the university sector, with entry level programs offered at both undergraduate and graduate levels. The typical length for undergraduate programs is four years, but variations occur with graduate entry programs (Chipchase et al., 2006, p. 5; Duckett & Willcox, 2011, p. 81). Unlike medicine and nursing, university places for physiotherapy are uncapped and are funded at a lower level. Commonwealth supported university places fall into three distinct bands, with 2011 funding levels as follows: Allied Health – \$10,832; Nursing – \$12,093 and Medicine and Dentistry – \$19,542 (Duckett & Willcox, 2011, p. 82). Clinical experience is specified by the course accrediting bodies and complements academic course components. The entry level professional knowledge and skills required are determined by the regulating bodies of the profession. Physiotherapy is one of the fourteen professions that are regulated through the national registration and accreditation system within Australia. Profession specific national boards, supported by the Australian Health Practitioner Regulation Authority (AHPRA), develop registration standards, codes and guidelines (<http://www.ahpra.gov.au/>; Duckett & Willcox, 2011, p. 80). Separate national accreditation authorities for each of the professions recommend national standards against which educational programs can be assessed. The Australian Physiotherapy Council (APC) sets the standards for the physiotherapy profession (APC, 2006), which are also used to assess and accredit physiotherapy programs provided by universities across Australia.

## ***2.2.2 Australian health care system***

### **System of government**

The Australian health care system is a complex system (AIHW, 2012, p. 16). The federal system of government in Australia influences most aspects of health care, with each level of government having various powers and responsibilities (Palmer & Short, 2010, p. 9). The health care system exists within a socio-political environment and has characteristics that affect both the system itself and system interactions with the broader environment (Duckett & Willcox, 2011, p. 4). Two key features are said to characterise the Australian health care

system: Commonwealth-State relations and public-private mix (Eagar, Garrett, & Lin, 2001, p. 26). The dual funding and service provision that emerge from these features provide the context and constraints for all health care services including physiotherapy services.

Philosophical views on health care provision influence policy development and service provision, such as policies governments perceive as being desirable to implement (Gray, 2005; Palmer & Short, 2010, p. 9). For example, views about the public or private sector roles have been identified as polarised around ‘libertarian’ and ‘egalitarian’ perspectives (Eagar et al., 2001, p. 93). Adoption of egalitarian or libertarian perspectives (Table 2.2) varies and policies are framed within the dominant view of the time. Eagar et al. (2001) suggest the 1970s egalitarian view of equal access to health care was followed by an increased interest in health care costs in the 1980s and increased market mechanisms in the 1990s. Market mechanisms, such as increasing competition and diversity in health care, reflect an increased libertarian approach, which enhanced private sector prominence and influence (Eagar et al., 2001, p. 95).

The level of responsibilities assumed by governments is also influenced by political processes and preferences. This was evident in the first budget of the Abbott Liberal government. The 2014–15 Budget announcements revealed an \$80 billion decrease in Commonwealth funding to the states and territories over the coming decade for health and education (Commonwealth of Australia, 2014, p. 7). Effectively increasing responsibility of states and territories for funding health services, the changes further reflect the influence of priorities and perspectives of the government of the day.

Table 2.2 Libertarian and egalitarian perspectives

Libertarian	<ul style="list-style-type: none"> <li>- view health care as part of a market-oriented system.</li> <li>- freedom, personal responsibility and charitable approaches to the poor characterise this approach.</li> <li>- competition is central to this view.</li> <li>- competition means a better range and choice of services so that consumers can shop around for the lowest-priced service.</li> </ul>
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	<ul style="list-style-type: none"> <li>- stands against government regulation and bureaucratic interference in favour of private control, management and payment for health care services.</li> <li>- have a frequent assumption that the private sector operates more efficiently and private sector providers are more responsive to consumers than are public sector providers.</li> </ul>
Egalitarian	<ul style="list-style-type: none"> <li>- at the other end of the philosophical spectrum to the libertarian view.</li> <li>- view access to health care as a 'right' in a system of public provision assuring equal access to those in need, irrespective of their ability to pay.</li> <li>- equal opportunity and redistributive notions of social justice are supported.</li> <li>- publicly managed and provided health care services are seen as superior as health care is not seen to be a business where profit should provide the motive.</li> <li>- view that health care services should be responsible to the community through democratically elected parliamentarians or through community controlled management of health care systems.</li> </ul>

(Adapted from Eagar et al., 2001, p. 93)

Mixed public-private service provision is an accepted feature of the Australian health care system (Morell, Kiem, Millsted, & Pollice, 2014), dating back to 1946 when Chifley introduced a national pre-paid hospital system (Gray, 2005). Successive governments oscillate between public and private health insurance systems, further reflecting the polarisation in the role of the public and private health sectors. The private sector prominence that accompanied the increased libertarian approach of the 1980s is also evident with the provision of physiotherapy services. The relative prominence and potential influence of the private sector of physiotherapy is demonstrated by the increase in the proportion of physiotherapists working in the private sector. Estimates include 58% in NSW in 2001 (Ellis, Anderson, Gates, & Williams, 2005), and 65% of clinical physiotherapists in 2012 (AIHW, 2013, p. 51). The resultant decrease in the proportion of the physiotherapy workforce working within the public sector is further exacerbated by the masculinisation of the profession. There is a trend for male

physiotherapists to work less in the public and aged care sectors (Schofield & Fletcher, 2007, p. 151).

### **Health finance and funding**

Not surprisingly, the funding and financing of such a large system is equally complex. The Australian Government responsibilities include, but are not limited to, Medicare, Pharmaceutical Benefits Scheme, private health insurance and nursing home benefits (AIHW, 2102, p.18; Palmer & Short, 2010, p. 11; ). The states and territories finance and directly provide a wide range of health services (Palmer & Short, 2010, p. 11), including public sector physiotherapy services. The relative proportion of funding responsibility varies over time to align with the perspectives of the current government. One such variation was the Abbott Government's proposed reduction in Commonwealth funding to states and territories for health and education (Commonwealth of Australia, 2014).

Medicare is one of the main vehicles for financing health services. Medicare funds hospitals through the National Health Care Agreements; and medical practitioners and some other professionals (including physiotherapists) through the Medicare Benefits Schedule (MBS) (Duckett & Willcox, 2011, p. 41). Medicare has continued to evolve since its introduction as Medibank in 1975 (Gray, 2005). Relevant to the provision of physiotherapy services was the 2004 introduction of Medicare items to allow rebate for services provided by some AHPs. Initially known as Enhanced Primary Care (EPC) items, they evolved to be known as Chronic Disease Items (CDI). The rebates are limited to services recommended in a general practitioner's multidisciplinary care plan for patients with chronic and complex conditions. Allied health items are capped at five visits in total per annum per patient across all approved allied health professions (DoHA, 2013). This cap to allied health visits is indicative of limited funding for people to access privately provided services other than medicine.

Health expenditure consumes about 9% of Australia's Gross Domestic Product (Duckett & Willcox, 2011, p. 42). \$104 billion dollars were spent on health services in 2007–08 with contributions as follows:

- Commonwealth government 43%,
- State and local governments 26%,
- individuals through out of pocket expenditure 17%,



- individuals via health insurance 8%, and
- other sources. (Duckett & Willcox, 2011, p. 41)

In 2007–08 the three largest areas of health expenditure were:

- hospitals (39%, but declining over the past decade),
- medical services (19%), and
- pharmaceuticals (1 %). (Duckett & Willcox, 2011, p. 41).

Relevant to the concern expressed in the states' responses to the recent budget announcement (Taylor, 2014), is that the relative share of Commonwealth and State funding of public hospitals reflects a vertical fiscal imbalance within the Australian federation (Duckett & Willcox, 2011, pp. 41–42). The Commonwealth (also referred to as the Australian Government), raises 82% of taxation revenue, while the states are responsible for 40% of all public spending (Duckett & Willcox, 2011, p. 42). For example, in 2009–10, the Australian Government provided 38.3% of funding for public hospitals and the states and territories provided 53.9% (AIHW, 2012, p. 472). This imbalance was addressed in part by the 2011 National Health Reform Agreement, which will see the Australian Government contribution to public hospital funding increase to 60% over the next decade (AIHW, 2012, p. 474).

Decisions made about funding models at the national or macro level frame decisions about health service provision at State, regional and facility levels (Putoto & Pegoraro, 2011). Funding models reflect the prevailing policies and values (Eagar et al., 2001, p. 71), and debate about health expenditure is often positioned around the relative merits of public or private spending (Duckett & Willcox, 2011, p. 43) reflecting the prevailing libertarian or egalitarian philosophy. The egalitarian perspective of publicly managed and provided health care is more supportive of access to health services in rural areas, particularly communities not able to sustain private services. Where a libertarian philosophy dominates and prioritises private spending and service provision, issues of affordability and access can emerge. Many private providers are unable to generate sufficient revenue in small rural communities to be sustainable (Farmer, Munoz, & Threlkeld, 2012, p. 186). Where viability precludes the establishment of private physiotherapy services for example, access to physiotherapy services is further constrained. Compounding the challenges are existing limitations in service availability and workforce shortages (Humphreys, 2009; NRHA, 2004; Smith, Humphreys, & Wilson, 2008).

Provision of publicly funded physiotherapy services has traditionally been a State government responsibility through allocations to hospitals and health services (AIHW, 2012; COAG, 2011). Commonwealth funding of physiotherapy services beyond the allocations to the states, the Medicare allied health CDI and the support for the private health insurance (PHI) sector has tended to be program based, workforce and service initiatives for underserved populations or areas. Examples include programs such as the 'More Allied Health Services (MAHS) program, the Regional Health Services (RHS) program and workforce initiatives such as scholarship and locum programs for rural AHPs including physiotherapists (DoHA, 2014; SARRAH, 2013). Private physiotherapy services are funded primarily by the individual in a fee-for-service environment, with an increasing range of rebates or fee supports through private health insurance, third party insurance, Work Cover and more recently through the chronic disease items within the Medicare benefits schedule (DoHA, 2013). The multiple funding sources for physiotherapy reinforce the complex nature of the health system.

### ***2.2.3 Rural health***

Australia has an excellent health care system, ranking third with comparable Organisation for Economic Co-operation and Development (OECD) countries for life expectancy (Humphreys, 2009, p. 34). However, people living in rural Australia have demonstrably poorer health than people living in metropolitan Australia (McLean, Mendis, Harris, & Canalese, 2007, p. 84). Many rural residents face challenges in accessing appropriate health care (Bourke, Humphreys, Wakerman, & Taylor, 2012). Challenges are multiple and include population issues, accessibility and affordability (Taylor, Foster, & Fleming, 2008, p. 84). It has been suggested that poorer access to health services results from an interaction between lack of health care services and health care practitioners, plus distance, cost and transport issues (Taylor, Wilkinson, & Cheers, 2006).

The prevailing philosophy informing health expenditure can significantly impact health service provision in rural communities. Rural residents rely substantially on public sector health services as there are fewer private services in rural areas and a lower proportion of residents with private health insurance (Humphreys, Jones, Jones, & Mara, 2002; Taylor et al., 2008). However, many small rural communities are unable to sustain local health services so residents rely on visiting services or are required to travel to larger regional centres

(Humphreys, 2009). Loss or rationalisation of local health services, further compound issues of access to health services in many small communities (Humphreys, 2009).

### **Concepts of rurality**

There is extensive literature discussing concepts and impact of rurality in relation to health and health services in regional, rural and remote settings (Farmer, Munoz, & Threlkeld, 2012; Gregory, 2009; Humphreys, 1998, 2009; Wakerman, 2004; Wilson et al., 2009). Farmer, Munoz and Threlkeld (2012, p. 187) provide the insightful comment that whilst we are set on defining rural health, we are also keen to differentiate its many forms. Examples provided include the differentiation of remote health (Wakerman, 2004) and the distinction that rurality is different in large countries (Humphreys et al., 2008). The different concepts of rurality are discussed further in the context of understanding availability and accessibility of physiotherapy in rural Australia in Chapter 7.

Farmer, Munoz and Threlkeld (2012) suggest the term rural health '*... has become a 'catch-all' term that is blinding us to understanding of what lies beneath*' (p. 187), and further suggest that studying health and place may be beneficial. Conceptually this is relevant to the stimulus question prompting this research: how does a physiotherapist in a rural town decide what services to provide? Inherent in this question are issues of place, person and relationships. The detail of health service provision in specific rural communities is not visible when data describing health services, workforce or health status is collated and aggregated into state or national reports. Nor is this detail visible when local information is collated into geographical classification systems such as the Australian Standard Geographical Classification Remoteness Areas (ASGC-RA). Understanding the details of local health service provision and the factors influencing service provision and SLDM locally may assist in future service and workforce planning.

In summary, the complexity of the health system is revealed as one framed within the remit of multiple levels of government, informed by polarised philosophical perspectives and numerous competing interest groups. Policy, planning and funding decisions about service provision are complex, with some decisions more explicit than others. Understanding why people are choosing to make the decisions they do and what factors affect their decisions may provide another level of insight into local health service provision. This research explores

factors affecting local service provision and SLDM of just one aspect of rural health service provision, namely rural physiotherapy.

## **2.3 Decision making within health care**

Evidence-based decision making '*... is critical to improving efficiency and effectiveness of care*' (Humphreys, 2009). The past two decades have seen increases in the research capacity and research outputs of the physiotherapy profession (Bernhardt & Tang, 2008; Hodges, 2009), and rural health more generally (Bourke, Humphreys, Wakerman, & Taylor, 2010). However, identification of evidence available to support decision making at a service level poses a significant challenge to rural physiotherapists given the still limited body of rural physiotherapy research. The challenge is then compounded by the multiple, and at times conflicting, service requirements of individual patients, the community, employing organisations and referral sources. An iterative approach to searching the literature was undertaken to identify articles relevant to this research. This section provides an overview of findings, and at times, points to successive chapters for more detailed discussion. This is to both decrease repetition and locate the discussions in context of the articles that form findings located in Section 3.

## **2.4 Literature search**

An initial review of the rural physiotherapy literature was undertaken to identify SLDM about rural physiotherapy service provision. A broad search strategy was used recognising previously expressed limitations of peer review literature when researching rural physiotherapy workforce (Miles, Adams, Anaf, & Sheppard, 2010; Williams et al., 2007). The literature was searched using the key terms: 'rural', 'regional', 'remote', 'physiotherapy or physical therapy (speciality)' and 'Australia'. The search yielded both research (Table 2.3) and review/commentary articles (Table 2.4) describing regional, rural or remote physiotherapy, but no articles specific to SLDM about rural physiotherapy service provision. The research articles identified reveal consistencies with the broader Australian rural health literature, including workforce challenges and areas of work of regional, rural and remote physiotherapists.

Table 2.3 Australian rural physiotherapy research articles

Author	Aims	Design	Sample	Location of study
Mitchell, 1997	Determine perceptions of undergraduate physiotherapy students that would make them more or less likely to enter rural practice.	Self-administered questionnaires	Undergraduates at the University of Sydney. n=546 Response rate 546/607	Sydney, NSW
Butler & Sheppard, 1999	Assess the impact of the Rural Professional Issues Program for undergraduate physiotherapists at the University of South Australia.	Questionnaire.	Newly graduated physiotherapists in rural and metropolitan areas who had the opportunity to participate in the program.	South Australia
Sheppard, 2001	Identify the work practices of physiotherapists and the availability of other health professionals in rural and remote South Australia and Northern Territory.	Qualitative and quantitative survey.	All identified rural and remote physiotherapists in S.A. (n=100), and all N.T. physiotherapists, including Darwin. n=105 Response rate 72%	South Australia (S.A.) and Northern Territory (N.T.)
West & Gardner, 2001	Establish prevalence of occupational injury in physiotherapists in North and Central Queensland.	Self-administered questionnaire.	QLD registered physiotherapy in the north and central coast (postcodes 4565–4886). 445 questionnaires sent, 217 returned.	North and Central Queensland

			Response rate 53%	
Russell, Buttrum, Wootton, & Jull, 2004	Examine the experience of clinical physiotherapists and of 31 participants who received post TKR rehabilitation via the low-bandwidth telemedicine system.	Questionnaires before and after the treatment.	Thirty one patients who had undergone TKR surgery and who met the inclusion criteria were recruited. A total of 181 tele-rehabilitation consultations	Queensland
Williams et al., 2007	Inform rural physiotherapy recruitment and retention strategies by describing physiotherapists in the Shepparton region.	Survey (telephone interview or mail).	n= 84 Response rate 79%	Shepparton region, Victoria
Lindsay, Hanson, Taylor, & McBurney, 2008	Identify and measure the effects of workplace stressors.	Questionnaire.	All physiotherapists at three large regional hospitals (>200 beds) in Victoria. n=96 (80 part-time; 16 support staff). 98% response rate from 2 hospitals.	Victoria
Miles et al., 2010	Identify factors influencing retention in a regional area.	Qualitative interviews.	Practicing physiotherapists employed by Queensland Health in one regional centre. n=8	Regional centre, Queensland

Table 2.4 Physiotherapy review and commentaries or broader allied health articles

Author	Title	Focus
Schoo, 2008	Successful recruitment: what now	Broader Allied Health focus
Smith, Humphreys & Wilson, 2008	Profile of rural allied health workforce in Northern NSW and comparison with other studies	Broader Allied Health focus
Ruston, 2008	Extended scope practitioners and clinical specialists: a place in rural health	Review
Harvey, 2007	A first	Short narrative
Sheppard, 2005	What the people want: delivery of health services in rural and remote Australia	Review. Health and Allied Health focus
Arthur, Sheppard, & Dare, 2005	Redefining rural and remote physiotherapy practice.	Letter
Allen, 2004	Career and social structure	Letter

The search of the literature was repeated to identify further articles about physiotherapy in rural areas. The search language was limited to English and the databases searched included Medline, CINAHL, Embase and Cochrane, as well as Google Scholar. The search time frame was limited to ten years, but was extended in the search for decision making articles. The initial search strategy, using the terms [rural *or* remote *or* regional] AND [Physiotherapy *or* physical therapy (speciality)], was broadened to include 'OR [Allied Health]', which yielded 57 articles. Only 5 of the 57 articles were specific to physiotherapy (Arthur et al., 2005; Minisini, Sheppard, & Jones, 2010; Sheppard, 2005; Sheppard & Nielsen, 2005; Williams et al., 2007). Sixteen addressed rural workforce more generally, eight of which addressed issues of recruitment and retention. Ten studies contributed to the evidence base for managing specific clinical conditions in rural and remote settings; twenty were not specifically relevant to this

research, for example the focus was nursing or medicine and six considered aspects of access that could inform decisions about service provision (Figure 2.1).

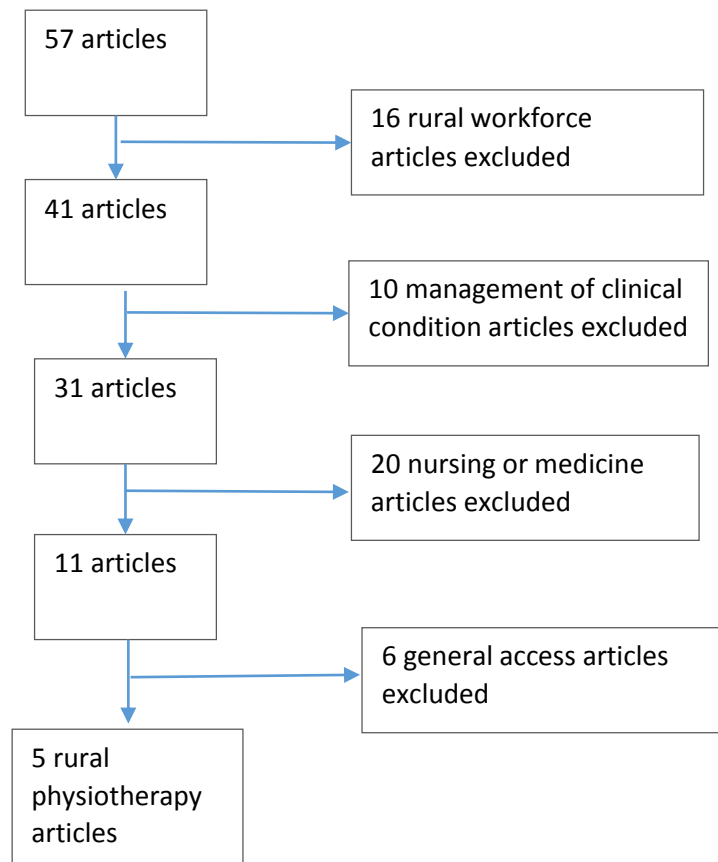


Figure 2.1 Search results

Only two of the five additional articles identified were specific to rural physiotherapy (Minisini et al., 2010; Sheppard & Nielsen, 2005). Minisini et al. (2010) discuss the findings of a narrative literature review of self-efficacy and rural physiotherapist workforce issues for rural physiotherapists with a specialist paediatric caseload. Sheppard and Nielsen (2005) suggest that rural physiotherapy has emerged as a discipline in its own right and discuss the challenges and a possible framework for rural and remote physiotherapists to be recognised as specialists within their own profession. The two papers raise key issues of generalist and specialist roles in rural physiotherapy with self-efficacy, that is, a person's judgement of their capabilities, key to both roles.

The search was broadened further to identify articles about physiotherapy and decision making more generally. Search terms included: [decision-making (not clinical decision making or clinical reasoning)], [priority setting], [rationing], [physiotherapy or physical therapy], [allied



health,] and [health]. 167 articles were found. Titles and abstracts were examined for relevance to rural physiotherapy SLDM.

While there is an extensive literature on priority setting in health care more generally (Arvidsson, André, Borgquist, Andersson, & Carlsson, 2010; Arvidsson, André, Borgquist, Mårtensson, & Carlsson, 2013; Clark & Weale, 2012; Daniels, 2000; Gericke, Kurowski, Ranson, & Mills, 2005; Gibson, Martin, & Singer, 2004, 2005; Kipiriri & Martin, 2010; Kipiriri, Norheim, & Martin, 2007, 2009; Martin & Singer, 2003; Martin, Giacomini, & Singer, 2002; Oxman, Schünemann, & Fretheim, 2006; Ranson & Bennett, 2009; Sibbald, Gibson, Singer, Upshur, & Martin, 2010), none were specific to physiotherapy.

Clarke and Weale (2012) acknowledge that setting health priorities requires value judgements, in particular social values. Gericke et al. (2005) provide a conceptual framework to inform priority setting in resource poor countries, including consideration of intervention complexity and implementation capacity. Oxman et al. (2006) reviewed the literature on priority setting for health care guidelines, recommendations and technology assessments, and Ranson and Bennett (2009) and Sibbald et al. (2010) discuss priority setting methods and evaluation.

Arvidsson et al. (2010) added three additional dimensions (viewpoint, timeframe and evidence level) to three criteria used nationally by the Swedish health care authorities (severity of condition, expected patient benefit and cost effectiveness). In 2013, Arvidsson et al. conducted 62 interviews of primary health care staff (including physiotherapists) to explore strategies to handle limited resources in Swedish routine primary care. Findings revealed rationing was largely implicit and not based on ethical principles or other defined criteria.

In response to a lack of consensus on the principles to resolve differences about rationing, Daniels (2000) proposed a process that allows agreement on what is legitimate and fair and suggested the process as an 'accountability for reasonableness'. The key elements for an 'accountability for reasonableness' were summarised by Martin and Singer (2003, p. 63) as '*relevance, publicity, appeals and enforcement*'. These parameters were reiterated when the perspectives of board members and senior administrators in three Canadian health care organisations were obtained (Gibson et al., 2004.). The senior decision makers identified priority setting, criteria process elements and parameters of success. The parameters of success included both outcome and process parameters. Outcome parameters include the

effect on organisational priorities and budget, the effect on staff and the effect on community. Process parameters include efficiency of priority setting process, fairness and conformity with consideration of ‘*accountability for reasonableness*’ (Gibson et al., 2004, p. 6).

Kapiriri and colleagues (2007, 2009, 2010) explored priority setting across different health systems, including Canada, Norway and Uganda, and stress the importance of priority setting in health care policy. Three levels of health care priority setting were described: national, provincial (macro level); regional, institutional (meso level); and clinical programs (micro level) (Kapiriri et al., 2007, p. 79). Martin and Singer (2003, p. 67) pose two questions: how should we set priorities and how do we know when we are doing well? Following a fair priority setting process is proposed as the answer to the first question and the answer to the second question they suggest will emerge using their proposed ‘... *describe-evaluate-improve strategy*’ (p. 67).

To identify further literature relevant to SLDM about rural physiotherapy service provision, the search was expanded to include descriptions of caseload, workload and benchmarks relevant to physiotherapy or allied health. Inclusion of grey literature further reflects the paucity of research in this area. Google Scholar alerts were also established for ‘rural physiotherapy’ and ‘decision-making’. This additional literature is summarised in Table 2.5.

Table 2.5 Additional literature relevant to SLDM about provision of physiotherapy services in rural areas

Author	Title	Type	Focus	Location
Cartmill, Comans, Clark, Ash, & Sheppard, 2012	Using staffing ratios for workforce planning: evidence on nine allied health professions.	Review	Sought to identify workforce ratios in nine allied health professions and concluded that the evidence for use of staffing ratios for allied health practitioners is scarce and lags behind the fields of nursing and medicine.	Transferable to the Australian context <i>(defined as being from a country meeting United Nations criteria for a developed economy)</i>
Fisher et al., 2012	Physiotherapy models of service delivery, staffing	Cross sectional telephone survey	Examined physiotherapy models of service delivery, staffing, and caseloads and	Canada

	and caseloads: a profile of level 1 trauma centres across Canada.		concluded variation exists between centres. Five day service provision with priority weekend coverage was common. Caseloads were higher in departmental organisational structures and linked with less than ten years of physiotherapy experience.	
Brown & Pirotta, 2011	Determining priority of access to physiotherapy at Victorian community health services.	Questionnaire (n=67)	Prioritisation of clients requesting physiotherapy in Victorian community health.	Victoria, Australia
Simmons & Kuys, 2011	Trial of an allied health workload allocation model.	Pilot study	Development and trial of an allied health workload allocation model incorporating the National Allied Health Casemix Committee Health Activity Classification.	Queensland, Australia
Scott & Cheng, 2010	Workload Measures for Allied Health Professionals Final Report.	Project report	Examined current data and knowledge on workload measures for allied health professions with a view to the main purpose: of obtaining high-level measures for future national workforce planning.	Australia

Miller-Mifflin & Bzdell, 2010	Development of a physiotherapy prioritisation tool in the Baffin region of Nunavut: a remote, under-serviced area in the Canadian Arctic.	Project report	Development and evaluation of a tool to prioritise physiotherapy referrals in a remote, under-serviced region in Canada's eastern Arctic.	Baffin region of Nunavut, Canada
Schoo, Boyce, Ridoutt, & Santos, 2008	Workload Capacity Measures for estimating allied health staffing requirements.	Project report	Identify: (i) current methods for quantifying workload capacity work; (ii) the use or potential use of these methods in allied health workforce planning in Victorian; and, (iii) barriers that may exist to applying such methods in the Victorian human services context.	Victoria, Australia
Doherty, 2007	Could we care for Amillia in rural Australia?	Commentary	Allied health early intervention for premature and low birth weight infants in rural Australia.	North west NSW, Australia
Adams, 2004	Progress in the development of recommended staffing levels for rural physiotherapy services.	Conference Paper	Described a process used, and progress to date, in the development of a possible formula to assist in recommending physiotherapy-staffing levels in public health services in rural areas.	NSW, Australia

The relative paucity of literature specific to rural physiotherapy SLDM required a broad approach and two key areas relevant to this research are considered further. The two areas explored in more detail are rural physiotherapy and decision making informing service provision.

### ***2.4.1 Rural physiotherapy***

Context, distance and workforce availability combine to provide a complex context for the provision of health services such as physiotherapy in regional, rural and remote communities. Rural physiotherapy in Australia is emerging as a discipline in its own right (Sheppard & Nielsen, 2005). Formal recognition of rural groups and representation within professional associations (Sheppard & Nielsen, 2005), the articulation of frameworks for specialisation (Holden, 2004) and a developing, though still limited, body of knowledge pertaining to rural physiotherapy (Williams et al., 2007) are indicative of this emergence. Rural physiotherapy is said to be characterised by location and scope, service implementation in a 'lower resource framework' and competency requirements across the clinical, administrative and professional domains (Fitzgerald, Hornsby, & Hudson, 2001, p. 12; Sheppard & Nielsen, 2005).

Physiotherapists, as one of the largest clinical professions (Williams et al., 2007) are an important part of the rural and remote health workforce (Sheppard, 2001). Physiotherapy workforce shortages and maldistribution (AIHW, 2013; Williams et al., 2007) result in fewer numbers in regional, rural and remote areas (AIHW, 2013, Table 5.12, p. 52). That only 20% of physiotherapists work beyond major cities (AIHW, 2013, Table 5.12, p. 52) implies reduced physiotherapy service availability. Despite residents of rural and remote communities experiencing poorer health outcomes and exhibiting higher health needs (AIHW, 2012), many rural and remote communities do not have access to the range of health services that large urban centres do (Wakerman et al., 2008). The challenge then becomes one of deciding what, where and to whom health services should be provided.

The growing rural physiotherapy literature reveals consistencies with the broader health workforce literature including: workforce profiles (Higgs et al., 2001; Schofield & Fletcher, 2007); recruitment and retention challenges (Miles et al., 2010; Roots & Li, 2013); workforce maldistribution (Schofield & Fletcher, 2007; Williams et al., 2007); workforce shortages (Schofield & Fletcher, 2007; Williams et al., 2007); workload stress (Harris, Cumming, &

Campbell, 2006; Lindsay et al., 2008; NRHA, 2004; Struber, 2003); tensions between the specialist and generalist career options (Allen, 2004; Minisini et al., 2010; Robertson, Oldmeadow, Cromie, & Grant, 2003; Sheppard & Nielsen, 2005) and a lack of positions (NRHA, 2004). Complementing workforce articles were articles on caseload or workload allocation (Brown & Pirota, 2011; Miller-Mifflin & Bzdell, 2010; Schoo et al., 2008; Scott & Cheng, 2010; Simmons & Kuys, 2011); specific clinical services and models (Russell et al., 2004) and service description articles (Sheppard, 2001; Williams et al., 2007). The workforce focus revealed in the literature, while important, is only one aspect of sustainable service provision in rural areas. Humphreys (2009) notes that:

*In the same way that many innovative models have failed to meet the sustainable service requirements, the current emphasis on 'workforce, workforce, workforce' has also failed to recognize that recruitment to and retention in rural and remote areas will remain problematic without all the other service pre-requisites in place. (p. 37)*

However, an understanding of rural physiotherapy workforce issues provides a basis from which to explore factors influencing rural physiotherapy service provision and related SLDM.

### **Physiotherapy workforce**

Schofield and Fletcher (2007) describe the physiotherapy workforce as one that is ageing (attrition rates listed as 15% by 2016 and 41% by 2026); masculinising; and working more, partly due to increasing numbers of males. Physiotherapy has been a predominantly female workforce (AIHW, 2013; Ellis et al., 2005) and it has been suggested that the masculinisation of the physiotherapy workforce has a negative effect in some sectors—notably public sector and aged care (Schofield & Fletcher, 2007, p. 125). Schofield and Fletcher (2007) suggest that *'the public sector is already seriously understaffed and the situation is unlikely to be improved by the shifting gender ratio'* (p. 125) as fewer males elect to work in the public sector. This may see the ability of public physiotherapy workforce to deliver services fall short of demand (Schofield & Fletcher, 2007, p. 125). The increasing proportion of the physiotherapy workforce working in the private sector is revealed in profiles of physiotherapists at state and national levels. One state profile of physiotherapists from 1975 to 2002 revealed nearly a doubling of the proportion of physiotherapists working in the private sector (1975=30%; 1989=48%; 2001=58% ) (Ellis et al., 2005). National data confirms this trend with 65% of clinical fulltime equivalents (FTE) working in the private sector in 2012 (AIHW, 2013, p. 51).

## **Physiotherapy workforce supply and distribution**

*Physiotherapy in Australia is held in high esteem - it has a clear identity and professional status and is likely to be seen as a desirable future occupation for both genders. (Turner, 2001, p. 191)*

The overall supply of physiotherapists in Australia increased from 2011 to 2012 from 78.3 per 100,000 population to 79.7 (AIHW, 2013, p. 44). The supply of physiotherapists varies with remoteness, with a fairly constant proportion of 80% of physiotherapists working in major cities (AIHW, 2013; Ellis et al., 2005). In 2012, 13% worked in inner regional areas; 5% in outer regional areas; and only 1% worked in remote and very remote areas (AIHW, 2013, p. 52). Local rural workforce information is generally not available (Williams et al., 2007). Anderson, Crabtree, Steele and McDaniel (2005) noted that while proportionally fewer were working in rural areas, the absolute number had continued to rise. However, there remains a relative maldistribution of the physiotherapy workforce with higher proportions of physiotherapists working in a capital city or other major city (80%) compared to the proportion of the population residing in these areas (70%). As Australia's 23 million people are spread across 7.6 million square kilometres (Australian Bureau of Statistics [ABS], 2013), distance then provides an additional challenge for the remaining 20% of the physiotherapy workforce to provide services to 30% of the population dispersed across the nation. Workforce shortages and challenging recruitment and retention are common themes in the rural physiotherapy literature.

### **Recruitment and retention**

The findings of an early study identifying factors that were perceived inhibitors for undergraduate physiotherapy students to enter rural practice (Mitchell, 1996) have been reiterated and explored in successive studies (Miles et al., 2010; Roots & Li, 2013). Perceived inhibitors included social, physical, recreational and professional factors. Lifestyle related factors were the main reason physiotherapy students identified for entering rural practice. A meta-synthesis of qualitative studies of factors associated with recruitment and retention of occupational therapists and physiotherapists in rural regions was undertaken (Roots & Li, 2013). The analysis revealed that *'therapists' decision to locate, stay or leave rural communities was influenced ... by the availability and access to practice supports, opportunities for professional growth and understanding of rural practice'* (Roots & Li, 2013, p.

1). Further analysis by the authors of the three main themes that emerged in this meta-synthesis revealed that professional support from the organisation was critical to retention (Roots & Li, 2013, p. 10) and converting the challenges of rural practice into rewards through positive experiences also appeared to be associated with retention. Interestingly, Roots and Li (2013) note levels of confusion as to whether a factor contributed to recruitment and/or retention as they appeared to be the same that deterred therapists from entering or remaining in rural practice. Examples provided include rural setting as an initial attractant, but geographical isolation may also contribute to attrition and the challenge of rural practice, initially sought by some therapists, but also a reason for leaving (Roots & Li, 2013, p. 10). The importance of opportunities to grow professionally was linked to job satisfaction and was a significant predictor of retention (Roots & Li, 2013, p. 100). Prior knowledge of rural practice '*obtained through lived experience or through clinical education fieldwork placements*' was identified as a key factor for both recruitment and retention (Roots & Li, 2013, p. 110).

A study of factors influencing retention of regional physiotherapists (Miles et al., 2010) found the most common retention factor was personal affiliation with the regional city, including being close to family and friends. Additional retention factors were lifestyle and environment. However, as negative factors were based more on professional issues, the importance of maintaining high levels of professional satisfaction to retain physiotherapists with no personal connection to the community was highlighted. This adds weight to the findings of Roots and Li (2013) and highlights the importance of converting the challenges of rural practice into rewards through positive experiences, particularly for therapists with no personal connection to the community. These findings are echoed by Campbell, McAllister and Eley (2012) in their review of the literature describing the motivation of allied health professionals (AHPs) to work in remote and rural areas. Analysis was undertaken from the perspective of motivation theory using Herzberg's intrinsic and extrinsic classification. Findings include the importance of adopting a dual approach to simultaneously address extrinsic disincentives (poor access to professional development, professional isolation and insufficient supervision), while nurturing and developing the existing intrinsic incentives (autonomy and community connectedness) (Campbell et al., 2012, p. 2).

Schoo et al. (2005) developed a conceptual model for enhancement of recruitment and retention of allied health workforce in Western Victoria, Australia. Recruitment and retention factors were grouped into three domains: personal, organisational and community. The three



domains resonate with the findings of Roots and Li (2013) and Miles et al. (2010). Schoo and colleagues (2005) note that some factors, such as geographic location of extended family, cannot be changed while other factors can be influenced (e.g. education, support and management style). They pragmatically suggest a focus on the latter factors, rather than those factors that cannot be influenced, and developed a model for enhancement of recruitment and retention of AHPs (Schoo et al., 2005, p. 12). Resonating with comments of Humphreys (2009) about the limitations of the emphasis on workforce, Schoo et al. (2005, p. 13) suggest that recruitment is likely to be enhanced when retention is optimal.

### **Workforce and position shortages**

*The health care systems in Australia are under pressure from health workforce shortages, increasing costs and an ageing population with a high prevalence of chronic disease (Dunbar & Reddy, 2009, p. 27)*

Compounding the issues of physiotherapy workforce maldistribution and increasing privatisation of the physiotherapy workforce are workforce shortages and insufficient positions for health professionals in rural areas (NRHA, 2004, p. 11). A common feature of rural and remote regions of Australia is a greater reliance on the public sector for the provision of allied health professional services (including physiotherapy), and often a limited development of private services (NRHA, 2004). The 2004 NRHA position paper on AHPs in rural and remote areas notes that:

*One of the main issues impacting the recruitment of allied health professionals is a historical shortage of positions to meet the community needs, particularly in remote areas. Battling workforce shortages through recruitment and retention initiatives is ineffective if the number of workforce positions does not come close to meeting the basic community need – one cannot recruit people to positions that do not exist. A lack of positions contributes to burnout, thereby exacerbating recruitment and retention problems (NRHA, 2004, p. 11).*

## **Stress**

A survey of Australian AHPs, including 13% physiotherapists, found health professionals frequently report high levels of stress (Harris et al., 2006, p. 198). It has been suggested that high levels of professional burnout and stress, *'resulting in low retention and high job turnover is one result of the inadequate numbers of allied health professionals in rural areas to meet community needs'* (NRHA, 2004, p. 70). The link between job dissatisfaction and high turnover rate of AHPs in remote and rural areas was reiterated by Campbell et al. (2012, p. 11), who highlighted negative intrinsic factors such as feeling overwhelmed and that their work was not valued by the community.

The ageing population and advances in medical care are placing great demands on the public health system, including high demands on physiotherapy services (Lindsay et al., 2008, p. 198). Health professionals, such as physiotherapists, face mounting demands on both their time and professional responsibilities resulting in changes to workload (Lindsay et al., 2008). Exploration of stressors of physiotherapists in three regional public sector hospitals with over 200 beds in Victoria revealed a range of stressors predominantly revolving around workload and staffing issues (Lindsay et al., 2008). Key workplace stressors identified included caseload quantity, complexity of patients, constant excessive workload, covering staff on leave and staff shortages (Lindsay et al., 2008, p. 194).

The studies of physiotherapists in regional facilities reveal similar issues described in the rural physiotherapy literature (Miles et al., 2010; Williams et al., 2007). These studies broaden the conceptual understanding of rural physiotherapy from that of a physiotherapist working on their own or with one to two others in small rural towns, to include larger numbers of physiotherapists providing services to people in regional communities. The study of rural and remote AHPs by Fitzgerald et al. (2001, p. iii) noted that AHPs in rural and remote areas within the sample studied were most likely to reside in a regional centre (31.9%).

## **Service settings**

Despite physiotherapy services being the most sought after health services in rural Australia after medical and nursing services (Sheppard, 2001, p. 85), the work practices of physiotherapists in rural and remote areas are not well documented. Existing literature provides some insight into the areas of work of rural physiotherapists (Higgs et al., 2001;

Sheppard, 2001; Williams et al., 2007). The breadth of services provided reflects the ongoing challenge of rural and remote physiotherapists to meet the diverse health needs of the people in rural and remote Australia (Sheppard, 2001). The requirements extend beyond clinical services, often combining the roles of primary clinician, educator, manager and patient advocate (APA, 2004). Rural physiotherapy practice is considered more diverse than the practice of metropolitan colleagues and is often described as a specialist-generalist, with a reduced opportunity to specialise (Sheppard, 2001) in specific clinical areas despite a desire to do so (Williams et al., 2007). It has been suggested that a process for specialisation in rural and remote is required (Holden, 2004; Sheppard & Nielsen, 2005). Proposed options include adapting the APA clinical specialisation process to one that would work for rural physiotherapy while reflecting the positives of rural practice and capability requirements (Holden, 2004; Sheppard & Nielsen, 2005).

Work settings of physiotherapists in regional, rural and remote areas include public, private, community and other non-government organisations (NGOs) with a high proportion of generalist practice (Fitzgerald et al., 2001, p. 12). Two descriptions of physiotherapy services revealed differences in practices within and between states. Sixty five percent of participants in one study investigating work practices of rural and remote physiotherapists in South Australia and the Northern Territory, worked predominantly in private practice (Sheppard, 2001). Eighty five percent of respondents considered their practice to be a general practice, with fifteen percent having developed specialised services such as sports and musculoskeletal, paediatrics, ante and post-natal care and remote Aboriginal health (Sheppard, 2001). The private practitioners in this study were less likely to practise in Aboriginal health, paediatrics, cardiorespiratory, gynaecology or neurology than those with hospital involvement (Sheppard, 2001). Despite this diversity, there were two clinical skill areas that were commonly practised: musculoskeletal (90%) and orthopaedic (86%) physiotherapy (Sheppard, 2001). In contrast is a later Victorian study, which found 70% of the respondents held public sector positions: 40% in public hospitals; 15% in community health centres and 15% in academic or government departments (Williams et al., 2007). Respondents described their clinical practice areas as outpatients (32%), general physiotherapy (25%), or musculoskeletal physiotherapy (22%). Again, in contrast to the South Australian/Northern Territory study, in which only 15% had specialised areas of practice, 38% of physiotherapists in the later Victorian study considered that they specialised in a particular area of physiotherapy. Additionally, 53% of respondents, both public and private, provided health promotion activities and illness prevention programs,

including strength and balance programs for older persons, groups for hydrotherapy, cardiopulmonary rehabilitation and community presentations. Nearly all respondents in this study considered they were primary health care providers with patients self-referring (Williams et al., 2007). These two studies, while noting the difference in time frames and methodologies, suggest differences in the provision of rural and remote physiotherapy services across states and territories.

Despite the growing body of literature describing regional, rural and remote physiotherapy workforce and articles describing service provision (Sheppard, 2001; Williams et al., 2007), there is little or no literature found to date describing decision making about rural physiotherapy service provision or of the factors influencing those decisions. The scope of physiotherapy service provision covers the lifespan and extends across the continuum of care from primary care to specialist tertiary level services. The question at the heart of this research is: how then, are decisions made about which, of all the possible service options, are provided within a rural community? Related questions include: who makes the decisions about physiotherapy service provision and what are the factors that influence these decisions?

### ***2.4.2 Decision making***

Decisions are made at all levels of a system or organisation. Decision making within health services occurs at micro, meso and macro levels. Respectively, these may include decisions at the clinical or service level, the regional or facility level and the state or national level (Chapman & Sonneberg, 2000; Sibbald, Singer, Upshur, & Martin, 2009). At a macro level, health policy decisions frame the broad context for health service provision. Meso level decisions at the health facility level use numerous approaches and are influenced considerably by macro level decisions (Eagar et al., 2001). At the micro level, it is possible to consider two types of decision making: CDM at the patient–therapist interface; and SLDM by individuals about service provision.

#### **Macro level decision making**

Decisions made at state or national (macro) levels provide a framework for decision making at other levels of the health system. Health policy is used here as an example of macro level decision making that informs and influences other health related decisions. The term ‘health policy’ includes actions that affect the set of institutions, organisations, services and funding

arrangements that form the health care system (Palmer & Short, 2010, p. 23). Policy makers have been defined as *'anyone who either makes health-related decisions or influences health-related decisions of others'* (Chapman & Sonneberg, 2000, p. 147). Singer (1997, as cited in Chapman & Sonneberg, 2000, p. 147) classified these individuals as micro, meso and macro level decision makers. Health policy has been differentiated from other policy areas by three key elements: the medical professions' role in shaping and constraining health policy; the complexity of health care provision and the inability of individual consumers to distinguish between good and poor quality services; and the nature of decision making in health matters where life and death matters may be involved (Palmer & Short, 2010, p. 25).

Health policy reform and barriers have been seen as the outcome of conflicts between three major health groups or structural interests by Alford (as cited in Palmer & Short, 2010, p. 43). *'Interest groups or stakeholders have a stake in the outcome of a policy'* (Palmer & Short, 2010, p. 43). That is, that stands to gain or lose in some way from implementation of the policy. Structural interests are those alliances of interest groups that stand to gain or lose from the health care system as it is currently organised. Alford (as cited in Palmer & Short, 2010) described three groups: professional monopolists, corporate rationalisers and community interest groups (Table 2.6). The professional monopolists were seen to dominate the relationship between these three groups, with the corporate rationalisers seeking to challenge their position. Alford (as cited in Palmer & Short, 2010, p. 43) viewed the community interest groups as repressed and trying to become more influential. Some systems are working to shift this balance. The Netherlands, for example, are empowering consumers to make informed health care decisions by providing information about comparisons between health plans and service providers (Dunbar et al., 2007).

Table 2.6 Structural interest groups

Professional monopolists	<p>Principally the medical practitioners who have been able to:</p> <ul style="list-style-type: none"> <li>-secure exclusive legal rights to undertake a range of diagnostic and therapeutic services,</li> <li>-persuade the population that the knowledge and skills its members possess make a unique contribution to the health of the community and,</li> <li>-benefit from the health care system the way it is (along with fellow professional monopolists such as pharmaceutical and equipment manufacturers).</li> </ul>
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Corporate rationalisers	Consists of planners, administrators and some health professionals whose: -interests are served by the promotion of greater efficiency, effectiveness and equity in the provision of health services, -benefit from a reformed health care system, as their domains of responsibilities increase with the implementation of policy reforms such as Medicare, casemix based hospital funding and evidence-based health care.
Community interest	Consists of a variety of organisations and agencies, often representing single client groups who have in common their desire to improve the health care available to the community.  Compared to the first two groups, this group are relatively diffuse, poorly financed and generally lacking bargaining power

(adapted from description of the work of Alford, as cited in Palmer & Short, 2010, pp. 43–44).

Three decision making processes have been described at the macro policy level: rational comprehensive; incrementalism; and mixed scanning (Palmer & Short, 2010, p. 29). Rational comprehensive decision making considers all possible options and requires a clear understanding of the policy objective to be achieved, comprehensive information about each objective, their advantages and disadvantages and a rational objective method of evaluation and decision making (Palmer & Short, 2010, p. 29). Palmer and Short (2010) suggest that decisions made in this comprehensive manner form a small proportion compared to the proportion of policy decisions made on an ad hoc or 'incrementalist' basis (Palmer & Short, 2010, p. 29). Incrementalism, or muddling through, involves making small adjustments to existing policies rather than reviewing all the alternative strategies for achieving the policy objective (Palmer & Short, 2010, p. 29). Palmer and Short (2010) consider incrementalist decision making as tending to yield politically safe, expedient and practical policy decisions. Mixed scanning is a compromise approach employing both rational comprehensive choice and incrementalist decision making processes (Etzioni, 1967 cited in Palmer & Short, 2010, p. 29). In this approach, major issues are established using rational comprehensive choices and incrementalist decision making is applied to choosing options within these areas.

National and state macro level decisions provide the framework in which meso and micro level decisions are made. The policies and decisions are influenced by the prevailing philosophy of the government of the day, for example libertarian or egalitarian. Structural interest group input then further qualifies and shapes macro level decision making within the health system.

## Meso level decision making

Meso level decision making at a regional or facility level is informed by decisions and policies made at state or national levels. Meso level decisions include those that inform the implementation of macro level decisions and decisions about resource allocation within local area and facility programs (Putoto & Pegoraro, 2011, p. 65). An example of this is the allocation of resources to preventative programs or treatment services or to a particular patient group. Health service planning informs decisions at all levels and is required to both predict and respond to constant changes within the health service arena (Humphreys, 2009, p. 35).

Service planning, described as '*... the process of developing and implementing change in the provision of health services*', has been characterised as either population based planning or institution based planning (Eagar et al., 2001, p. 203). Population based planning emphasises the identification of population issues, whereas institutional based planning focuses on an existing service or service delivery organisation (Eagar et al., 2001, p. 203) (Table 2.7). Service planning values and parameters include accessibility, equity, efficiency, quality and effectiveness (Eagar et al., 2001, p. 204). As in the delivery of health services, some of these values can come into conflict at times, for example efficiency and accessibility.

Table 2.7 Health service planning

	Population based planning	Institutional based planning
Characteristics	<ul style="list-style-type: none"> <li>-emphasises the identification of population issues.</li> <li>-commences with a needs assessment.</li> <li>-is based on analysing health problems or issues for their distribution, determinants, causes and risk factors.</li> <li>-assesses and determines priorities for intervention.</li> </ul>	<ul style="list-style-type: none"> <li>-focuses on an existing service or service delivery organisation.</li> <li>-commences with a situational analysis.</li> <li>-establishes service goals and objectives.</li> <li>-uses output data as a major source of information.</li> <li>-looks at evidence and economic assessment for most effective interventions.</li> <li>-develops service strategies.</li> </ul>
Outcomes	The focus on health outcomes is now more common in both approaches. This occurred following the shift from outputs in health policy in the 1990s	

Stakeholders	Communities or section of communities.	Providers, whose issues need to be addressed.
Applicability	-approach emphasises health improvement, availability and access, system efficiency and cost containment, and cost effectiveness of resource distribution.	-oriented towards achieving organisational efficiency, market share and quality of outcomes. -often used for clinical services planning or further developing an existing service.
Key concepts	-health outcomes. -burden of disease. -determinants of health and health planning.	-health service planning standards. -role delineation of services. -benchmarking services. -demand and supply. -service catchment and flow patterns. -key output and outcome measures.

(adapted from Eagar et al., 2001, pp. 203–10)

Meso level service planning at regional or facility levels provides an additional systems framework for decisions about service provision. The approach to planning (institutional or population based) further informs decisions about the range and type of services provided, including for example, a prioritised focus on population or service based issues. Relevant to physiotherapy service provision and SLDM are decisions made at both macro and meso levels. Decisions at both levels, about resource allocation and health service priorities for example, provide the framework for SLDM about physiotherapy services.

### **Micro level decision making**

Within the broader health system where macro level, national and state decisions inform meso level, regional and facility decision making, it is possible to consider two types of decision making at a micro level: decisions at the patient–therapist interface or CDM; and decisions about service provision or SLDM. The Australian Standards for Physiotherapy require physiotherapists to be able to identify the needs of different settings and adjust services and models of delivery to match those needs (APC, 2006). Whilst this is true for all contexts, the relative resource scarcity in rural areas compared to metropolitan settings (Sheppard &



Nielsen, 2005), places a potentially greater requirement on rural physiotherapists' decision making for both CDM and SLDM.

### **Clinical decision making**

CDM is well described in the physiotherapy literature (Edwards & Richardson, 2008; Edwards, Braunack-Mayer, & Jones, 2005; Edwards, Jones, Carr, Braunack-Mayer, & Jensen, 2004; Finch, Geddes, & Larin, 2005; Grimmer-Somers, 2007; Smart & Doody, 2007; Smith, Higgs, & Ellis, 2007, 2008a, 2010). CDM is *'both an outcome and a process of clinical reasoning: and is considered pivotal to professional practice'* (Higgs, Jones, Loftus, & Christensen, 2008, p. 89). Independent and responsible decision making is regarded as a characteristic of autonomous health professionals (Edwards et al., 2004, p. 313). Higgs et al. (2008) suggest that CDM is a more complex process than simply making a choice between competing alternatives (Palmer & Short, 2010, p. 29). Higgs and colleagues (2008, p. 89) suggest health professionals are required to make decisions with multiple foci, in dynamic contexts using a diverse knowledge base with multiple variables and individuals involved. They continue by saying that *'clinical decisions are characterised by situations of uncertainty, where not all the information is necessarily available to them'* and that CDM is *'seldom a single choice made from fixed alternatives'* (Higgs et al., 2008, p. 90). These authors suggest that *'decisions are embedded in action cycles where situations evolve and where decisions and actions influence each other'* (Higgs et al., 2008, p. 90).

While the focus of the physiotherapy decision making literature has been CDM at the patient-therapist interface, the requirements and characteristics of CDM may also be applicable to SLDM informing which service will or will not be provided. SLDM about the provision of physiotherapy services in rural areas forms the focus of this study.

### **Physiotherapy service level decision making**

At the service level, policy and health planning decisions made by macro and meso decision makers provide the framework in which decisions are made about which services can be provided. The descriptions of physiotherapy service provision in regional, rural and remote areas reveal the differences in services provided (Sheppard, 2001; Williams et al., 2007). The differences revealed across sector (public or private), location (regional, rural or remote) and setting (hospital or private practice) suggest different SLDM processes may be adopted.

Similarly, the size of the service or facility in which the services are provided and the geographical location are potential influencing factors on decisions made about physiotherapy service provision. How and to what extent these factors influence SLDM about physiotherapy service provision in rural areas is not evident in the literature.

## **Two focus areas**

In the absence of any substantive literature describing rural physiotherapy SLDM, issues in the existing literature provided two key focus areas relevant to this research. The issues informing the focus areas are rural workforce shortages and the complexity of decision making in large health care organisations. Workforce shortages and a dispersed rural population suggest a demand-resource imbalance that necessitates prioritisation of services. The complexity of decision making within large organisations with multiple layers of decision makers and significant contextual variation suggests the usefulness of an approach that recognises overlapping non-linear processes of decision making. The characteristics described within naturalistic decision making (NDM) (Orasanu & Connolly, 1993) resonate with the challenges of rural physiotherapy SLDM. These challenges include making decisions about service provision within highly complex health care systems with multiple elements and interrelationships that are dynamic and exist in an ever-changing or fluid environment (Daellenbach & McNickle, 2005, p. 108).

## **Prioritisation**

Where there is a demand-resource imbalance, decision making about the allocation of resources is required. Resource allocation, alternatively referred to as prioritisation or rationing (Arvidsson et al., 2010; Martin & Singer, 2003; Sibbald et al., 2009), occurs at all levels of the health care system where demand exceeds available resources (Arvidsson et al., 2010; Martin & Singer, 2003). Rural health services, *'many of which struggle to secure resources and recruit and retain staff'* (Bourke et al., 2012, p. 496), exemplify the challenges of health service provision where there is demand-resource imbalance. These challenges are exacerbated by the lower health status and health outcomes of many rural residents, which are more evident with increasing levels of rurality and remoteness from metropolitan centres (Humphreys, 2009, p. 35).

The concept of a demand-resource imbalance is also relevant to rural physiotherapy. Workforce data indicates there are fewer physiotherapists working in regional, rural and remote areas and proportionately lower (20%) than compared to the population residing in non-metropolitan Australia (30%), inferring resource imbalance. Decisions therefore are required about which physiotherapy services will be provided. The literature on SLDM is limited, however, physiotherapy caseload and workload prioritisation tools (Brown & Pirotta, 2011; Christie, 1999; Miller-Mifflin & Bzdell, 2010; Schoo et al., 2008; Scott & Cheng, 2010; Simmons & Kuys, 2011) provide examples of SLDM where available resources do not meet demand. Prioritisation or rationing of services, described in more detail in Chapter 9, is a means for professionals to cope with budgetary or other pressures and is often not a deliberate or conscious process (Putoto & Pegoraro, 2011, p. 66; Arvidsson et al., 2013). Rationing involves addressing questions such as: what treatments or health care services should be provided? How should these services be distributed amidst budgetary constraints? Who decides? How? Based on which criteria? (Putoto & Pegoraro, 2011, p. 63). Deciding what health services are provided is a key consideration in delivering appropriate and accessible health care for rural and remote populations (Humphreys, 2009). Micro level SLDM includes decisions about the allocation of available resources to best meet the many demands that multiple stakeholders expect of the physiotherapy service.

### **Naturalistic decision making**

Relevant to rural physiotherapy SLDM is that NDM seeks to '*understand how human decision-makers actually make decisions in complex real world settings*' (Orasanu & Connolly, 1993, p. vii). The key features of NDM resonate with the challenges facing rural physiotherapists in making decisions about which services to provide. These features are dynamic and continually changing conditions; real-time reactions to these changes; ill-defined goals and ill-structured tasks; and knowledgeable people (Orasanu & Connolly, 1993, p. vii). Orasanu and Connolly (1993) contend that decision making performance in everyday situations is a joint function of two factors: the features of the task and the subject's knowledge and experience. They continue to detail eight characteristics of NDM that are similar to those of highly complex health care systems:

- Ill-structured problems
- Uncertain dynamic environments
- Shifting, ill-defined or competing goals

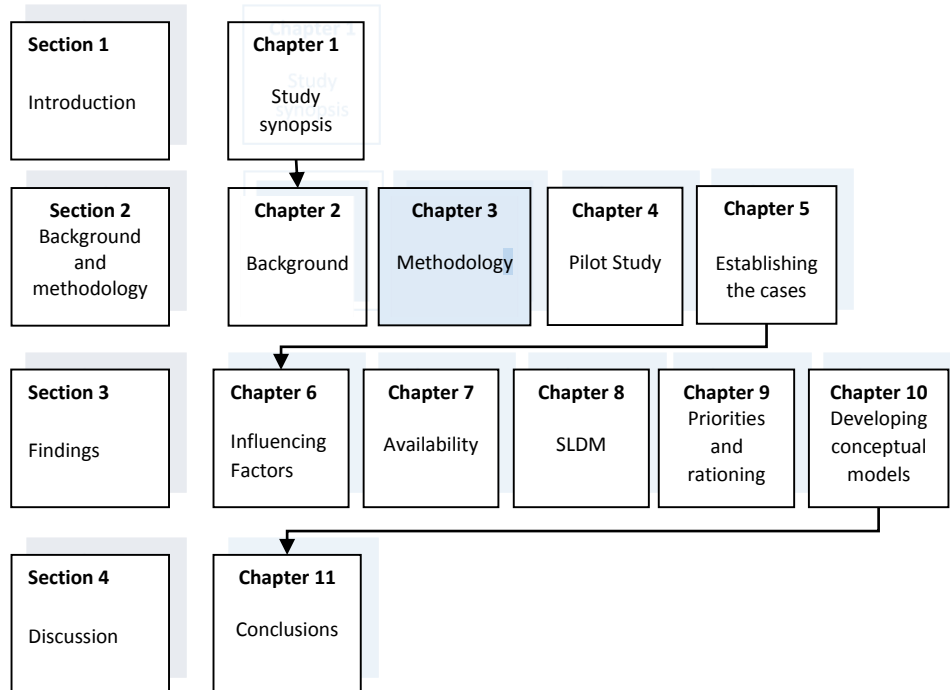
- Action/feedback loops
- Time stress
- High stakes
- Multiple players
- Organisational goals and norms (Orasanu & Connolly, 1993, p. 7).

## **2.5 Summary**

This chapter has provided contextual background and literature relevant to the exploration of rural physiotherapy SLDM. Background information on three key areas (physiotherapy in Australia, the Australian health care system and rural health) provides the context for this research. Physiotherapy in Australia has a clear identity and professional status and despite an increase in workforce supply, the workforce maldistribution continues to see only 20% of physiotherapists working outside major cities. The complexity of the health system is revealed as one framed within the remit of multiple levels of government, informed by polarised philosophical perspectives and numerous competing interest groups. The lower health status and health outcomes of people in rural areas combine with the relative resource scarcity to add to the challenges of health system and service provision.

As there was a paucity of literature specific to SLDM informing rural physiotherapy service provision, decision making was explored within different levels (macro, meso and micro) and then within the concept of service prioritisation. This study seeks to contribute to the gap in the literature by exploring stakeholder perspectives of SLDM about rural physiotherapy service provision and factors influencing SLDM.

### 3. Chapter 3: Methodology



#### 3.1 Introduction

Current health care reforms and fiscal environment increase the relevancy of health service review and critique. Adopting research approaches that enable review and that recognise the complexity and variety of organisational, social and geographical settings in which health care services are delivered is important. A review or critique does not necessarily consist of saying that things are not good the way they are. Rather, it consists of seeing what type of assumptions, familiar notions or established, unexamined ways of thinking the accepted practices are based upon (Foucault, 1994, p. 456).

Such assumptions and ways of thinking may not be revealed by the adoption of a singular methodological approach. Quantitative data, frequently used in health service reporting, tends to reveal what, how much and where services are provided rather than how or why they are provided (Clark, 2000). Qualitative research can provide insight into health services in a way existing statistical data does not. Qualitative inquiry is appropriate to examine the questions of how and why services are delivered and to assist in making sense of real world health situations (Kuzel, 2010, p. 1465).

There is increasing recognition of the value of learning from those who deliver and receive services (Thorne, 2011), which can assist in revealing stakeholder assumptions, notions and ways of thinking. Approaches provided by qualitative research enable participants to reveal their thoughts and perceptions within their context (Liamputtong & Ezzy, 2005). This is highly relevant to health services research because it allows the exploration of the perspectives of multiple stakeholders across different settings and services about an issue of interest. This adds depth and meaning to quantitative data.

### **3.2 Mixed methods approach**

Combining qualitative and quantitative methods provides possibilities for health researchers to grapple with the complexity of health (Morgan, 1998), and the factors that influence both health care and health service provision. It has been suggested that combining both qualitative and quantitative approaches can enhance the overall strength of a study such that it is greater than either qualitative or quantitative research on their own (Creswell, 2009, p. 4).

Recognition of the underpinning epistemological differences (Morgan, 1998) through articulation of philosophical world views, strategies of inquiry and research methods (Creswell, 2009) is important to any research design. This is even more so when adopting a mixed methodological approach, which requires acknowledgement of paradigmatic differences between qualitative and quantitative approaches and a clear framework for the application of both to guide the exploration of the issue of interest.

Adopting a constructivist or interpretivist worldview within qualitative paradigm is particularly relevant to addressing how and why questions of health services research. Relevant to health service researchers who seek to understand an issue of interest, is that constructivists hold the view that individuals develop multiple and varied meanings of their experiences (Creswell, 2009, p. 8). Gaining insight into the perspectives of individuals enables the researcher to look for complexity of views and also to address processes of interaction among individuals (Creswell, 2009). Further, this approach allows researchers to focus on the specific context in which people live and work (Creswell, 2009), which is important when seeking to understand the setting in which health services are delivered. Research aims then drive the mixed methods approach adopted, with appropriate combinations of both quantitative and qualitative techniques often enhancing the achievement of the research purpose.

Three mixed method approaches are commonly described: sequential, concurrent and transformative (Creswell, 2009). A sequential approach to inquiry is particularly relevant to exploration of new or relatively unexamined aspects of health care or health service provision. A preliminary study assists with identification of key issues and can inform the more detailed inquiry of the major study. Morgan (1998) presented a practical integration and synthesis of earlier works on combining quantitative and qualitative methods in his priority-sequence model. Morgan's (1998) four models were based on a priority decision and a sequencing decision: whether quantitative or qualitative approach was the prioritised or dominant approach and which preceded the other (Figure 3.1).

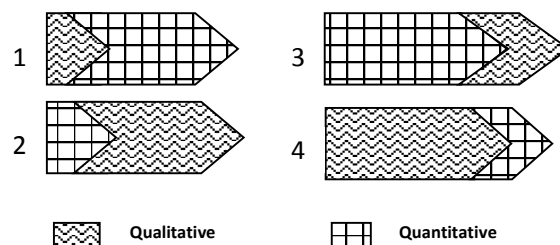


Figure 3.1 Models of combining qualitative and quantitative approaches (adapted from Morgan, 1998, p. 368).

A quantitative approach is prioritised in Morgan's (1998) first and third models. The first commences with a qualitative component that guides the quantitative data collection and may assist in generating hypotheses or developing content for surveys. In the third model, a qualitative study follows the prioritised quantitative component to contribute to the evaluation or interpretation of results. The reverse is reflected in the second and fourth models, where a qualitative approach is the principal method. The second model has the qualitative component preceded by a smaller quantitative component that guides the qualitative data collection by informing purposive sampling and establishing preliminary results for in-depth exploration. In the fourth model, the prioritised qualitative component is followed by a quantitative component to help generalise results to a different sample and to test elements of emergent theories (Clark, 2000, p. 6).

Adopting a sequential approach provides a framework for health researchers to investigate an issue of interest in complex organisations by providing structure to obtain data from multiple

sources. The priority and sequencing will then be informed by the intent of the research and influencing factors such as current understanding of the issue of interest, contextual considerations and the practicalities of time and resource availability to support exploration.

### ***3.2.1 A sequential mixed methods approach within a systems theory-case study heuristic***

To understand organisational issues, such as how and why health care services are provided, requires recognition of the range of influencing factors, the complexity of the health service organisation and the context in which services are delivered. Also important is an understanding of the impact of external factors on health services provided by an organisation. These requirements suggest the applicability of both case study and a systems approach. Case study design supports the use of multiple data sources and is appropriate where the research aim is to explore contextual or complex multivariate conditions and not just isolated variables (Yin, 1993). A systems-focussed approach is recommended to articulate interdependent components that contribute to or compromise the effectiveness of health care interventions or programs and provide insight into questions of 'why' and 'how' and the 'what' of contexts (Alexander & Hearld, 2012). Both case study and a systems-focussed approach align well to the use of quantitative and qualitative approaches and are particularly amenable to the application of Morgan's (1998) priority-sequence models to guide data collection.

The systems theory-case study heuristic (Anaf, Drummond, & Sheppard, 2007) provides a research design suitable to understanding 'why' and 'how' questions within a given context. Both case study and systems theory methodologies have been utilised in health and health care research (Anderson, Crabtree, Steele, & McDaniel, 2005; Dooris, 2005; Gallego, Taylor, & Brien, 2007; O'Meara, 2003). More recently, the two have been combined to offer a heuristic model that enables '*the specifics of the case to consider the influence of the broader systems and external environments*' (Anaf et al., 2007, p. 1309). Combining systems theory and case study methodology offers the opportunity for in-depth exploration as well as comparative analysis between cases in the context of the system (Anaf et al., 2007).

Posing how and why questions suggest the adoption of a qualitative approach to inquiry. The challenge is then one of scope: what is the boundary of the study, how are participants



identified, and how are cases described and selected? Morgan’s (1998) second model provides assistance by suggesting a smaller, preceding quantitative component be conducted to inform purposive sampling and identifying preliminary results for further exploration in the qualitative component. Incorporation of quantitative and qualitative methods sits well with both case study and systems approaches and provides a structure to explore a health care issue of interest.

### 3.2.2 A case study approach

The case study method is appropriate where a study seeks: to define research topics broadly and not narrowly; to cover contextual or complex multivariate conditions and not just isolated variables; or to rely on multiple and not singular sources of evidence (Yin, 1993, p. xi). To understand how context may influence the health care issue of interest, it is important to seek input from a range of stakeholders across service locations. Stakeholders within this study include physiotherapists, colleagues, managers, other decision makers and service providers, and consumers. Figure 3.2 provides a conceptual representation of stakeholders and hypothetical interactions between stakeholders that may influence physiotherapy service provision and/or related decision making. This representation also allows for consideration of influences of stakeholders located in the health system more broadly and community in which the service is located.

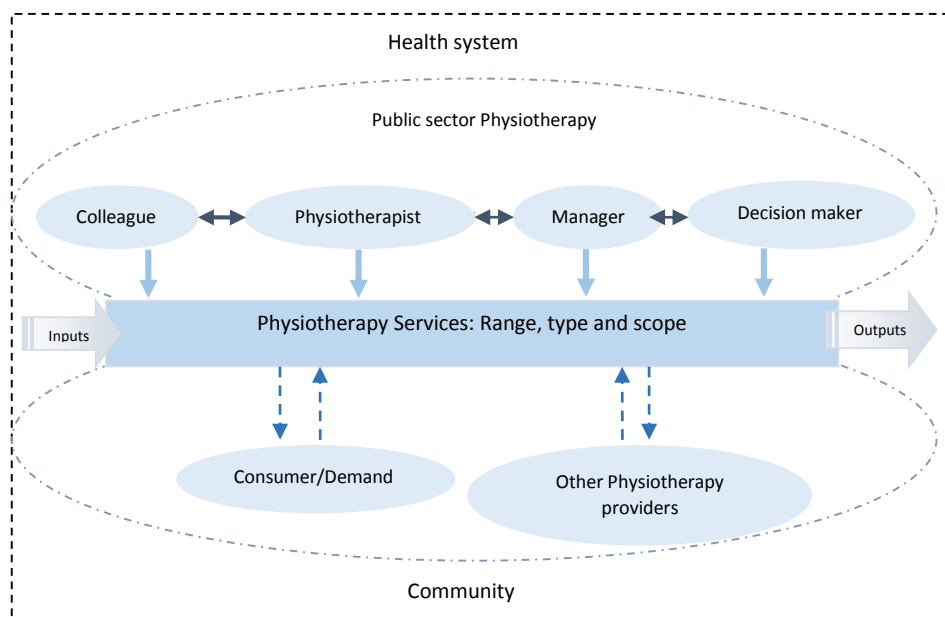


Figure 3.2 Conceptual representation of stakeholders and hypothetical interactions

Qualitative case study classifications, including those of Yin (1993) and Stake (1995), are appropriate for research seeking understanding of the 'how' and 'why' of an issue of interest. Case study research can focus on single or multiple cases. Cases may be considered to be exploratory, descriptive or explanatory (Yin, 2003, p. 5); or intrinsic, instrumental or collective (Stake, 1995, pp. 3–4). Yin (2003) views multiple cases being chosen so that they may replicate each other – either predicting similar results (literal replication), or contrasting results for predictable reason (theoretical replication) (Yin, 2003, p. 5). Stake (1995) refers to the study of more than one case as collective case studies, each of which is an instrumental study linked by coordination between the individual studies. Where research seeks to understand the contextual impact across a range of sites, a collective case study design is appropriate as it allows comparison within and between cases (Baxter & Jack, 2008). Obtaining understanding rather than seeking literal or theoretical replication suggests the appropriateness of an instrumental case study approach as described by Stake (1995).

Stake (1995, p. 16) chooses to use issues as the conceptual structure in order to force attention to complexity and contextuality. An instrumental case study approach privileges the issue rather than the case (Stake, 1995, p. 16). Adopting an instrumental case study approach for health service review or critique is suitable therefore as it allows a focus on the issue of interest. Where the research aim seeks to obtain understanding rather than seeking literal or theoretical replication it is relevant that Stake (1995, p. 4) notes that a good instrumental case study does not depend on being able to defend the typicality of the case. Whilst recognising the contextual issues of each case, there remains the potential for the findings of collective case studies to inform a future quantitative component to support further exploration of the health care issue of interest. This follow up component could be viewed as the fourth of Morgan's (1998) models or an extension of the second model.

### **3.3 Integrating elements of systems theory**

A case, also defined as a 'bounded system', draws attention to it as an object rather than a process (Stake, 1995, p. 2). The parts do not have to be working well, the purpose may be irrational, but it is still a system (Stake, 1995, p. 2). Choosing to think of a health care organisation as if it were a system (Checkland & Scholes, 1990, p. 22), is a useful construct and one that is not new in its application to health and health care (Anaf et al., 2007; Dooris, 2005; O'Meara, 2003). Perceiving one aspect or specific issue as a system within a more broadly

conceived organisation can generate both a new representation of the issue and variety in the way the issue is thought about (Lane, 1999).

*The central concept of a 'system' embodies the idea of a set of elements connected together which form a whole, this showing properties which are properties of the whole, rather than properties of component parts (Checkland, 1981, p.3).*

Adopting a systems approach allows consideration of the perspectives of many stakeholders and factors influencing the health care issue of interest. Consistent with this approach is the use of an initial quantitative inquiry of a broad range of stakeholders, followed by in-depth exploration of perspectives of a selection of participants. A systems approach can also provide a broader, holistic understanding than would be achieved by investigation of the respective parts in isolation (von Bertalanffy, 1968, p. 3). Within an interpretive paradigm it is 'acknowledged that 'system' is not a concrete thing but an abstract concept that constitutes particular relationships that can be actualised in a number of ways' (Flood, 1990, p. 128). Both tangible and intangible elements may form a set of interconnecting components relevant to the health care issue of interest. In this study, tangible elements include the number of physiotherapy service providers or distance to nearest physiotherapy service, and intangible elements include physiotherapy expertise or perceptions of the value of physiotherapy services (Figure 3.3).

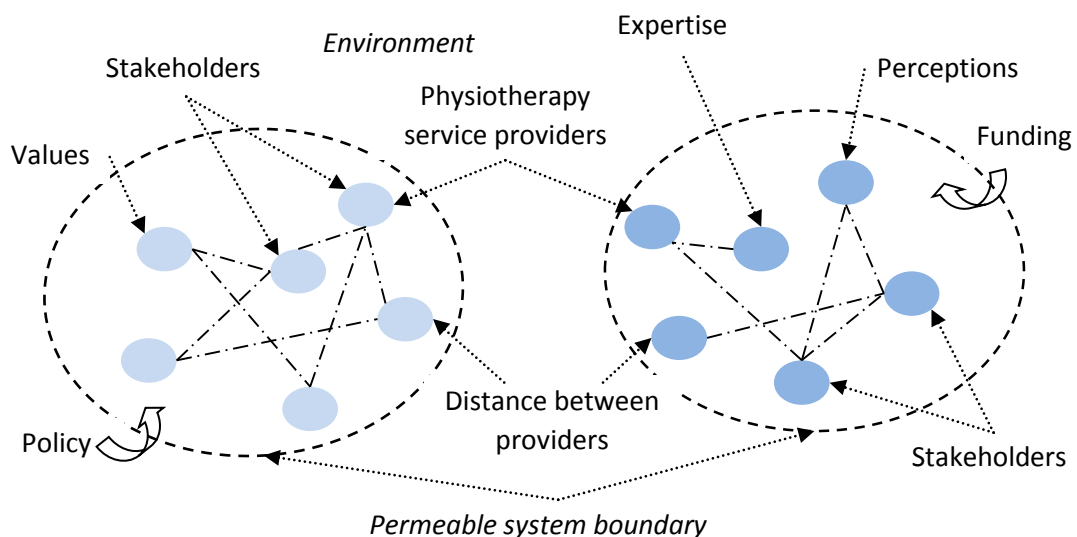


Figure 3.3 System elements: examples of tangible and intangible elements

### 3.4 Specific issue of interest

The specific issue of interest can then be described and explored as set elements that together form a system within a more broadly conceived organisation. The issue of interest in this study is rural physiotherapy service provision, including the factors influencing both service provision and the decisions about service provision. Adopting Morgan's (1998) second model assists in conceptualising the approach to participant sampling, data collection and analysis. A preliminary quantitative component, such as a survey, precedes and guides the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration (Clark, 2000, p. 6).

Use of an initial survey, for example, allows the researcher to obtain the perspectives of a broader range of stakeholders than may be feasible if only a qualitative approach is adopted. Stratified purposive sampling permits the exploration of subgroups of interest (Patton, 2002) identified in the preceding, complementary quantitative component. The subgroups may include service providers, their colleagues, managers and other decision makers or consumers. The respondents and results can then inform participant selection for the dominant qualitative exploration of the issue of interest. This supports a key intent of sampling within qualitative research, which is the selection of information rich cases. This contrasts to the probability sampling techniques of quantitative research designs (Grbich, 1999).

Depending on the research aim, the system can be explored using both quantitative and qualitative approaches within one or more cases. Case selection can be guided by the use of a matrix representing definable aspects of the research question (Grbich, 1999), and is informed by responses from the initial quantitative inquiry. The definable aspects reflect key components of the research question and may reflect provider characteristics such as number of health professionals, facilities or location, or consumer characteristics described by diagnostic groups, disease states or setting. Once developed, the matrix assists in identifying cases to explore during the dominant qualitative inquiry, with each cell a possible case, allowing potential for within case and cross case analysis.

An iterative data collection process incorporating both quantitative and qualitative components can assist with the initial identification of issues and subsequent exploration of stakeholder perspectives of identified issues. Using Morgan's (1998) second model, for

example, may see the use of surveys to gather descriptive data about services and providers. Survey responses and descriptive data then assist in identifying both cases and issues relevant to the research for further exploration. These issues can then be explored further through qualitative approaches such as focus groups or in-depth interviews.

A systems approach provides *'a broader, holistic understanding of the issue of interest than would be achieved by investigation of the respective parts in isolation'* (von Bertalanffy, 1968, p. 37). A health care organisation may be considered an example of a 'structured whole' with the people and processes forming the elements of the identified system or 'structured whole'. To obtain a picture of this system or 'purposeful whole', an iterative approach to obtaining stakeholder perspectives and interaction between system elements can be adopted. Surveys of stakeholder subgroups of interest precede and inform interviews of key participants. Relevant to health services research is the potential to reveal participant perspectives and the interaction between system elements and the external environment. It is then possible to develop conceptual representations of the case and the interactions between the systems and stakeholders of interest.

### **3.5 Systems theory-case study heuristic and priority-sequence models.**

Combining systems theory and case study methodology enables researchers to focus on the issue of interest and to consider that issue a system. This permits exploration and description of a set of inter-related elements that together form a system. Adopting both qualitative and quantitative approaches enhances exploration of the identified system.

Such a system can then be explored within and across cases. The choice of cases is then informed by the research aim and data from the quantitative component. Case study design also provides a structure and process for participant selection, data collection and data analysis. Stratified purposive sampling permits exploration of subgroups of interest (Patton, 2002). When applying a primarily qualitative approach, Morgan's (1998) second model suggests case and issue identification can be supported by a smaller preceding quantitative component.

Prioritising a qualitative research approach enables participants to reveal their thoughts and perceptions within their context. This is important where research seeks to reveal the type of assumptions or unexamined ways of thinking the accepted practices are based upon. Use of an interpretivist approach within the qualitative component, combined with the systems theory characteristics of emergence, holism and interdependence, provides an appropriate qualitative methodological framework for the dominant inquiry of Morgan's (1998) second model.

The systems theory-case study heuristic supports the use of both qualitative and quantitative approaches to explore a health care issue of interest. The priority-sequence models guide the practical integration of these approaches within the systems theory-case study heuristic. Together, they provide a framework that enables review and critique whilst recognising the complexity and variety of settings in which health care services are provided. Obtaining insight into the how and why of health service provision complements the what, where and how much revealed in statistical data. The framework described provides a structure to obtain such insight and should be considered for future applications in health services research.

### **3.6 Context of rurality**

Many definitions and classifications are used to describe or differentiate regional, rural and remote settings (Wilson et al., 2009; Schindeler et al., 2006). Rural definitions and classifications are discussed in more detail in Chapter 5; however determining an appropriate descriptor of rurality was an important initial step for this study. The Australian Standard Geographical Classification Remoteness Areas (ASGC-RA) is recommended by the Australian Institute of Health and Welfare (AIHW) (ASGC-RA and Remoteness Area Classification, 2012). As geographic classifications are based on factors such as distance to service centres, population size or density, they may not take into account other contextual factors or accessibility of specific health services such as physiotherapy. ASGC-RA was not used due to the expressed limitations of the application of geographic classifications to health care (McGrail & Humphreys, 2009a).

The researcher's experience suggested it was not uncommon for physiotherapy colleagues to perceive the rurality of their service setting differently to the geographic classification. Participants were therefore asked to describe the location of the physiotherapy service simply as rural, regional or remote. This is consistent with the constructivist approach adopted and

obviated the need to use geographical classifications inappropriately. The perception of the rurality of the location described by participants was thereafter named 'participant perspective of rurality' (PPR). PPR was then used to develop the matrix to guide the selection of cases and participants perspectives and allowed comparison with geographical classifications.

## **3.7 Research method**

### ***3.7.1 Participants and sites***

An initial challenge was identifying participants in a way that would inform the aims of the study yet be manageable in scope and size. Distributing surveys through national organisations such as the Australian Physiotherapy Association (APA) or rural organisations such as Services for Australian Rural and Remote Allied Health (SARRAH) were considered and discounted. The reasons included the complexity of comparing across states in addition to rural, regional and remote settings and the potential spread and distance between sites to conduct on-site interviews. Instead, a large area of one Australian state with a mix of rural, regional and remote communities was selected for the investigation area. This area offered the opportunity to explore decision making about physiotherapy services across many health service sites. The number and variation of health service sites enabled the identification of cases and cross case comparison to consider factors such as size, rurality and physiotherapy availability.

Stratified purposive sampling (Patton, 2002) permitted the exploration of subgroups of interest (physiotherapists, their colleagues, managers and consumers). Public sector physiotherapy service provision and service level decision making formed the primary focus of this research. The researcher's experience in rural physiotherapy and reports of a greater reliance on the public sector for the provision of allied health services, including physiotherapy, in rural and remote regions of Australia (National Rural Health Association (NRHA), 2004) informed this focus. Private physiotherapy services, while limited in some communities, deliver significant services and formed a second focus of this investigation.

Public physiotherapists were invited to participate in the initial phase of the research through local professional networks. Senior physiotherapists in the investigation site provided key physiotherapy contacts in the public sector physiotherapy departments. Physiotherapy participants at health service sites then assisted in identifying stakeholders to participate in

the subsequent surveys and interviews. Obtaining perspectives of stakeholders, such as multidisciplinary team colleagues, consumers and managers avoided isolating the research to a physiotherapy only perspective. The physiotherapists were also able to guide the data collection phase to stakeholders they identified as relevant to the decision making process to their health service setting. Where present, the private physiotherapists were identified from listings in the Yellow Pages phone book at each of the identified case sites. Both public and private physiotherapists were asked to place consumer surveys on relevant reception desks with an information sheet describing the study to allow consumers to elect to participate or not. To allow for possible comparison between public and private services responses from consumer surveys, outpatient services were prioritised in the public health services.

A matrix was developed to inform case selection by combining two definable aspects relevant to the research aims, namely PPR and the number of full time equivalent (FTE) public sector physiotherapists. The use of a matrix to ‘represent definable aspects of the research question’ (Grbich, 1999) is an example of stratified purposive sampling (Liamputtong & Ezzy, 2005). The two definable aspects of the matrix were drawn primarily from the researchers experience (Adams, 2004). The proposed matrix had a potential total of 12 cells, although it was anticipated that not all would be applicable (Table 3.1). A regional setting with only a part time physiotherapist (less than one FTE) is one example. As such, when results from the initial survey filled no more additional cells, the cases for the investigation site could be confirmed and second iteration of data collection could commence.

Table 3.1 An initial matrix

Physio FTE	≤1 Physio	1--2 Physios	3--5 Physios	>5 Physios
Remote				
Rural				
Regional				

### **3.7.2 Data collection**

Consistent with Morgan’s (1998) second model, a preliminary quantitative component preceded and guided the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration (Clark, 2000). The iterative data collection process commenced with a survey of public sector physiotherapists in the investigation area. Surveys were mailed to the key physiotherapy contacts for distribution to



colleagues in their facility. Participant information and consent forms were included with the survey for distribution. Physiotherapists were invited to complete a survey describing their setting, service and factors influencing their practice. Surveys and interview guides had been trialed in a small pilot study prior to use in the investigation area. The findings of the pilot study are described in Chapter 4.

The second stage of data collection consisted of stakeholder surveys. To obtain input from stakeholders, physiotherapists in the identified case sites who had agreed to assist were asked to distribute questionnaires to the stakeholders relevant to their site (O'Meara, Burley, & Kelly, 2002). Case site physiotherapists distributed surveys to stakeholders (colleagues, team leaders and managers) and placed consumer survey on relevant reception desks. All completed surveys were mailed directly to the investigator to maintain participant confidentiality. The researcher mailed surveys directly to the private physiotherapists in the case site. Physiotherapists were invited to participate in a semi-structured interview and provide suggestions of relevant decision makers to receive interview invitations. Data collection occurred from January to September 2012. Written consent was obtained from all participants. All surveys were anonymous unless participants agreed to provide their details for subsequent interviews.

In the final stage of data collection the principal researcher conducted face to face semi-structured interviews with a purposive sample of physiotherapists and key decision makers. The interview questions reflected both the questions and responses of the survey as the researchers sought to obtain greater insight into the issues raised. The interviews occurred in each case site at a location and time convenient to each participant. Written informed consent was gained prior to the interview. All interview participants were informed that they would not be identifiable and that confidentiality would be maintained. This staged approach to data collection is consistent with the funnel analogy described by Bogdan and Biklen (1982) and more recently used by Anaf (2008) (Figure 3.4).

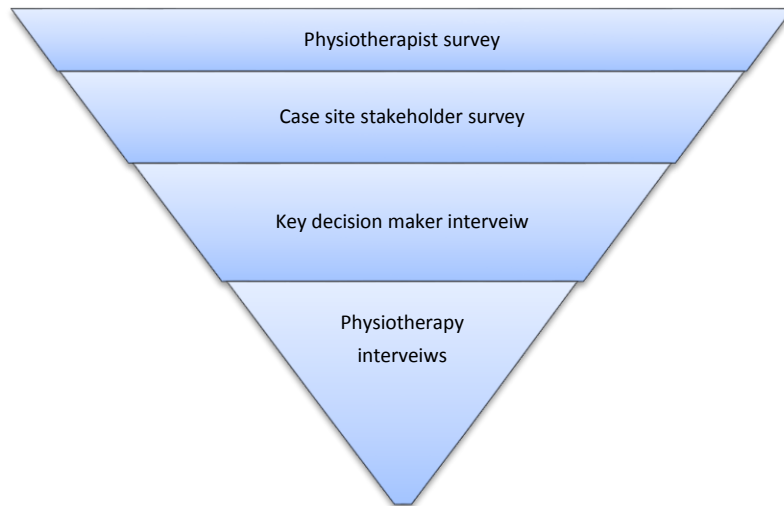


Figure 3.4 Data collection stages (adapted from Anaf, 2008, p. 101)

Ethics approval was obtained from the Human Research Ethics Committee of both James Cook University (approval number H3799) and the health service of the study. Site specific approval was obtained for 25 health facilities employing physiotherapists within the investigation site.

### **3.7.3 Data analysis**

An iterative approach to data analysis guided the data analysis (Grbich, 1999). The levels of analysis included:

- ongoing preliminary analysis—to critique data as it comes in;
- thematic analysis:
  - to ask the what, why and how questions of the data,
  - to develop tentative themes,
  - to guide ongoing review to ensure data is complete,
  - to amalgamate, or subdivide themes to guide final interpretation; and
- coding – including the generation of themes, proposition and concepts, and developing codes that are then used:
  - to frame the remaining data,
  - to account for all the data, including examples of negative cases or data that ‘do not fit’ (Grbich, 1999).

The multiple levels of analyses, member checking and the use of a second coder were utilised to verify identified issues and themes. Manual and electronic recording of data through the

use of QSR NVivo version 10 and Microsoft Excel spreadsheets were used to organise the data (Table 3.2).

Survey data was analysed using descriptive statistics and recorded in Excel spreadsheets. Responses to open ended questions informed the development of initial themes and areas for further exploration in interviews. Manual and electronic recording of data through the use of NVivo version 10 were used to organise the qualitative data. Each interview was recorded and transcribed verbatim and entered into NVivo. Full interview transcripts and a summary developed by the researcher were provided to interview participants for their review and comment. An iterative approach was used to guide the qualitative data analysis (Grbich, 1999). The principal researcher completed the initial analysis with co-researchers double coding one third of the interviews to add to the depth of analysis. Thematic analysis was undertaken to develop tentative themes and concepts to develop codes, which were then used to frame and account for the remaining data (Grbich, 1999).

Table 3.2 Data management table

Data phase	Participant perspective	Data Source	Analysis	Research aim
Factors influencing rural physiotherapy practice	Physiotherapists	Survey, including descriptive statistics and open ended questions	-NVivo -Excel spreadsheet of descriptive statistical analysis -Manual coding and thematic analysis	Correlates with - Aim 1.1 - Aim 1.2 - Aim 1.3 - Objective
	Consumer perception	Qualitative questionnaire, incorporating open ended questions	-NVivo -Excel spreadsheet of descriptive statistical analysis -Manual coding and thematic analysis	Correlates with - Aim 1.1 - Aim 1.2 - Objective
	Manager perception			
	Team members perception			
Decision making processes informing rural physiotherapy service provision	Area and facility level decision maker perspective	In-depth 1:1 semi- structured interviews across multiple case study sites	-NVivo -Manual coding and thematic analysis -Second coding of major themes	Correlates with - Aim 1.3 - Aim 2.1 - Aim 2.2 - Aim 2.3 - Aim 2.4 - Objective
	Physiotherapist perspective			
	Area and facility level perspectives			
Developing conceptual models of rural physiotherapy SLDM	Physiotherapists Managers Team members Consumers Area and facility level decision maker	Results and analysis of survey and interview data	Reflective integration and synthesis	Correlates with - Objective

### **3.7.4 Research rigour**

The research design included data collection from multiple sources to enable triangulation of data and constant comparison. Interviews were audio taped and transcribed verbatim with full transcripts and summaries provided to each interview participant for verification and additional comments. One third of the interviews (7/19) were coded by a second coder to verify themes. An auditable trail of evidence was maintained throughout the conduct of the research to further add to the credibility of the findings (Baxter & Jack, 2008; Grbich, 1999; Bailey, 1997).

## **3.8 The place of the researcher**

Particularly relevant to discuss is the place of the researcher within the prioritised qualitative component of this study. Qualitative health research has been said to draw a particular group of people – that is, health professionals (Morse, 2010). Morse (2010, p. 2) refers to medical and health researchers as ‘*insider researchers*’ and the smaller group of researchers without a health background or perhaps who were a patient at one time as ‘*outsiders*’. The same author continues to suggest there are advantages and disadvantages to both, with examples provided in relation to the hospital setting. Some advantages are that insiders are familiar with the topic, know the rules and how to act, while one disadvantage is that they do not provide a naive perspective (Morse, 2010, p. 3).

Reflecting on the insider-outsider notion described by Morse (2010), Kuzel (2010) agreed that ‘insider’ work was generally going to be better:

*For me, then, what is essential is the enlightened eye—the ability to see what is most important—and the ability to make sense of things and communicate that in ways that demonstrate coherence, insight, and utility (p. 1465).*

Insider or outsider, the presence of the researcher cannot be excluded from the study as the researcher is needed for any research to be conducted (Mantzoukas, 2004, p. 995). Representation and voice are therefore important and the incorporation of subjective views of both participants and researchers reflects the plurality accepted within qualitative research.

*The researcher is the person who, overall, decides who to interview or what to observe, who or what to include in the analysis, and who or what to include in the findings or discussion (Mantzoukas, 2004, p. 1000).*

Qualitative researchers have also been considered to form part of the research, and at times, may themselves be considered a research instrument (Kuzel, 2010), for example, when conducting interviews or focus groups. As such, making their position or stance clear within the research is important.

This research exploring rural physiotherapy service provision and SLDM is the creative product of the principal researcher. As such, the research, including issues of representation and voice, are informed by the researcher's views and beliefs. The principal researcher is an *insider researcher* and may also be considered to have an *enlightened eye* from accumulated experiences obtained from two decades of rural physiotherapy practice.

The views of the researcher were developed over many years of rural public sector physiotherapy experience. State and national roles for rural physiotherapy and rural allied health professionals (AHPs) added to and refined these views. Collectively, these experiences informed the primary focus of the research on public sector physiotherapy service provision. This focus is supported to some extent in the literature, which describes a greater reliance on public sector allied health services (including physiotherapy) in rural and remote regions of Australia (NRHA, 2004, p. 7). Representative and advisory roles provided insight into the provision of physiotherapy services in numerous regional, rural and remote settings. This insight further informed perspectives and assumptions that decision making about physiotherapy service provision would vary to some degree between regional, rural and remote settings and between small and large health service settings. Similarly, both the rural physiotherapy experience and representative roles framed the researcher's perspectives about decision making. These perspectives informed key assumptions in this research including: that decisions about what services to provide were not all within the realm of the physiotherapists; that decisions are made at all levels of the health system; and that multiple stakeholders would inform such decisions.

The value added by being an insider researcher included knowledge of the profession, rural physiotherapy practice and the language or jargon of the profession. Additional advantages included credibility with many of the participants and rapid building of rapport with interview participants. The disadvantages are consistent with those expressed by Morse (2010), namely, the inability to provide a naive perspective and the risk of making assumptions or taking some practices for granted.

The research findings are presented, influenced as they are by the views and experience of the researcher, in anticipation that may resonate with experiences of the reader. The findings are structured to reflect both the key research objectives and emerging topics. Service availability and rationing are two topics that were explored more fully to better understand these aspects of rural physiotherapy service provision. Framing the findings in this way, without doubt, privileges the perspective of the researcher. Extensive and detailed quotes reveal the voice of the participants, yet were selected by the researcher and as such may provide a filtered perspective.

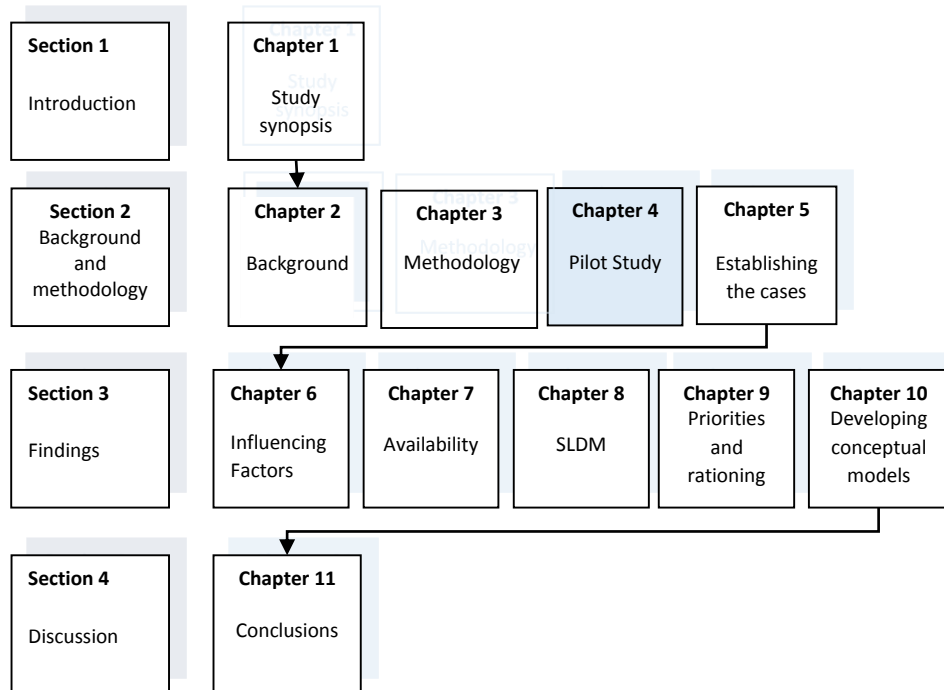
The intent of the researcher was to explore this topic at a level described by Kuzel (2010), that is, as a *'connoisseur of the phenomenon of interest'* (p. 1464). The researcher drew on her own experience to distil issues of importance and to communicate these issues in such a way that provides a way of thinking about rural physiotherapy service provision and decision making about physiotherapy service provision in rural areas.

### 3.9 Summary of approaches

Component	Relevance to the research aims
Priority sequence mixed methods model	Provided the framework to investigate a relatively unexplored area of physiotherapy by providing the structure to obtain data from multiple sources and the practical integration of quantitative and qualitative approaches.
Quantitative approach	Guided the prioritised qualitative component by informing the purposive sampling and establishing preliminary results for further exploration.
Qualitative approach	Supported exploration of stakeholder perspectives of rural physiotherapy SLDM by enabling participants to reveal their thoughts and perceptions within context of their service setting.

Constructivist worldview	Adopting a constructivist worldview within the qualitative paradigm recognised that individuals develop multiple and varied meanings of their experiences and this is particularly relevant to asking how and why questions in health services research.
Case study	Supported the data collection from multiple sources to explore complex and contextual conditions.
Collective case study design	Supported understanding of contextual issues across a range of sites and importantly, privileged the issue rather than the case.
Systems approach	Considering rural physiotherapy SLDM as a system provided a broader holistic approach to understanding than would be achieved by investigation of the respective elements of the system in isolation.
Stratified purposive sampling	Supported the exploration of the subgroups of interest.
Sampling matrix	Combining two key aspects relevant to the research into a matrix informed the identification of cases and subsequent purposive sampling of participants.
Staged data collection	The funnel analogy supported a staged approach to data collection, enabling each stage to build on the data of the preceding stages

## 4. Chapter 4: Pilot Study



Adapted with changes from Adams, Sheppard, Jones, & Lefmann (2014e). What factors influence physiotherapy service provision in rural communities? A pilot study. *Australian Journal of Rural Health*, 22(3), 133–138.

This chapter reports on a small pilot study conducted to trial the methodological approach, data collection tools and participant sampling process. The pilot was conducted in a geographical area quite separate from the investigation area to preclude possible duplication of participants. Following the contextual background information, an abbreviated methodology is described consistent with the more detailed description already given in Chapter 3. The methodological components included a sequential data collection commencing with surveys followed by in-depth interviews. The system theory–case study heuristic enabled consideration of the issue of interest across the contextual variation of case sites.

### 4.1 Introduction

Diversity is a feature of the people and the environment in rural and remote Australia and this is reflected in the health services provided (Sheppard, 2001). Deciding what health services are provided is a key consideration in delivering appropriate and accessible health care for rural



and remote populations (Humphreys, 2009). Obtaining insight into factors influencing the provision of services, such as physiotherapy, may inform such decisions.

Rural physiotherapy literature identifies workforce challenges including: shortages and maldistribution (Williams, D'Amore, & McMeeken, 2007), workload stress (Lindsay, Hanson, Taylor, & McBurney, 2008; Harris, Cumming, & Campbell, 2006), tensions between specialists and generalists career options (Allen, 2004; Sheppard & Nielsen 2005), and a lack of positions (National Rural Health Alliance [NRHA], 2004). Also described in the literature are areas of work for rural physiotherapists (Sheppard, 2001; Williams et al., 2007), access, prioritisation (Miller-Mifflin & Bzdell, 2010; Brown and Pirotta, 2011) and developing service models (Russell, Buttrum, Wootton, & Jull, 2004). How decisions are made about which physiotherapy services are provided is not evident in the literature.

Rural physiotherapists require competency across clinical, administrative and professional domains (Sheppard & Nielsen, 2005). Service location, resource constraints and a broad scope of practice form the complex environment of rural physiotherapy. The Australian Standards for Physiotherapy require physiotherapists to identify the needs of people in different settings and adjust services to match those needs (Australian Physiotherapy Council [APC], 2006). Whilst true for all contexts, the relative resource scarcity in rural areas (Mitton & Prout, 2004) provides numerous service provision challenges for rural physiotherapists.

This study explored stakeholder perspectives on factors influencing rural physiotherapy service provision and insights into related service level decision making (SLDM). A range of stakeholders, both local and across the broader health system, are likely to influence decisions about service provision. In health service organisations decision making occurs at many levels (Sibbald, Singer, Upshur, & Martin, 2009), including decisions at micro (clinical), meso (service or organisation) or macro (state or national) levels. Reflecting this notion, an *a priori* model was constructed to map stakeholder perceptions.

## **4.2 Method**

This exploratory study was conducted in one rural site and its related regional referral service. The rural site was nominated by the regional senior physiotherapist as a rural town with both public and private physiotherapy services. Open ended survey questions and semi-structured

interviews suited the qualitative exploration of this relatively unexamined aspect of physiotherapy. Purposive sampling was used as the study was exploratory rather than definitive in nature. Participants with knowledge of rural physiotherapy were invited to provide their perspectives on factors affecting service provision and related decision making.

An iterative data collection process commenced with surveys of physiotherapists. Public sector physiotherapists were invited to complete a survey and assist in identifying stakeholders who could provide perspectives on physiotherapy service provision. The physiotherapists were able to guide this data collection phase to stakeholders they identified as relevant to their service and setting. Consenting physiotherapists then distributed surveys to team colleagues, managers and consumers relevant to their service. All surveys were mailed directly to the investigator to maintain participant confidentiality. Physiotherapists were invited to participate in a semi-structured interview and provide suggestions of relevant decision makers to receive interview invitations. Data collection occurred from July to December 2011. Ethics approval was obtained from the Human Research Ethics Committee of both James Cook University (approval number H3799) and the health service of the study.

### **4.3 Results**

Six completed surveys (three physiotherapists, one team colleague, one allied health manager and one consumer) were received and three in-depth interviews were conducted. Interview participants included one private practitioner physiotherapist, one physiotherapy manager and one allied health manager. The single consumer voice provides a limited, but insightful, perspective on accessing physiotherapy services in the rural community of this study. Details of the data collection sites are provided in Table 4.1. Analysis of survey data was undertaken by the principal researcher. Stakeholder survey responses were collated thematically to inform probing questions within the interview. Interviews were recorded and transcribed verbatim. All transcripts were analysed and coded by both the principal researcher and a second researcher. Key concepts from the questionnaires and interviews were then grouped together under overarching themes (Figure 4.1).

Table 4.1 Investigation sites

	Rural Site	Regional Site
Population	~7,000	>80,000
ASGC	RA3 outer regional	RA3 outer regional
RRMA classification	RRMA 5 Other rural centre	RRMA 3 Large rural centre
Physiotherapists-public	1FTE	>15 FTE
Private Practices	1 (1 FTE)	>5 (sole and multiple FTE )
Abbreviations: ASGC–Australian Standard Geographical Classification; RRMA–Rural, Remote and Metropolitan Areas; FTE–Full time equivalent; RA–Remoteness Area.		

Factors influencing physiotherapy service provision identified in this exploratory study included workforce capacity and capability, decision maker knowledge of the role and scope of physiotherapy, consideration of physiotherapy within resource allocation decisions, and proof of practice. The latter three were particularly reflected in comments by public sector participants. Business models and market size were identified factors influencing private practice.

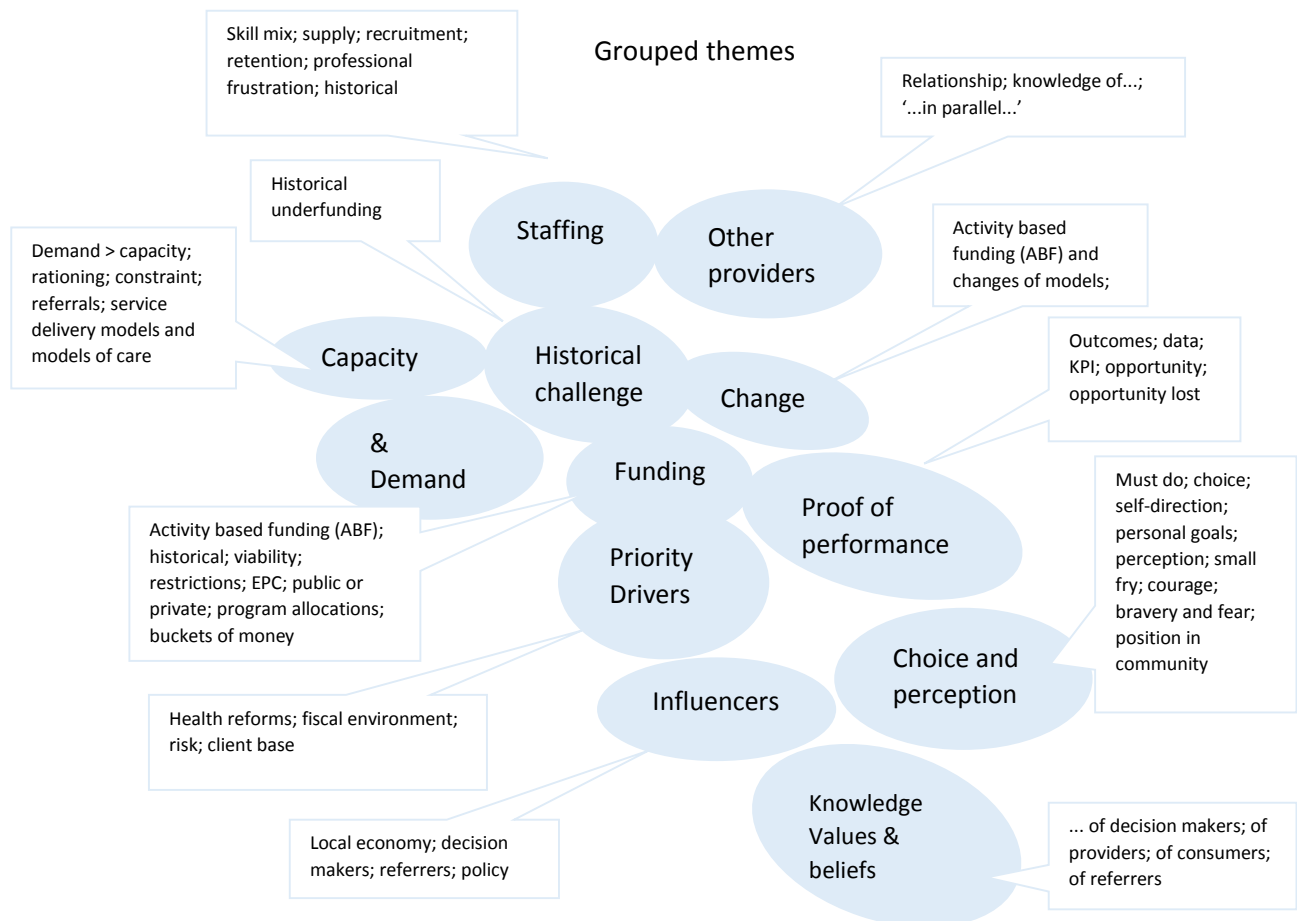


Figure 4.1 Grouped themes

Workforce capacity and capability emerged as issues in surveys and interviews responses. Similar to existing literature, issues of skill mix, workforce supply, lack of positions, workload and access to professional development were identified as factors influencing service provision. Discussing variable workforce supply, one participant reported that past inability to recruit physiotherapists influenced facility level decision makers in funding new physiotherapy positions. Flexible approaches to recruitment, including opportunistic appointment of available staff and managing short term risks of exceeding staffing establishment were strategies adopted:

*...your recruitment pull is different. It means you've got to be a bit more flexible, like putting on relief positions when they are available. [i2]*

The regional setting required a mix of specialised and generalist skills. Examples include generalist skills for junior staff rotating through acute care services and specialised skills for advanced roles such as emergency department physiotherapy. However as one participant noted, as *'you move more remotely, you need more of a generalist'* [i2]. Recruitment in both case sites remained an issue particularly for attracting experienced physiotherapists. Early career physiotherapist recruitment had however improved as graduates from a recently established regional physiotherapy program entered the workforce.

Decision maker knowledge of the role and scope of physiotherapy and variable consideration of physiotherapy within resource allocation decisions were identified as factors influencing physiotherapy service provision. In rural areas, where physiotherapists were frequently not managed by a physiotherapy manager, one participant suggested service provision to be *'strongly affected by limited knowledge, scope and efficacy of PT services'* [P3]. Resource allocation decisions relating to capital and service expansion in the regional setting were key influencing factors, particularly where no additional physiotherapy resources were allocated:

*...you can't just open it [ a new service] and not provide a resource, we can't stretch what we have got right now to cover a new service, so don't forget us. [i2]*

Dependence on inclusion in new funding allocations is further constrained by the absence of accepted physiotherapy workload benchmarks to inform allocations (Anaf, Drummond, & Sheppard, 2007). Physiotherapy staffing to bed ratios in the regional facility were discussed in

the context of workload and service capacity. One participant noted that the surgical ward staffing was *'one to 70, which is ridiculous'* [i2] and followed up with *'one to too many'* when revealing a similar ratio for medical beds. *'Using risk to decide service provision'* [i3] was one approach to managing workload, with prioritisation another: *'if we were to prioritise our services it would be on clinical needs, and patient flow and then activity based funding'* [i3]. Increasing demand and constrained capacity were noted as important influencers on public service provision. *'Caseload to income, skills of practitioners and timetabling'* [P1] were considerations in private practice service provision.

Additions to physiotherapy services occurred primarily by the provision of new funding, reflecting a macro level influence on decision making. New funding, described by one participant as *'defined buckets of money with defined criteria...'* [i3], was noted to create both opportunities and challenges. Inequity and maldistribution of services and workforce were reported, as new funding often targeted specific programs or facilities:

*It's disproportionate across the district because the buckets of money tend to land at the acute hospital..., and nothing anywhere else... that's why some services are so understaffed, they've stayed the same and haven't attracted any buckets of money.*  
[i3]

Access to new funding emerged as a significant difference between rural and regional sites, providing insight into the comment: *'I feel that rural and remote physios are often forgotten about'* [P2]. In contrast to dependence on new funding in the public sector, targeted funding in the private sector was almost viewed as optional, depending on the business model and client base. *'For example, when Medicare EPC (Enhanced Primary Care) came in we had to have a conversation about how much we wanted to chase this program in terms of clients.'*  
[P1]

More relevant to a private provider, was the community's capacity to sustain a viable private practice: *'...it's the community size and how it brings the market into play ...'* [i1]. The impact of market size in rural communities from a consumer perspective suggested issues of access: *'Less choice of practitioners, practices tend to be very busy which limits availability of appointments and frequency of treatment.'* [C1]

Health reforms and fiscal restraint were identified as significant influencing factors within the public sector where participants reported an increasing need to provide ‘proof’. Alignment of services to key health service performance indicators such as access and waitlists were strategies adopted:

*If you can tie them to all of those things the district is focussed on you’ve got a much better chance... there’s a lot of value that we know we can add that isn’t necessarily obvious unless we make the case for it. [i2]*

Private practitioner comments reflected a degree of choice or self-direction in deciding which services to provide: *‘In our situation it starts off virtually with a business agreement between the two partners. This is what I want to do, this is what I want to do, OK so we’re not going to do those things’ [P1]*. This contrasted with comments of public sector respondents where decision making control was variable: *‘The decision making process is meant to be devolved ... although right now it’s not because it’s really tight and executive is keep a grip on everything’ [i2]*. The *a priori* model is populated by the influencing factors described by participants in Figure 4.2.

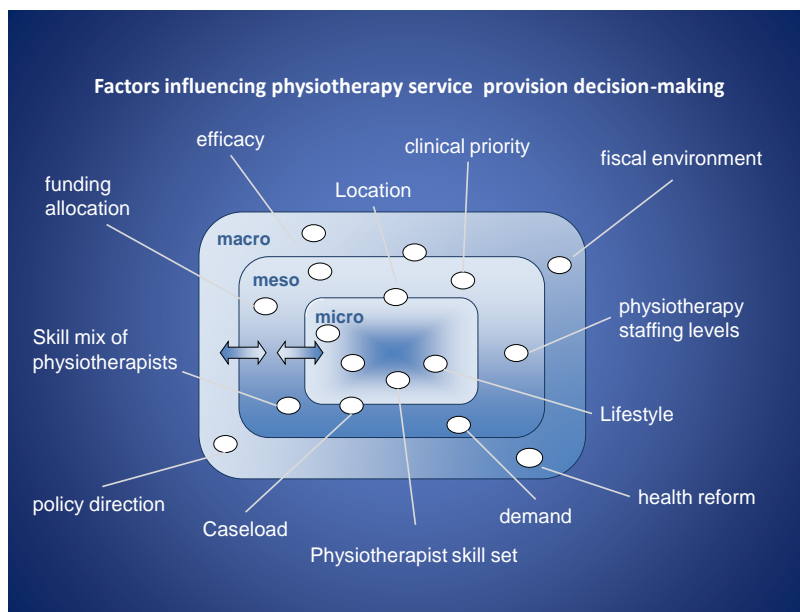


Figure 4.2 Influencing factors

## 4.4 Discussion

Important insights emerged from this exploratory study about how decisions are made about service provision. Decision making about public physiotherapy services was framed within broader health system issues. This contrasted with the self-determined service provision in the private sector. Three main health system considerations were the dominance of acute services in public hospitals; physiotherapy workforce and service capacity; and facility level decision makers' prior experience and knowledge of physiotherapy. Whilst recognising the small number participants, the findings are likely to resonate and be relevant to other allied health professions and health service decision makers in rural areas.

Public sector physiotherapy service provision was constrained by available funding, organisational priorities, workforce capacity and workload. In contrast, physiotherapist preference and market size appeared more influential in private practice. Physiotherapy services funded within public hospitals are required to align their services to business of the organisation. Length of stay and national targets such as the National Emergency Access Target (NEAT) and the National Elective Surgery Target (NEST) prioritise organisational activity and service priorities of health professionals, including physiotherapists. Organisational priorities, funding and available workforce and expertise therefore emerged as key drivers of decision making rather than community need. Within this context, physiotherapy and allied health decision makers had little scope for service development beyond services currently provided unless new funding was received.

The multi-level factors influencing service provision identified in this exploratory study reveal the challenges faced by rural health services. Mapping influencing factors within organisational levels reveals the requirement for multiple solutions and also suggests the limitations of single solution approaches. Solutions to address structural drivers, including national and state health reforms, policy and funding, often lay beyond the control of local physiotherapists and managers, further constraining responsiveness to local health need.

At a local level, study participants revealed decision makers' perception and knowledge of physiotherapy influenced service provision. Decisions may vary within and between services depending on decisions or assumptions based on this knowledge. For example, health service managers should not assume that private physiotherapists will automatically cover public sector service gaps. Whilst private physiotherapists add capacity in rural communities, the range of services is driven by practitioner choice and financial viability. The private

physiotherapy business model is not amenable to providing lengthy treatments over extended time periods, often precluding rehabilitation and paediatric services.

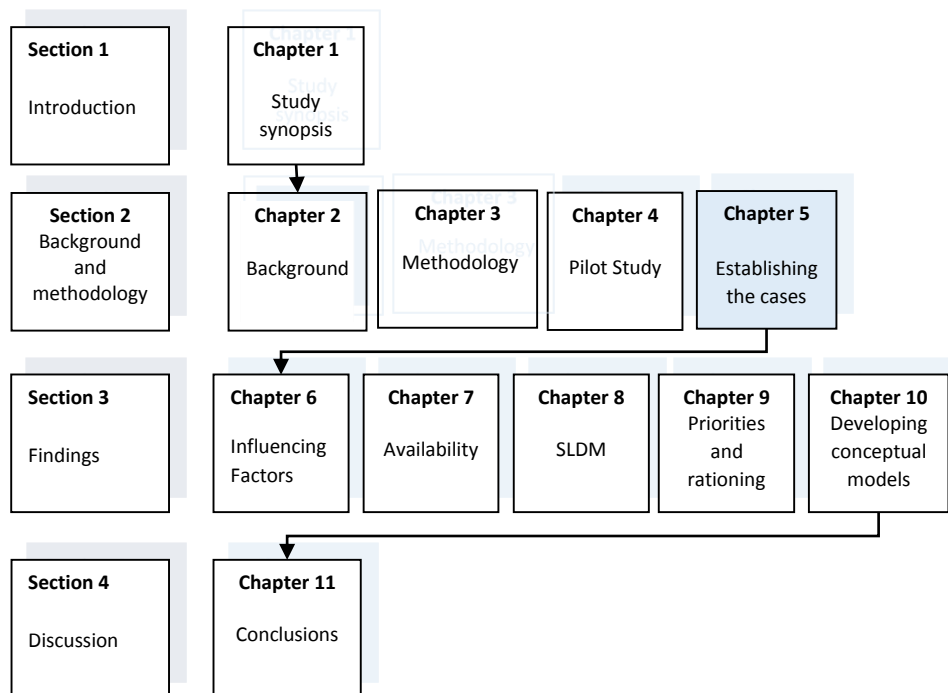
Exploration of this relatively unexamined aspect of physiotherapy, SLDM, identified issues relevant to broader health service provision in rural and regional areas. The small number of participants and sites provided a limited range of perspectives that may be descriptive of localised issues. Further research into SLDM could provide valuable insights into rural health service delivery.

## **4.5 Conclusion**

This pilot study provided valuable information for the conduct of the larger study to follow. The iterative data collection process generated information through the initial surveys for exploration in subsequent interviews. Despite the small sample size, a rich and detailed description emerged of factors affecting rural physiotherapy service provision and decision making about service provision. Two sites forming the cases in this study (rural  $\leq 1$  and regional  $>10$ ) form a useful interstate comparison for the findings in the cases within the larger investigation area. The applicability of a systems approach was confirmed as participants described the complex array of factors influencing their service. Influencing factors were identified at all levels of the health system and varied with geographical setting.



## 5. Chapter 5: Establishing the cases



Adapted with changes from Adams, Jones, Lefmann, & Sheppard. (2014d). Utilising a collective case study system theory mixed method approach: a rural health example. *BMC Medical Research Methodology*, 14. doi:10.1186/1471-2288-14-94

This chapter reports on an application of the study's methodology to explore rurality as it pertains to rural physiotherapy service provision and SLDM. The concept of place is introduced to enable consideration of the place in which the physiotherapy service is located as more than a set of fixed characteristics. Rather place or location can be considered a dynamic or fluid concept. How a setting is viewed by participants is an important construct underpinning conceptual understanding of rurality and subsequent exploration of the specifics of rural physiotherapy service provision and SLDM. This chapter provides greater detail of the sites and cases than was possible in the published paper.

### 5.1 Background

Aggregation of health service and workforce data can render local rural health service issues virtually invisible. As data is collated from local, regional, state and national data sets, visibility

of local service availability and accessibility diminishes with each level of data collation. Obtaining insight into local health service provision beyond the data requires a different approach: a framework that can provide insight into service delivery and variability in a way existing statistical data does not. The aim of this chapter is to describe a methodology to explore specific aspects of rural health service provision with an initial focus on understanding rurality as it pertains to rural physiotherapy service provision. There is little identified literature that describes decision making in rural physiotherapy service provision. No known study has identified influencing factors and what processes are involved in understanding what physiotherapy services to provide in rural locations. Thus, there was a need to identify what methodology to use to investigate this topic.

### **5.1.1 Defining place**

The concept of *relational place* has been suggested as useful for exploration of the specifics of rural communities and the impact of context (Farmer, Munoz, & Threlkeld, 2012). This concept of place is informed by the relational understanding of space and place advocated by Cummins, Curtis, Diez-Roux, & Macintyre (2007) and 'the event of place' referred to by Massey (2005). The relational view of place includes elements such as nodes of networks, separated by social relational distance with populations of individuals who are mobile both daily and over their life course (Cummins et al., 2007). Definitions of the area of the 'place' are relatively fluid, recognising dynamic characteristics of place such as 'declining' or 'advancing' in contrast to conventional characteristics such as 'deprived' or 'affluent', which are fixed at points in time (Cummins et al., 2007).

Distinguishing attributes of cultural divisions, services and infrastructure is important in understanding health service provision. The conventional view of place is one of '*culturally neutral territorial division, infrastructure and services*' where services are described '*in terms of fixed locations often providing for territorial jurisdiction and distance decay models*' (Cummins et al., 2007, p. 1827). This contrasts with the relational view of place which sees '*territorial divisions, services and infrastructure imbued with social power relations and cultural meaning*' (Cummins et al., 2007, p. 1827). The conventional view of place as spaces with fixed geographical boundaries and services described in terms of fixed locations (Cummins et al., 2007) is different to the relational view of 'nodes of networks'; 'constellations of connections' (Massey 2005, p.187) and complex circuitry with a multiplicity of linkages and feedback loops

(Cummins et al., 2007). Conceptual representation of conventional and relational space is provided in Figure 5.1. Thus, when exploring rural health service provision an understanding of place and the definition used to identify place will impact on the results of the study. Although a health region has defined boundaries seen in the conventional view of place, it is the relational view of place that shows the interactions between and across boundaries that really matches rural health service provision. The multiple linkages and complex nature of health services influences the methodological approach to researching rural health service provision and decision making.

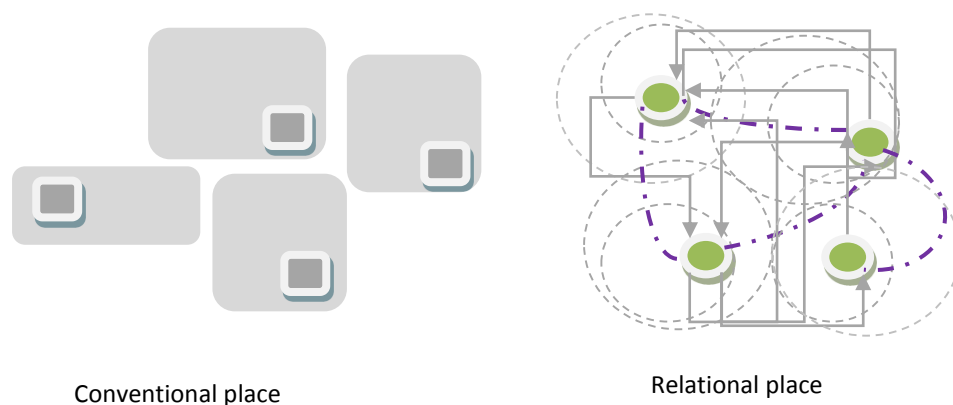


Figure 5.1 Conceptual representation of conventional and relational place

## 5.2 Methods

### 5.2.1 Mixed methods approach

Combining qualitative and quantitative methods provides possibilities for health researchers to grapple with the complexity of health (Morgan, 1998), and the factors that influence both health care and health service provision. A mixed methods approach allows quantitative data obtained from surveys and health service data to be combined with qualitative data to better inform decisions about health service delivery. A qualitative paradigm supports exploration of issues and factors at local, state and national levels that influence local health service provision. Obtaining stakeholder perspectives on specific aspects of a health service provides insight into local health service provision beyond the quantitative data. Approaches used within qualitative research enable participants to reveal their thoughts and perceptions within their context (Liamputtong & Ezzy, 2005). This is highly relevant to health service research

because it supports exploration of the perspectives of multiple stakeholders across different geographical settings and different sized and types of services. Variability and diversity are characteristic of rural Australia (Roufeil & Battye, 2008), and combine with the unique demography of rural and remote Australia as key determinants of health problems and health service needs (Larson, 2006). Thus, a robust methodological approach should consider variability and diversity of different sites, to be consistent with the dynamic characteristics of place.

Adopting a sequential mixed methods approach provides a framework for health researchers to investigate an issue of interest in complex organisations by providing structure for obtaining data from multiple sources. A preliminary quantitative component, such as a survey, can precede and guide the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration (Clark, 2000). Use of an initial survey, for example, allows the researcher to obtain the perspectives of a broader range of stakeholders than may be feasible if only a qualitative approach is adopted. By analysing the data from the quantitative component groups of interest can be identified. Use of stratified purposive sampling then permits the exploration of ideas by these groups (Patton, 2002) in the qualitative component. These groups may include service providers, their colleagues, managers, key decision makers or consumers. This supports a key intent of sampling within qualitative research, which is the selection of information rich cases (Liamputtong and Ezzy 2005). The perspectives of individuals enables the researcher to look for complexity of views and also to address processes of interaction among individuals (Creswell, 2009). Researchers can focus on the specific context in which people live and work (Creswell, 2009), which is important when seeking to understand the setting in which health services are delivered.

### ***5.2.2 Case study approach***

Case study design supports the use of multiple data sources. It is appropriate where the research aim is to explore contextual or complex multivariate conditions and not just isolated variables (Yin, 1993). In an instrumental case study approach the issue or factor is the focus of the study rather than the case (Stake, 1995). Organisational complexity and contextual factors such as rurality and service settings are important factors in health service delivery. Adopting an instrumental case study approach is suitable therefore as it allows a focus on the issue of interest across sites. This is particularly relevant to this study which seeks to understand the

relatively unexplored issue of SLDM in differing rural locations with varying sized physiotherapy services. Stake (1995) refers to the study of more than one case as collective case studies, each of which is an instrumental study linked by coordination between individual studies. Collective case study design (Stake, 1995) provides a structure to gain insight into the issue of interest across settings as it allows comparison within and between cases (Baxter & Jack, 2008). Thus, the use of instrumental collective case studies is useful for identifying and studying factors that affect service level decision making (SLDM) in rural health.

### **5.2.3 Systems theory**

A systems-focused approach is recommended to articulate interdependent components that contribute to or compromise the effectiveness of health care interventions or programs. It provides insight into the questions of 'why', 'how' and the 'what' of contexts (Alexander & Hearld, 2012). *'The parts do not have to be working well, the purpose may be irrational, but it is a system none the less'* (Stake, 1995, p. 2). *The boundary of a system need not correspond with recognised departmental, institutional or other physical boundaries* (Lane, 1999). The exchange of inputs and outputs across a boundary indicate boundary permeability. An interaction with the environment is characteristic of systems generally and more specifically of open systems (von Bertalanffy, 1968; Flood, 1990). Although boundaries may be clearly defined, they are subject to interaction and influences external to the system. Within an interpretive paradigm it is "acknowledged that a 'system' is not a concrete thing but an abstract concept that constitutes particular relationships that can be actualized in a number of ways" (Flood, 1990, p. 128). Perceiving one aspect or specific issue as a system within a more broadly conceived organisation can generate both a new representation of the issue and variety in the way the issue is thought about (Lane, 1999). Choosing to think of a health care organisation as if it were a system is a useful construct and one that is not new in its application to health and health care (Checkland & Scholes, 1990). Studies of emergency department physiotherapy (Anaf 2008) and health promoting environments in a university (Dooris, 2005) for example, have described sets of inter-related elements that, when viewed together, form a 'whole'. What is new is applying it to SLDM in the context of rural health.

### ***5.2.4 Combining case study and systems theory***

The constructs within the relational view of place suggest the relevance of both case study and systems theory. Both methodologies have been used in health and health care research (Dooris, 2005; Anderson, Crabtree, Steele, & McDaniel Jr, 2005; Gallego, Taylor, & Brien, 2007; O'Meara, 2003). Combining systems theory and case study methodology offers the opportunity for in-depth exploration as well as comparative analysis between cases in the context of the system (Anaf 2008). The combination provides a way of conceptualising complex issues for exploration, and as such has been considered a heuristic model (Anaf, Drummond, & Sheppard, 2007). This model provides a structure to explore local health service provision whilst recognising the flows and linkages that occur within a relational concept of place. The systems theory-case study heuristic, as part of a framework for this study, acknowledges that a case is also a 'bounded system' (Stake, 1995, p. 2). This notion assists by drawing attention to it as an object rather than a process.

Organisational issues, including how and why health care services are provided, requires recognition of a range of influencing factors. Also important is an understanding of the impact of external factors, such as national and state health policies, on health services provided by an organisation.

Adoption of both a collective instrumental case study design and a systems approach supports the focus on the issue of interest and holistic exploration of the issue. In this study of rural physiotherapy service provision the defined system may include tangible and intangible elements within a broader organisation that are connected to form a system. The application of both case study and a system theory approach supports consideration of a single issue across multiple sites and contextual variations of place. Each of these individual cases exists within larger systems with interactions between cases and is influenced beyond both the boundaries of the single case and the network boundaries (Figure 5.2).

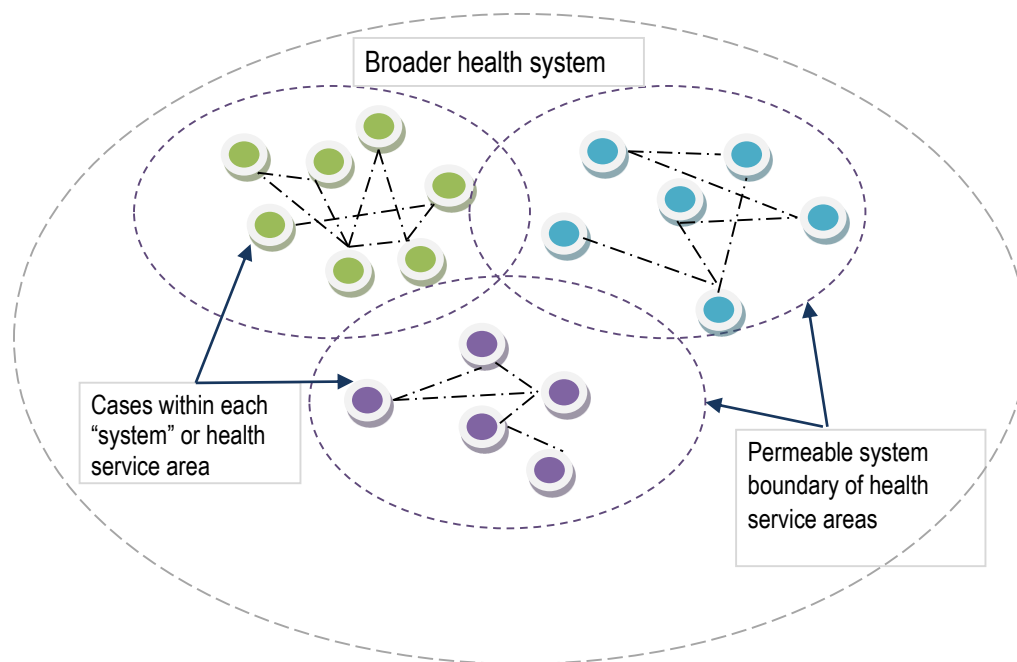


Figure 5.2 Demonstration of cases within a health system

The systems theory-case study heuristic supports the use of both qualitative and quantitative approaches and a priority–sequence model (Morgan, 1998) guides the practical integration of both approaches. As part of a larger study seeking to understand how decisions are made about rural physiotherapy service provision, important first steps were to understand participants’ perspectives of rurality and to develop cases for exploration of decision making about physiotherapy service provision.

### **5.2.5 Context of rurality**

How participants viewed the rurality of the location of their physiotherapy service was of interest to the researcher more so than the geographic classification. The participants’ views of rurality then guided the development of cases used to explore rural physiotherapy SLDM. This approach was informed by three key constructs: the expressed limitations of the application of geographic classifications to health care (McGrail & Humphreys, 2009a), the prioritised qualitative approach adopted within this study and the concept of *relational place* (discussed above).

Many definitions and classifications are used to describe or differentiate regional, rural and remote settings (Wilson et al., 2009; Schindeler et al., 2006). The Australian Standard Geographical Classification Remoteness Areas (ASGC-RA) is recommended by the Australian Institute of Health and Welfare (AIHW) (ASGC-RA and Remoteness Area Classification, 2012). Other Australian classifications include the Access/Remoteness Index for Australia (ARIA) and Rural, Remote & Metropolitan Areas Classification (RRMA). As classifications are based on factors such as distance to service centres, population size or density, they may not take into account other contextual factors or accessibility of specific health services such as physiotherapy. Different definitions can lead to different classifications and, in terms of program funding for instance, may alter a community or individual's entitlement eligibility.

Use of a constructivist approach within the prioritised qualitative component enabled participants to reveal their thoughts and perceptions within their context. Relevant to health service researchers who seek to understand an issue of interest, is that constructivists hold the view that individuals develop multiple and varied meanings of their experiences (Creswell, 2009, p.8). This is important when seeking to understand the setting in which health services are delivered or where research seeks to reveal the type of assumptions or unexamined ways of thinking the accepted practices are based upon.

The researcher's experience suggested it was not uncommon for physiotherapy colleagues to perceive the rurality of their service setting differently to the geographic classification. Participants were therefore asked to describe the location of the physiotherapy service simply as rural, regional or remote. This is consistent with the constructivist approach adopted and obviated the need to use geographical classifications inappropriately. The perception of the rurality of the location described by participants was thereafter named 'participant perspective of rurality' (PPR). PPR was then used to develop the matrix to guide the selection of cases and participants perspectives and allowed comparison with geographical classifications.

The notion of developing a suite of measures (McGrail & Humphreys, 2009b) is important in the exploration of specific issues of health and health service provision in rural settings. The index of access to primary care is one recently described measure (McGrail & Humphreys, 2009b). The development of case sites using PPR combined with key aspects of the research question highlights how utilisation of the described methodological approach may assist in



exploring local health service provision in rural communities. The research aims can then be explored within and between identified cases relevant to the research. This is believed to be the first study to utilise this methodical approach to define rurality or relational place.

### **5.3 Research method**

The investigation site was a large area of one Australian state with a mix of regional, rural and remote communities with a range of health services of varying sizes. The scope of the study was bounded by the defined geographic area of a rural health service network. This area offered the opportunity to explore rural physiotherapy services across many health service settings. Identification of multiple sites enabled development of rural physiotherapy cases for exploring rural physiotherapy service provision. Ethics approval was obtained from the Human Research Ethics Committee of both James Cook University (approval number H3799) and the health service of the study. Data collection occurred from January to September 2012. Site specific approval was obtained for 25 health facilities employing physiotherapists within the investigation site.

Public sector physiotherapy service provision formed the primary focus of this research. The researchers' experience as rural physiotherapists and reports of a greater reliance on the public sector for the provision of allied health services, including physiotherapy, in rural and remote regions of Australia (National Rural Health Association (NRHA), 2004) informed this focus. Private physiotherapy services, while limited in some communities, deliver significant services and formed a second focus of this investigation.

A preliminary quantitative component, a survey of public sector physiotherapists in the selected investigation area, preceded and guided the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration (Clark, 2000). Public physiotherapists were invited to participate in the initial phase of the research through local professional networks. Senior physiotherapists in the investigation site provided key physiotherapy contacts in the public sector physiotherapy departments. Surveys were mailed to the key physiotherapy contacts for distribution to colleagues in their facility. Participant information and consent forms were included with the survey for distribution. Physiotherapists were invited to complete a survey describing their setting, service and factors influencing their practice.

Results from the survey assisted in identifying a range of stakeholders willing to participate in the second stage of the study. Stakeholders included physiotherapists, their colleagues, managers, key decision makers and consumers. The second stage of data collection consisted of stakeholder specific surveys. To obtain input from stakeholders, case site physiotherapists who had agreed to participate in follow up interviews, were asked to distribute questionnaires to the stakeholders at their site (O'Meara, Burley, & Kelly, 2002), including managers, consumers and team members. The physiotherapists were able to guide or direct this data collection phase to stakeholders they identified as relevant to the decision making process. Where present, the private physiotherapists were identified from listings in the Yellow Pages phone book at each case site. As the physiotherapy workforce has become increasingly privatised (New South Wales Health, 2009), it was important to consider the contributions to rural physiotherapy service provision made by private physiotherapists. To allow for possible intersectoral comparison of responses from consumer surveys, outpatient services were prioritised in the public health services. Both public and private physiotherapists were asked to place consumer surveys on relevant reception desks with an information sheet describing the study to allow consumers to elect to participate or not. Written consent was obtained from all participants. All surveys were anonymous unless participants agreed to provide their details for subsequent interviews.

In the final stage of data collection the principal researcher conducted face to face semi-structured interviews with a purposive sample of physiotherapists and key decision makers. The interview questions reflected both the questions and responses of the survey as the researchers sought to obtain greater insight into the issues raised. The interviews occurred in each case site at a location and time convenient to each participant. Written informed consent was gained prior to the interview. All interview participants were informed that they would not be identifiable and that confidentiality would be maintained. This staged approach to data collection is consistent with the funnel analogy described by Bogdan and Biklen (1982).

## **5.4 Data analysis**

Survey data was analysed using descriptive statistics and recorded in Microsoft Excel spreadsheets. Responses to open ended questions informed the development of initial themes and areas for further exploration in interviews. Manual and electronic recording of

data through the use of NVivo version 10 were used to organise the qualitative data. Each interview was recorded and transcribed verbatim and entered into NVivo. Full interview transcripts and a summary developed by the researcher were provided to interview participants for their review and comment. An iterative approach was used to guide the qualitative data analysis (Grbich, 1999). The principal researcher completed the initial analysis with co-researchers double coding one third of the interviews to add to the depth of analysis. Thematic analysis was undertaken to develop tentative themes and concepts to develop codes, which were then used to frame and account for the remaining data (Grbich, 1999).

## **5.5 Research rigour**

The research design included data collection from multiple sources to enable triangulation of data and constant comparison. Interviews were audio taped and transcribed verbatim with full transcripts and summaries provided to each interview participant for verification and additional comments. One third of the interviews (7/19) were coded by a second coder to verify themes. An auditable trail of evidence was maintained throughout the conduct of the research to further add to the credibility of the findings (Baxter & Jack, 2008; Grbich, 1999; Bailey, 1997).

## **5.6 Results**

Physiotherapy surveys were received from 11 of the 25 (44%) public sector facilities identified as providing physiotherapy services in the investigation area. The 16 completed surveys received from the 11 sites represented a 29.4% response rate as 54 physiotherapy surveys were distributed. From the surveys a matrix was developed to identify cases for purposeful sampling (Grbich, 1999). The surveys provided information on two key factors relevant to rural physiotherapy service provision: rurality and the number of available physiotherapists. In view of the expressed limitations of geographic classification systems (McGrail & Humphreys, 2009b), participant perspectives of rurality (regional, rural or remote) were used to inform cases. The number of co-located colleagues was the second factor identified as a potential differentiating factor of rural physiotherapy service provision. This is consistent with the literature in which workforce and position shortages are recognised as characteristics of rural physiotherapy (Williams, D'Amore, & McMeeken, 2007).

An example of stratified purposive sampling (Liamputtong & Ezzy, 2005), the proposed matrix had a potential total of 12 cells, although many may not be applicable (Table 5.1). A regional setting with only a part time physiotherapist (less than one Full Time Equivalent [FTE]) is one such example. In addition to informing case site selection, PPR were compared to current rural classification systems to identify commonalities and differences. Interview responses of participants at identified case sites then further contributed to concepts of rurality relevant to rural physiotherapy service provision.

Table 5.1 An initial matrix

Physio FTE	≤1 Physio	1–2 Physios	3–5 Physios	>5 Physios
Remote				
Rural				
Regional				

The initial matrix was revised to reflect stakeholder responses including the larger referral centres and mixed stakeholder responses about the rurality of one location (Table 5.2). Six case types emerged from the physiotherapy responses. The six case types that emerged were Rural≤1; Rural 2-3; Rural 4-10; Rural-Remote 4-10; Regional 4-10; and Regional>10. At times, where issues in common were revealed, reference is made to small (Rural≤1; Rural 2-3) and large facilities (Rural 4-10; Rural-Remote 4-10; Regional 4-10; and Regional>10). A further 23 surveys (5 private practitioner, 13 colleague/manager and 5 consumers) were received from stakeholders at identified case sites. Nineteen interviews were conducted across the sites of the study. Survey participants were coded alpha-numerically in the following groups: public sector physiotherapists (P), private sector physiotherapist (PP) colleagues (CL) and consumers [CN]. Interview participants have been coded alpha-numerically in the following groups: public physiotherapists (A); private physiotherapists (B); colleagues(C); and other decision makers (D).

Table 5.2 Revised matrix

Physio FTE	≤1	2–3	4–10	>10
Remote				
Rural- Remote			7	
Rural	3, 5, 6*, 9^, 11*	1, 10^	4	
Regional			8	2

1-11 are the data collection sites; ^ \* services provided by the same physiotherapist.

### 5.6.1 The cases

The collective cases for this study are named by the combination of the two factors informing the sampling matrix: PPR and FTE physiotherapists. Table 5.3 groups the sites into the case types and provides further detail of each site within the case types. The six case types are:

- Rural ≤1
- Rural 2–3
- Rural-Remote 4–10
- Rural 4–10
- Regional 4–10 and
- Regional >10

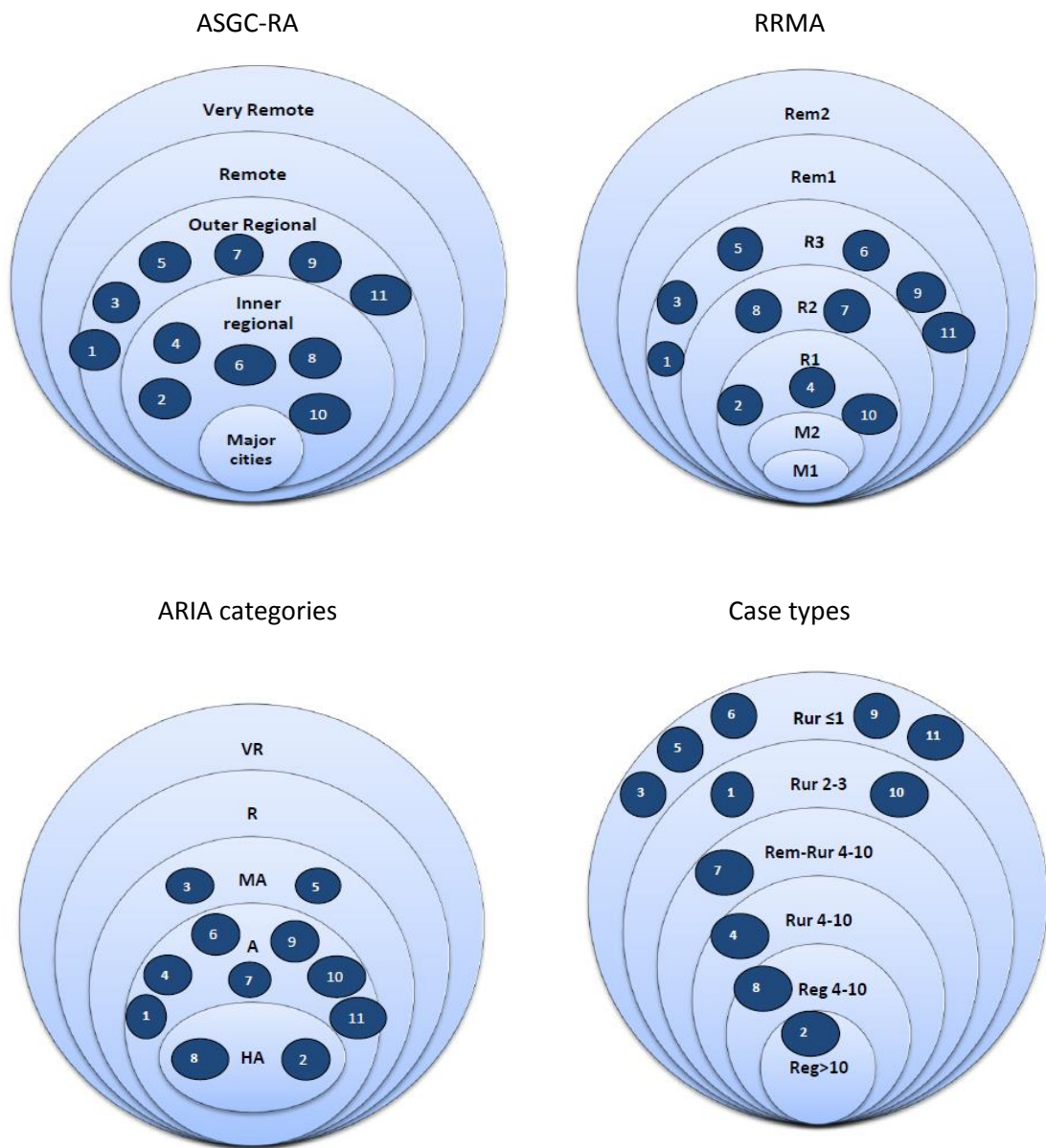
Table 5.3 Details of data collection sites grouped within case types

Case Types	Rural ≤1					Rural 2–3		Rural – Remote 4–10	Rural 4–10	Regional 4–10	Regional >10
	3	5	6	9	11	1	10	7	4	8	2
Site	3	5	6	9	11	1	10	7	4	8	2
Population	4,700	3,174	2,381	912	653	15,192	9,730	19,818	38,037	34,303	39,329
Bed numbers	<50	<50	<50	<50	0	<50	<50	50–100	100–200	50–100	100–200
Public sector FTE	0.5	1	0.6*	0.4^	0.4*	1.6	2^	8	10	7	13.5
Same day admissions	93	348	62	3	0	808	1288	4,154	9,115	5,068	10,377
Overnight admissions	493	818	579	17	0	1635	1845	3,496	11,364	6,009	11,753
Budget (\$m) 2010	\$2.9	\$5.0	\$3.7	\$1.2	0	\$11.2	\$10.6	\$28.7	\$66.2	\$47.7	\$87.7
Private practices#	0	1	0	0	0	3	2	1	6	4	6

\* ^ *physiotherapy services provided by same staff ; # number of practices (with varying FTE)*

Comparison between the case types of this study and the different geographic classifications of the sites is perhaps more evident in visual format (Figure 5.3). There is a clustering of sites into two or three groups when the geographic classifications are used. This contrasts with the separation of sites into six case types when PPR and FTE were used.

The differentiation of the case types for this study supported the use of the matrix formed by two definable aspects of the research: rurality and the number of allocated colleagues. The six case types form the collective cases in which the issue of interest is explored. The focus on a single issue or unit of analysis (Baxter & Jack, 2008, p.545) forms the basis of case study research. In this research, the issue of interest is physiotherapy service provision-and SLDM.



- ASGC-RA cluster the sites into two groups,
- RRMA cluster into three of the rural classifications (Rural 1,2 and 3),
- ARIA cluster into three classifications (Highly accessible (HA), Accessible (A) and Moderately accessible (MA)),
- Case types PPR/FTE differentiates the sites into six case types, with a clustering of smaller services in rural  $\leq 1$ .

Figure 5.3 Comparison of data collection site classification

The researcher's conceptual representations of the cases that form this study as systems are provided in Figures 5.4–5.10. The complexity of the SLDM system increases with the number of elements within each case when viewed within a system construct.

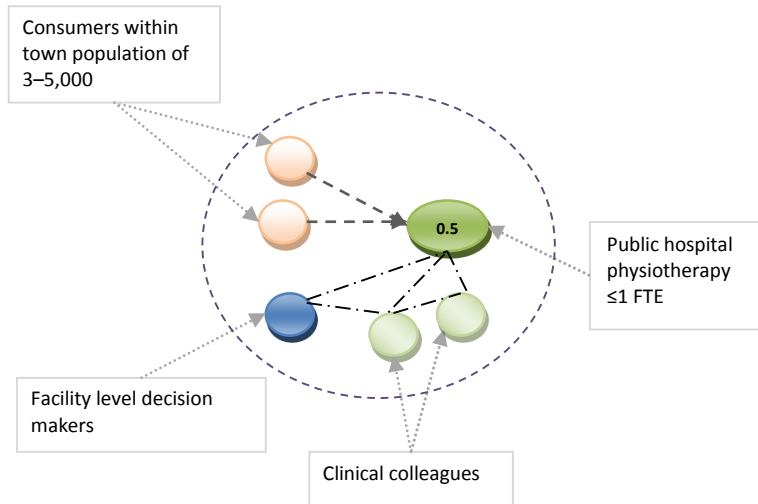


Figure 5.4 Case type 'Rural ≤ 1' Site 3

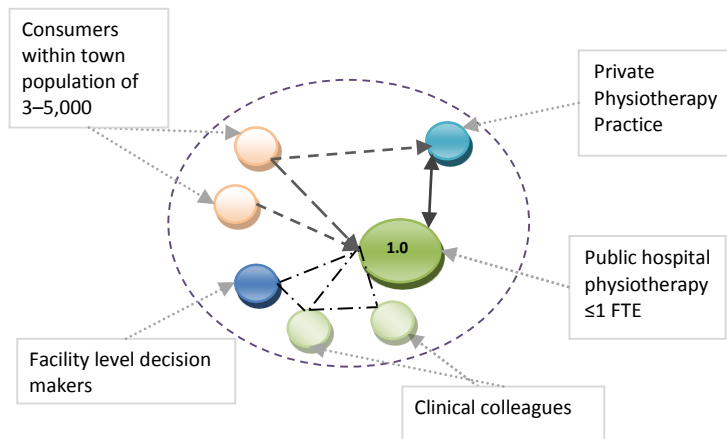


Figure 5.5 Case type 'Rural ≤ 1' Site 5

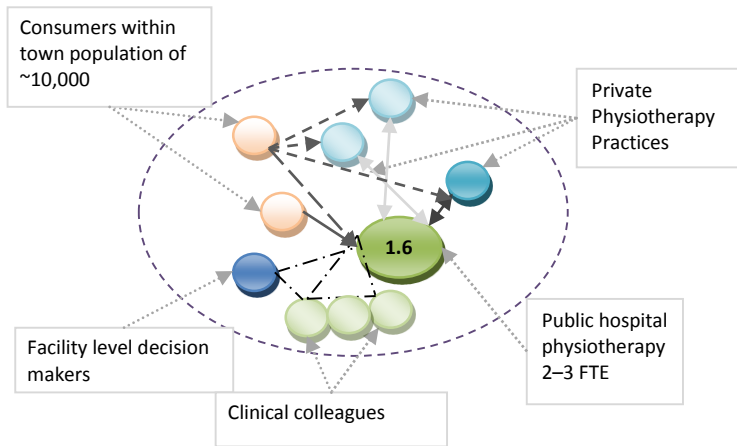


Figure 5.6 Case type 'Rural 2-3' Site 1

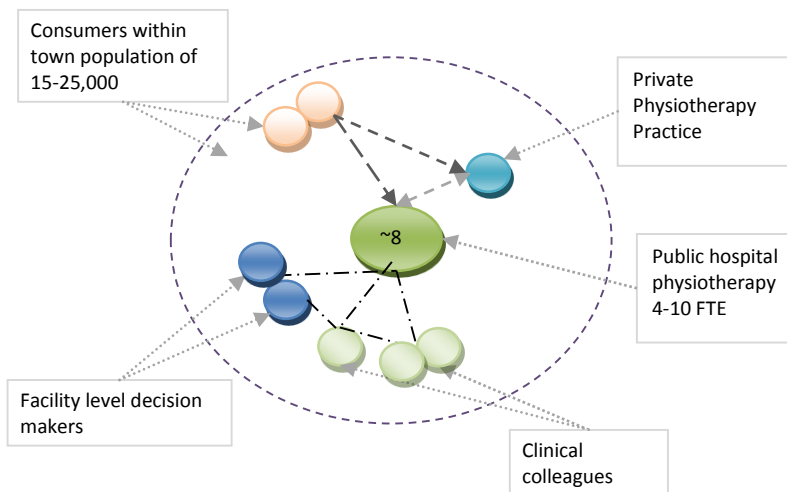


Figure 5.7 Case type 'Rural-Remote 4-10' Site 7



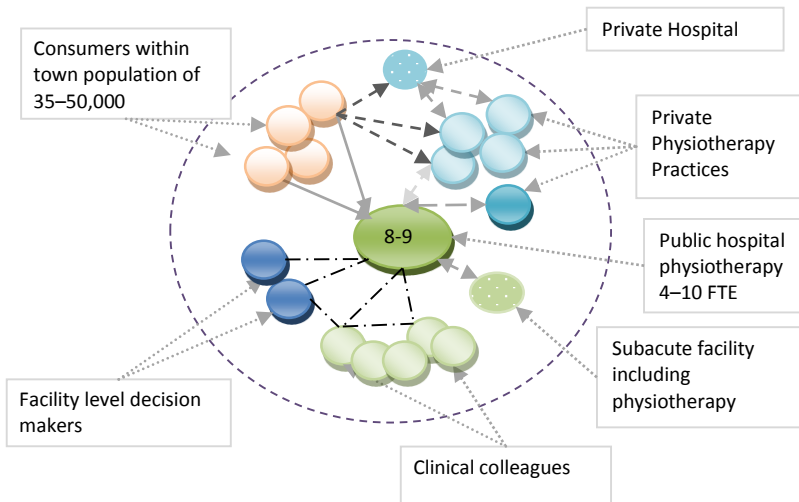


Figure 5.8 Case type 'Rural 4-10' Site 4

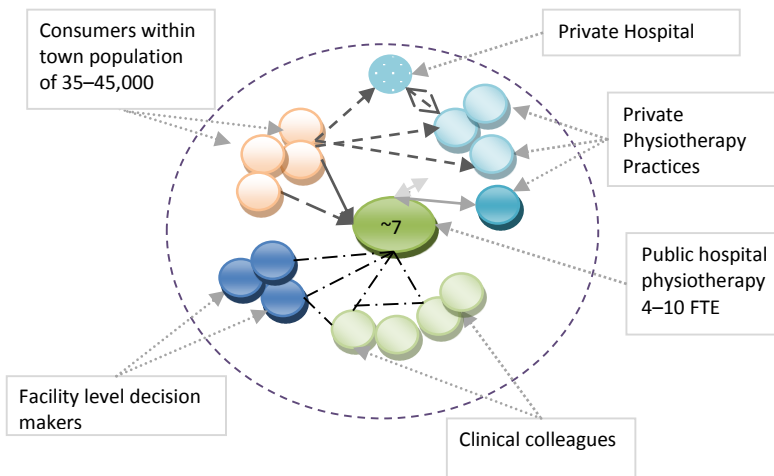


Figure 5.9 Case type 'Regional 4-10' Site 8

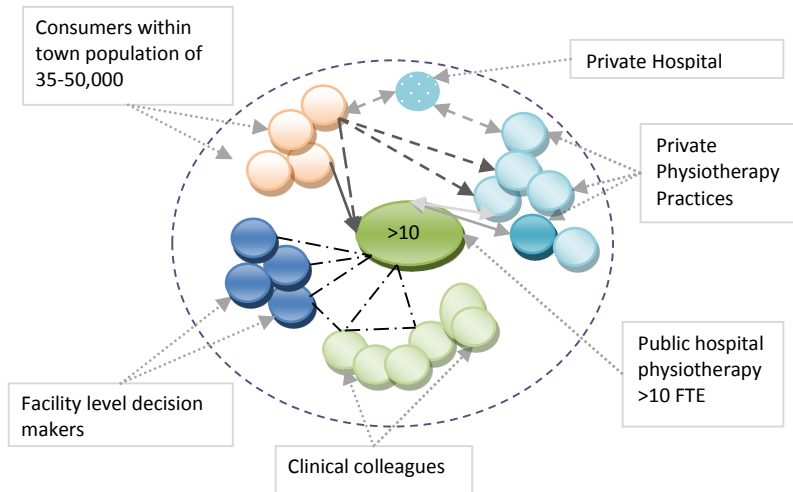


Figure 5.10 Case type 'Regional >10' Site 2

Each of these individual cases exists within larger systems with interactions between case/sites and are influenced beyond both the boundaries of the single case and the network boundaries (Figures 5.11 and 5.12). Each site thus forms part of service networks, some with overlapping boundaries (Figure 5.13). The sites of this study are just one section of this larger series of interacting service networks (Figure 5.14).

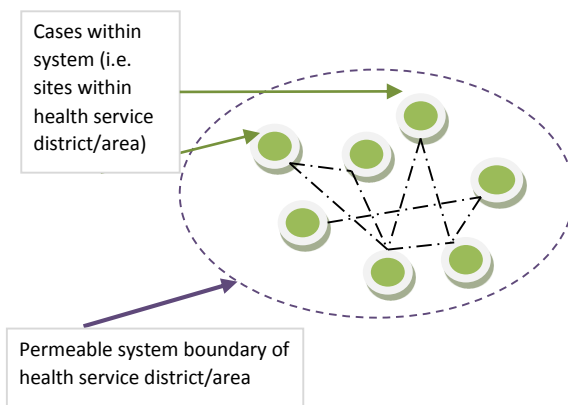


Figure 5.11 Cases within a system

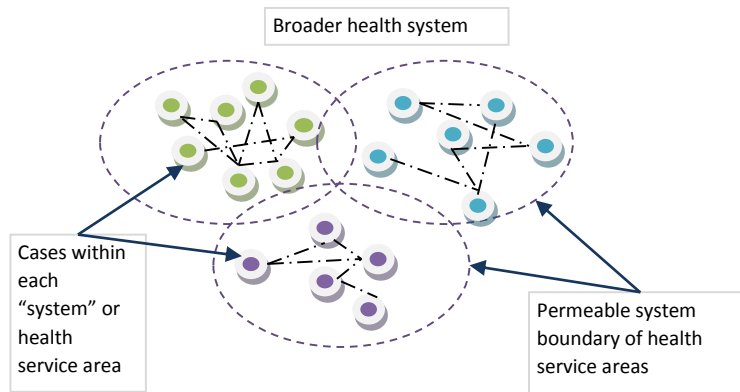


Figure 5.12 Systems within systems

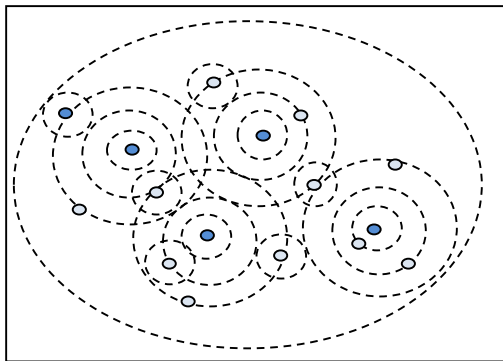


Figure 5.13 Overlapping boundaries of service networks

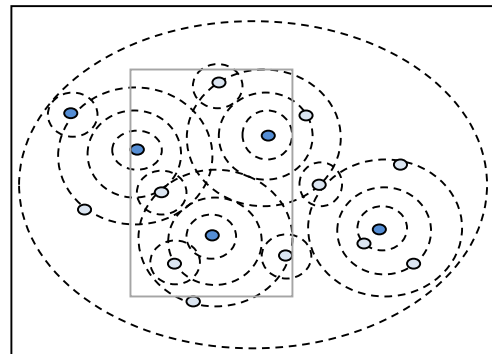


Figure 5.14 The cases described form just one section of the larger health system

### 5.6.2 Services

Physiotherapy services in public hospitals include a range of inpatient, outpatient and rehabilitation services. Depending on size and location, some community services are also provided. The range, volume and acuity of inpatient services are responsive to the service capability of the hospital. Physiotherapy areas of practice include the following: cardiorespiratory, musculoskeletal, orthopaedics, aged care, mobility assessment, neurological rehabilitation, paediatrics (acute and rehabilitation), burns and intensive care. Musculoskeletal and orthopaedic services were common to many of private physiotherapy practices (Table 5.4).

Table 5.4 Services provided in each of the cases

Responses drawn from the question: <i>What physiotherapy services does your facility/service provide?</i>			
Site	Public Sector Services	Interview commentary by public sector participants	Private services survey and interview responses
	Case type Rural≤1		
3	<i>Mainly outpatients, predominantly musculoskeletal (acute/chronic) + rehab (orthopaedics post-surgical). Some hand therapy, some paediatrics, some neuro + inpatients (general ward).[P14]</i>	<i>Probably about ninety five percent of the patients are out-patients ... I run exercise classes, four hours a week, strength training cardio-pulmonary. [A8]</i>	[no private practice]
5	<i>Outpatient therapy; inpatient therapy, including small ED unit (mainly PoP and assessment of back pain/ankle sprains); cardiopulmonary rehabilitation (weekly); post natal exercise class (weekly); ante natal exercise class. [P16]</i>	<i>I must provide the care for the acute inpatients: that and ED services are my core. I can do that and then there are the outpatients that can be sorted into waiting lists. [A7]</i>	[No information was received from the private physiotherapy practitioner from this site]
	Case type Rural 2–3		
1	<i>Outpatient: Lymphoedema management; limited paediatrics assessment; serial casting; limited neuro rehab; acute→ subacute orthopaedics, fracture clinic; falls class; input to cardiac and pulmonary rehab. Inpatients: Slow stream rehab; palliative; aged care; medical; chronic care; minimal maternity; acute fracture management; orthopaedics [P9] Inpatient rehab. Outpatients. Home visits–as needed.[P15]</i>	<i>So generally the role – if it was just one full time person would be half-half – half in-patients, half out-patients and we also do a GP fracture clinic. We manage simple fractures in the fracture clinic Neuro patients; acute and sub-acute and chronic patients; musculo-skeletal; orthopaedic patients; we do paediatric patients; lymphoedema.[A5]</i>	[Physio considers themselves as a generalist musculo-skeletal physio with a few rehab type patients].  <i>Predominantly musculo-skeletal outpatients. I do some work in local nursing homes, but I am not doing so currently. [B3]</i>
	Case type Rural-Remote 4–10		
7	<i>Inpatients–ICU; surgical; medical; rehab; OBU; paediatrics ortho fortnightly; ED. Outpatients–general m/s; plasters; neuro; hydrotherapy; Workcover; C/P rehab; falls classes. Community–manual handling; sports; injuries prevention; schools pro-am with UDRH.[P3] Outpatient- Musculoskeletal; Inpatient -surgical ward, medical ward, ICU. Hydrotherapy. [P4] Inpatients-surgical and medical ward. Outpatients. Paediatrics. [P5]</i>	<i>Well obviously inpatients first; the acute care and we service all the wards including the new block and ED; then the community. We have a large outpatient department, probably much larger than a lot of other facilities, and because we don't have a lot of private physios in town – just recently had one physio start up after not having any for a long time. So outpatients is really big for us.[A9]</i>	<i>As the only private practice in town, I was trying to serve the community, the private community. We do WorkCover, we do DVA, and we do the Medicare program so the Enhance Primary Care program and we do Compulsory Third Party. We see a lot of musculo and skeletal patents and do consultancy work for the nursing homes.</i>

	<i>Inpatient-Surgical/Medical/ Obstetrics/Paediatric Ward -2 full time Physios, ED services, Outpatients, Hydrotherapy.[P11]</i>		<i>So the hospital will look after the rehab clients, chronic patients and those outpatient people as well who want to utilise the public system. [B5]</i>
	<b>Case type Rural 4-10</b>		
4	<i>Inpatient; outpatient .[P1]</i>	<i>Service priorities are the inpatients. Outpatients general, a fracture-clinic, we do pre-admission clinic, women's health up until this point there's been no community physio at all. We don't do rehab that is at [subacute facility]...which has three or four physio staff. [A6]</i>	<i>Orthopaedics is a favourite area. I always wanted acute work, so I did neuro, and I still get a little bit of neuro but the slower recovery doesn't lend itself to private practice. I love working with acute post-surgical cases and that may be hips or shoulders, it may be hands, it may be knees, ACLs, it may be fractures; I love treating NOFS and fractures. [B4]</i>
	<b>Case type Regional 4-10</b>		
8	<i>Outpatients: Resp/MSK/neuro/rehab/hydro: - Cardiac /pulmonary rehab. -Acute care/Critical care (Surg/Med/ICU/ED);- Paeds;-Rehab;-fracture clinic [P6]. Full Base hospital- surgery, medical, ICU/CCU. CAPACC/ambulatory care. Rehab. Outpatients. Fracture clinics. Brain Injury. Pre-natal classes. Hydrotherapy. Paediatrics. Baby screening clinic. About to commence Subacute care to district. [P8] Acute hospital wards- ICU/Med/Surg/Maternity/Paeds. Rehab ward. Fracture clinic. Outpatients including hydrotherapy. Paediatric outpatient. CAPC/Ambulatory care- has physio's attached.[P10] [Service not facility ]Assessment of ED presentations. Follow up of ED presentations that aren't admitted. Domiciliary treatment post Total knee, hip replacements. Domiciliary treatment of acute on chronic respiratory disease, including HITH pneumonia and kids attending special needs school (for resp care). Consultation to domiciliary care.[P12]</i>	<i>Significant service pressure on inpatients, general outpatients and developmental paeds... 2 FTE provide service to acute wards in inpatients, ICU, Medical, Surgical, and Paediatrics, maternity. A regular service to ICU, Medical and Surgical, but and Paeds and Maternity only as referred. Out patients, that's got 1 FTE, rehab 1.6 FTE Paediatrics is 0.42 FTE. [A1]</i>	<i>Provide general physio, particularly backs and necks, general orthopaedics, pelvis dysfunction and a bit of women's health, hydrotherapy (as I hold a hydrotherapy qualification). Some services to aged care facilities: assessment Assessments: pre-employment; mines Services for compensable patients and patients who have the capacity to attend and pay for private physiotherapy services Will assist when gaps in the public sector services constrain access to services by providing one off treatments and advice. [B1]</i>

	Case type Regional >10		
2	<p><i>Acute inpatients; Fracture Clinic; Outpatients-Musculoskeletal; Emergency Department; Rehab; External to my department: Mental health; Sub-acute; cardiopulmonary rehab; CAPACS (community and post-acute care) physio.</i>[P2]</p>	<p><i>This Health Service is the referral hospital for the [region]...the hub for the spokes. As such it has a dual role as a provider of referral level inpatient services, in line with the service capability framework for the broader regional area and outpatient type services for the local community.</i> [A3]</p>	<p><i>Provide mainly musculoskeletal -'under 5 to 100' ( paediatrics is mostly orthopaedic in nature), sporting kids (often school boarders), sports physio Some services to aged care facilities: assessing needs of residents Developing manual handling and work Health and Safety (WHS)education Assessments: pre-employment; mines.</i> [B2]</p>

### 5.6.3 Perceptions of rurality

Participant responses highlight the conceptual challenges when describing rurality and defining regional, rural and remote. For example, participants who worked in a location with more than ten FTE physiotherapists stated:

*I suppose regional, yes. I don't really consider myself to be rural. For me it is, I don't consider this to be rural just because I can live here and have a city lifestyle without the stress and the traffic and the pollution. I don't believe I'm living the rural lifestyle. If I had a rural lifestyle I'd have a farm.* [A3]

*I suppose we'd be regional, I think of myself as rural but I think it's probably regional.* [D1]

One participant who worked in an area with four to ten FTE physiotherapists stated that their perception of rurality was to some degree based on patient location:

*And that was the big thing from city versus country physio or rural physio, a lot of my patients travel six hours to see me.* [B4]

Participants also felt that access to services also assisted in defining the rurality of a location. For example, a participant from a large country centre noted: *'the capacity to access high level services is limited [here]...and so the capacity to access the higher level service I think is one of*

*the things that defines this as remote.'* [D4]. This was also reflected in smaller rural locations, adding to the notion of access to services and support as an important consideration in understanding rurality:

*The differences are like in metropolitan – in provincial ... we've now got some specialists in most places. Whereas here you're expected to know hands and everything else so at least you've got a context. So it's a video conference with the people for hands in [the capital city] but getting into the video conferences is an issue because that's in the hold and treat rooms [for mental health patients]. [A8]*

## **5.7 Discussion**

The rurality of the case types reflected the way in which physiotherapists identified the setting in which they practice. Physiotherapy participants described eight of the eleven sites as rural, two as regional and one as remote-rural (Table 5.2). FTE physiotherapist numbers ranged from 0.4 FTE (i.e. one physiotherapist working two days per week) to 14 FTE across the sites of this study. Six case types emerged from the responses from the public sector physiotherapists. PPR in sites with four to ten physiotherapists was an important factor in making distinctions between sites, whereas the number of FTE physiotherapists was a greater differentiator in rural and regional sites. FTE categories could be further differentiated, but for the purpose of this study, four categories were used.

Fewer case types would have emerged if a single measure of rurality was the only differentiating factor. Three case types would emerge if PPR, RRMA or ARIA were used as a single measure and only two case types if ASGC-RA was to be used as the only differentiating factor. Comparison of rurality for each site using remoteness classifications revealed a variable picture (Table 5.5). The differentiated case types that emerged from the dual measures of PPR and FTE informed the selection of cases for this study.

Table 5.5 Comparison of cases using different rurality classification systems

Sites	1	2	3	4	5	6	7	8	9	10	11
<b>ASGC-RA</b>	3	2	3	2	3	2	3	2	3	2	3
<b>RRMA</b>	5	3	5	3	5	5	4	4	5	3	5
<b>ARIA</b>	A	HA	MA	A	MA	A	A	HA	A	A	A
<b>PPR</b>	Rural	Regional	Rural	Rural	Rural	Rural	Rem-Rural	Regional	Rural	Rural	Rural
<b>Population (,000)</b>	10-20	35-45	1-5	35-45	1-5	1-5	15-25	30-40	<1	5-10	<1
<b>Public HHS beds</b>	<50	200-500	<50	100-200	<50	<50	50-100	50-100	<50	<50	0

ASGC-RA: Australian Standard Geographical Classification Remoteness Areas.

RRMA: Rural, Remote & Metropolitan Areas Classification.

ARIA: Access/Remoteness Index for Australia. HA: highly accessible, A: accessible, MA: moderately accessible.

PPR: Participant Perception of Rurality.

HHS: Hospital and Health Service.

Rem: Remote.

The complexity of understanding the concept of rurality was revealed by interview participants when discussing perceptions of rurality relevant to their setting. Issues around the concept of rurality include the following:

- Is it the practitioner or the setting that defines rural health;
- Is it about distance from a centre or a service provider;
- Is it service size including the number of providers or a sole part time worker;
- Is it about workforce availability;
- Is it about the type of work undertaken such as specialist or generalist skills;
- Is it about support available to the health professional;
- Is it being visible and accountable to the community;
- Is it about local knowledge; or
- Is it about distance from decision makers?

Questions such as these reveal the convolutions of rurality and the variability often reported in the literature around rural health service provision (NRHA, 2004; Humphreys, 2009; Schoo, Stagnitti, Mercer, & Dunbar, 2005). Such variation further reinforces the need for the development of measures that can reflect this complexity and variation. Use of only a geographical classification of rurality is not sufficient to be able to distinguish between sites



and thus cases when undertaking rural health service research. Dual measures, such as rurality and workforce numbers, provide more relevant differentiation than a single measure of rurality as defined by geographic classification. Similarly the continued use of catch-all terms such as 'rural health' can limit the understanding of the similarities and differences found across locations (Farmer, Munoz, & Daly, 2012). Without understanding the associations between the specifics and context of each place, the attributes within the population and individual health services being delivered, there is a large gap regarding the understanding of the specifics of health services in local rural communities.

This study adds to the literature describing limitations in the application of geographical classifications for differentiating rural health services. This study revealed that participant perspective of rurality often differed with the geographical classification of their location. For example, one participant expressed a sense of isolation more consistent with remote areas than that of a rural location:

*In Katherine and things like that, in what's considered remote area and yet [here] I'm the only Allied Health therapist...so I'm actually probably.... professionally more isolated than a lot of these people ...at least have teams in more remote areas. [A8]*

Not only does the health professional feel isolated, but access to services would be likely to be a key issue for residents in this rural location. This is consistent with the work of McGrail and Humphreys (2009b), which suggests that access to health services is a function of several factors including availability, proximity, health needs and mobility. The effect of distance on the accessibility to health care services has been identified as a key factor differentiating rural and remote from metropolitan health care (De Angelis, Bunker & Schoo, 2008; Humphreys, 2009). Population size and geographical location then influence the mode and form of service delivery with socio-economic and geographic inequities influencing access to health care (Humphreys, 2009). Implications for provision of health care, particularly primary health care have been discussed in the literature (Humphreys, 2009), however implications for provision of specific health services such as physiotherapy in rural settings are less evident.

Variability and diversity are characteristic of rural Australia (Roufeil & Battye, 2008), and combine with the unique demography of rural and remote Australia as key determinants of health problems and health service needs (Larson, 2006). Adopting an approach that enables

insight into variability and diversity of different sites is consistent with the dynamic characteristics of place. Health service provision in rural areas is increasingly influenced by networks, connections and linkages that may occur within defined boundaries of a local health system, but are increasingly informed by interaction and influences external to the system at regional, state and national levels. Examples that emerged in this study include the impact on smaller rural physiotherapy service providers when new regional services are established and how a national decision such as activity based funding (ABF) influences the health system and service delivery at all levels:

*Recently I have told by [the regional centre] that I need to do all these lymphoedema patients and this is the pre assessment in terms of the whole population of anyone having breast cancer... to see them all – measure them all up before surgery... I said “I can’t do that” but that’s what I would be expected to do so, that is a direction coming from [the regional centre who are] saying we can’t do all of these. [A5]*

*They just send them anywhere they can to get them out of [the regional hospital]...they have to get them out of there... you know within four days....[because of] funding, pressure, bed block ... pressure to get them out, get them going, send them home. [A8]*

*[Length of stay]...it’s a huge measure and that, with activity based funding, they are going to be huge drivers.... Bed block, length of stay, money, will always stick up in their head and that is the thing that they will see as important ... [the national health reform], it sort of sets the big agenda that will trickle down to us in other ways as in if they’ve got a project that they want that has a bucket of money, that will influence some decisions about what services are provided with that bucket of money and it just depends whether we’re in the mix or up in their face or not. Yes, it sets that whole funding agenda that’s going to have a major influence. [A1]*

These influences affect health service provision and can be lost when investigating SLDM in rural health. The combination of a mixed methods approach utilising a survey followed by in-depth interviews within a collective case study and systems theory heuristic has demonstrated an appropriate framework to identify the issues surrounding rurality. Without further understanding of rurality, investigation into rural health will be lacking. Utilisation of this

mixed methods approach could be applied to other rural health issues and may help to add to the research around health service delivery.

## **5.8 Limitations**

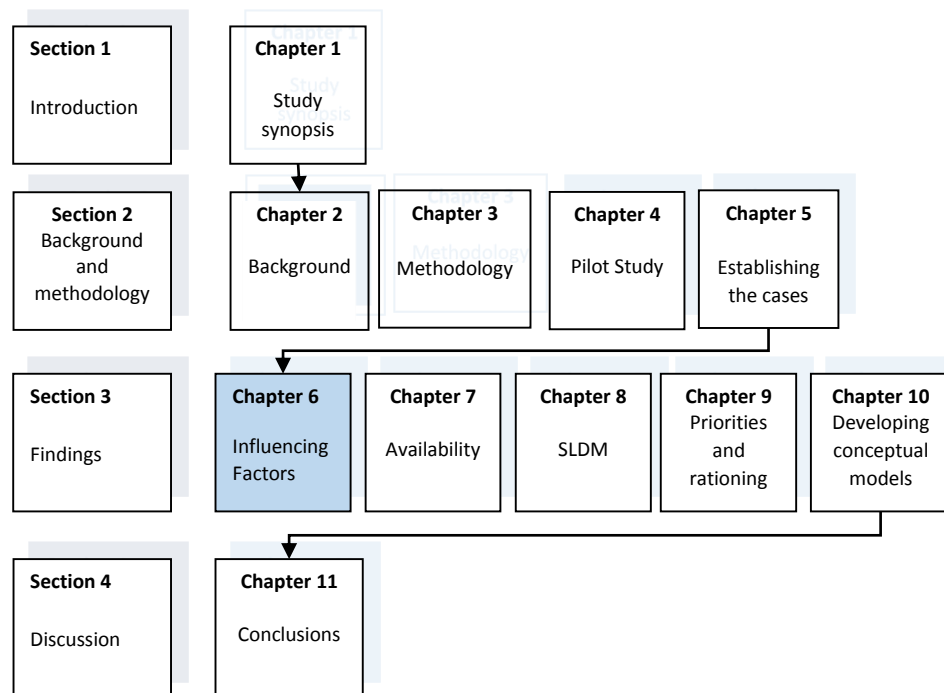
The research framework described was applied to an investigation of physiotherapy service provision in only one area within Australia, which had a mixture of regional, rural and remote centres. The low survey response rate may reflect a self-selection bias that may limit the applicability of the results more broadly. The framework and results may not be applicable across professions or to other areas with a different mixture of services or locations.

Participant perception of rurality and public sector staffing numbers, while relevant to this study to define cases, may not be applicable to other studies. Further research into SLDM may verify or refute these findings and could provide valuable insights into rural health service delivery.

## **5.9 Conclusion**

The framework described provides a structure to gain insight into local health service provision in a way existing statistical data does not. The combination of the systems theory-case study heuristic and a sequential mixed methods approach supported a qualitative exploration of issues identified through initial surveys. Obtaining participant perspectives of issues of interest, such as rurality and physiotherapy service provision, provides local detail often not available or visible. The concept of relational place aligns well to both systems theory and case study to aid exploration of the specifics of rural communities and the impact of context (Farmer, Munoz, & Threlkeld, 2012). Concepts such as rurality and place then inform exploration of a health care issue of interest within and between rural communities. Defining key aspects of the research, such as participant perspectives of rurality and physiotherapy FTE, assist to define cases in which to explore the issue of interest. Adopting a systems approach then allows description of inter-related elements in each individual case whilst recognising interaction between cases and within the larger health systems.

## 6. Chapter 6: Influencing Factors



Adapted with changes from Adams, R., Jones, A., Lefmann, S. & Sheppard, L. 'Factors influencing rural physiotherapy service provision. *Submitted for publication September 2014.*

This chapter, the first of five chapters describing the findings of this study, draws upon the participant comments relating to factors influencing rural physiotherapy service provision. Obtaining perspectives from a broad range of stakeholders avoided isolating the research to a physiotherapy-only perspective. Survey responses from physiotherapists, colleagues and consumers provided a broad range of factors for consideration by interview participants. The findings of stakeholders other than physiotherapists at times corroborated the perspectives of physiotherapists, while also providing additional factors for consideration. Consistent with the systems approach adopted, the influencing factors were grouped within organisational levels that enable stakeholders at each level to address or consider addressing factors within their sphere of influence.

Chapter 7, the second of the findings chapters, emerged from participant descriptions of local workforce and service provision. The descriptions began to provide insight into issues of availability and accessibility of physiotherapy services not usually visible within collated

national data. The availability of physiotherapy services was therefore explored more fully and is reported in Chapter 7.

Chapter 8 then builds on discussions about factors influencing service provision to gain insight into which factors influence SLDM. The factors are at times similar to those affecting service provision, suggesting perhaps that there is little difference in factors influencing both service provision and SLDM. However, more abstract concepts such as visibility within the community, having a voice at the decision making table and a sense of connection to community emerged. A conceptual map in which to consider rural physiotherapy SLDM was developed and described in this chapter.

Chapter 9, the fourth of the findings chapters, then explores one specific aspect of SLDM, that of service prioritisation or rationing. The importance of including this chapter emerged from the participant's comments about not being able to meet all the demands placed on their service necessitating decisions on priorities or rationing of the relative scarce physiotherapy resources. Making choices about physiotherapy service provision involved making judgements about the relative priority of the different demands placed upon the physiotherapy service.

Chapter 10, the last of the findings chapters, then draws together the findings to present conceptual models of rural physiotherapy service provision and SLDM.

## **6.1 Introduction**

Australian rural physiotherapy research grew momentum following the emergence of rural health as an issue in its own right in the early 1990s (Humphreys, Hegney, Lipscombe, Gregory, & Chater, 2002). Research into Australian rural physiotherapy since this time has had a strong workforce focus (Lindsay, Hanson, Taylor, & McBurney, 2008; Miles, Adams, Anaf, & Sheppard, 2010; Mitchell, 1996; Sheppard, 2001; Williams, D'Amore, & McMeeken, 2007), with limited investigation into broader factors that influence rural physiotherapy service provision (RPSP). By obtaining stakeholder perspectives of factors influencing RPSP, this study addresses an identified gap in the literature.

Rural physiotherapy in Australia is typically defined in terms of workforce challenges. These challenges are well documented in the rural literature (Campbell, McAllister, & Eley, 2012; Lindsay et al., 2008; NRHA, 2004; Roots & Li, 2013; Schoo, Stagnitti, Mercer, & Dunbar, 2005; Stagnitti, Schoo, Reid, & Dunbar, 2005). There is little empirical research conducted in Australia to help explain how these and other factors influence physiotherapy service provision in specific rural settings. Whilst a small number of studies describe the range of physiotherapy services provided (Sheppard, 2001; Williams et al., 2007) and service priorities (Miller-Mifflin & Bzdell, 2010) in regional, rural or remote areas, descriptions of factors other than workforce that influence physiotherapy service provision is minimally described.

There is no succinct definition of rural physiotherapy, but rather it is described by a series of statements. Rural physiotherapy is said to be characterised by location, service implementation in a 'lower resource framework' and competency requirements across the clinical, administrative and professional domains (Sheppard & Nielsen, 2005; Williams et al., 2007). Physiotherapists working in rural settings are required to manage a broad range of clinical conditions across the age spectrum. Rural physiotherapy practice is often considered to be generalist in nature, spanning the full scope of practice of the discipline (Minisini, Sheppard & Jones, 2011).

An *a priori* assumption at the outset of this research was that factors influencing physiotherapy service provision would occur at multiple levels of the health system. These levels have been referred to as the *micro* or clinical level, the *meso* service or organisation level and the *macro* state or national level (Sibbald, Singer, Upshur, & Martin, 2009). Organisational activity at each of these levels can influence health care provision. Examples include national health policy, regional health priorities, workforce capacity and patient preferences. In this study the term *macro* is used to refer to health related factors that occur at a national or state level, *meso* is used to refer to factors located at a regional or facility level and *micro* those that occur at the physiotherapy service or clinical level (Figure 6.1).

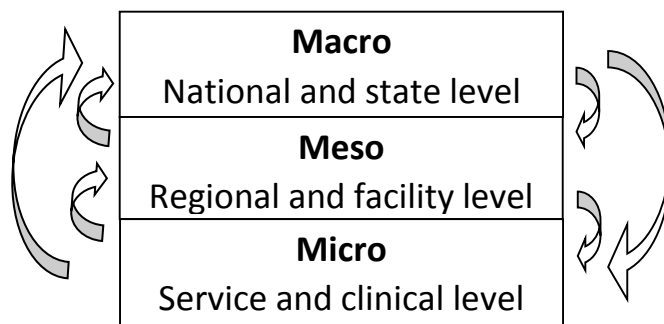


Figure 6.1 Health system levels

## 6.2 Method

A sequential mixed methods approach within a systems theory-case study heuristic was used to identify and explore factors affecting RPSP. Described in detail elsewhere (Adams, Jones, Lefmann, & Sheppard, 2014d), this approach provided a framework to investigate RPSP within the complex health system. A preliminary quantitative component preceded and guided the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration (Clark, 2000). Use of an initial survey allowed the researcher to obtain the perspectives of a broader range of stakeholders than may have been feasible if only a qualitative approach was adopted.

Stratified purposive sampling permitted the exploration of subgroups of interest (Patton, 2002), identified in the preceding, complementary quantitative component. The subgroups included physiotherapists, their colleagues, managers and consumers. The survey respondents and results informed participant selection for the dominant qualitative exploration of the issue of interest (Adams et al., 2014d). This supports a key intent of sampling within qualitative research, which is the selection of information rich cases (Liamputtong & Ezzy, 2005).

The research was undertaken in a large area of one Australian state with a mix of regional, rural and remote communities. Stakeholder perspectives were obtained through surveys and in-depth interviews. Obtaining perspectives of stakeholders, such as multidisciplinary team colleagues, consumers and managers avoided isolating the research to a physiotherapy only perspective. A purposefully designed survey, which had previously been piloted in a rural location in another state (Adams, Sheppard, Jones, & Lefmann, 2014e), was sent to all physiotherapists working in public hospitals in the investigation area. The physiotherapists

were asked to distribute surveys specific to the stakeholder groups relevant to the local service with surveys for consumers being placed at reception desks. Participants were also asked if they would be willing to participate in a follow up interview. Semi-structured in-depth interviews were then carried out with a purposive sample of physiotherapists and managers to provide greater insight into factors influencing RPSP. The same approach had been piloted in another rural area (Adams et al., 2014e).

Ethics was obtained from the health service, as well as site specific approval for each location and from James Cook University (H3799). Information sheets were provided to all potential participants. Written consent was obtained from participants prior to the interview. Data collection was undertaken from January to September 2012.

Survey data was analysed using descriptive statistics and recorded Microsoft Excel spreadsheets. Responses to open ended questions informed the development of initial themes and areas for further exploration in interviews. Manual and electronic recording of data through the use of NVivo version 10 were used to organise the qualitative data. Each interview was recorded and transcribed verbatim and entered into NVivo. Full interview transcripts and a summary developed by the researcher were provided to interview participants for their review and comment. An iterative approach was used to guide the qualitative data analysis (Grbich, 1999). The principal researcher completed the initial analysis with co-researchers double coding one third of the interviews to add to the depth of analysis. Thematic analysis was undertaken to develop tentative themes and concepts to develop codes, which were then used to frame and account for the remaining data (Grbich, 1999).

## **6.3 Results**

Survey responses from thirty nine participants (twenty one physiotherapists, thirteen colleagues/managers and five consumers) provided an initial picture of rural physiotherapy. Nineteen follow up in-depth interviews (fourteen physiotherapists and five colleagues/managers) enabled further exploration of factors influencing RPSP.

Responses from the survey of public sector physiotherapists informed the development of cases and provided the first stakeholder views of factors influencing service provision. Physiotherapy surveys were received from eleven facilities of the twenty five (44%) public



sector physiotherapy service facilities identified in the investigation area. Sixteen completed surveys received from the eleven sites represented a 29.4% response rate as fifty four physiotherapy surveys were distributed. Responses to two questions about rurality of the service location and the number of FTE physiotherapists were used to identify cases for this study (Adams et al., 2014d). As the researchers were interested in how participants viewed the rurality of the location of the physiotherapy service, PPR was used rather than a geographic classification. Stakeholders within the case sites were then invited to complete surveys and a purposeful sample invited to participate in semi-structured interviews.

Six case types in which to explore RPSP were identified within the study area. The six case types, named by PPR and FTE physiotherapists, were Rural $\leq$ 1; Rural 2–3; Rural 4–10; Rural-Remote 4–10; Regional 4–10; and Regional $>$ 10. For example, a rural community with a sole physiotherapist was classified as Rural  $\leq$ 1, whilst a regional centre with more than 10 FTE physiotherapists was Regional $>$ 10. At times, where issues in common were revealed, reference is made to smaller (Rural $\leq$ 1; Rural 2–3) and larger (Rural 4–10; Rural-Remote 4–10; Regional 4–10; and Regional $>$ 10) sites. Survey participants were coded alpha-numerically as follows: public sector physiotherapists (P), private sector physiotherapist (PP), colleagues (CL) and consumers [CN]. Interview participants were coded alpha-numerically as follows: public physiotherapists (A); private physiotherapists (B); colleagues (C); and manager or other decision makers (D).

## **6.4 Factors influencing rural physiotherapy provision**

Survey responses provided issues that were explored further during in-depth interviews. Survey responses are reported from three stakeholder groups: physiotherapists; colleagues and managers; and consumers. Two stakeholder groups were interviewed to explore these issues in greater detail: physiotherapists and managers within the public sector services within the investigation area.

Physiotherapy survey respondents had varying levels of experience in physiotherapy and rural physiotherapy more specifically. Responses of newer graduates working in the public sector lowered the average years of experience compared to the private physiotherapy respondents (Table 6.1 and Figure 6.2). This may reflect the sampling of private practitioners as the surveys

were sent primarily to the practice principal. Time in current position included assuming newer roles, such as a team leader or management role in same location.

Table 6.1 Physiotherapist survey participant characteristics

	Public (P)	Private (PP)
Gender	5 male, 11 female	2 male, 3 female
Average years of experience (range)	18.1 (0.5–45)	29.4 (24–35)
Average years of experience if 3 new grads ( $\leq 2$ years ) are excluded	22.2 (5–45)	29.4 (24–35)

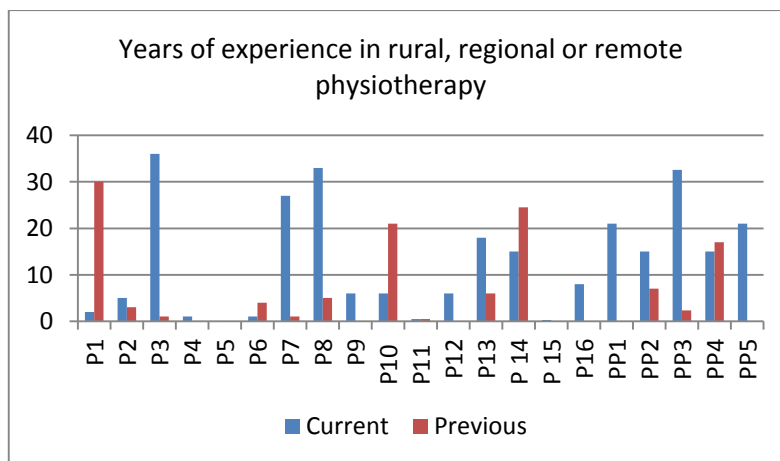


Figure 6.2 Years of experience in rural, regional or remote physiotherapy

Physiotherapist responses to the survey question ‘*what factors influence physiotherapy service provision in your facility/service?*’ fell into a number of broad areas. These areas include money and management, staffing and expertise, priorities and directives, expectations and space and equipment (Table 6.2). When asked if there were ‘*other factors that influence the decisions about physiotherapy service provision within your facility/service*’, physiotherapists identified a range of macro and meso level factors. These factors included state and national influences, health system process and funding, rurality and distance and the availability of expertise in rural areas. Regulatory issues and affordability were among the factors identified by private physiotherapy providers (Table 6.3).

Table 6.2 Factors influencing local physiotherapy service provision

<b>Physio Q 21</b>	
<b>What factors influence physiotherapy service provision in your facility/service?</b>	
Money	Budget (P1; P11); funding (P5; P10); decreased \$\$ (P6); limited \$ resources (P8); resources (P13); now more funding for new grad + locum (P15).
Staffing levels and recruitment	Recruitment (P1; P4); staff/ing (P2; P4; P5; P7; P15); human resources is the dominant factor (P8; P11); staff availability (P8); physiotherapists especially seniors difficult to attract (P3); however, lack of staffing in other areas e.g. admin & nursing is impacting on physio service provision (P15).
Locums and leave cover	Not enough staff to cover workloads/annual leave (P6); availability and ability to use locums; backfill for training, secondments sick leave and annual leave (P9).
Expertise	Staff interest and skills and experience (P7; P8); skills at times (P13); skill base of locums (P9); training AHA [Allied Health Assistant] to help physiotherapist (P3); ability/availability of physio aide; admin support (P9).
Management interest	Area managerial staff interest in AH [Allied Health] (P1); management support/acknowledgement (P8); vision of upper management (P10).
Directives and support	Management directives and support of management (P7); pursuit of Department of Health Key Performance Indicators (P12).
Priorities	Prioritisation and caseload (P2); time (P13); I am the only physio, so tend to treat whatever is referred (P14); how many meetings I have to go to/paperwork (P14); seasonal factors; respiratory illness in winter etc. (P12).
Awareness and expectation	Awareness of other health professionals of the service and preparedness of other health professionals to consider patients functional requirements at home (P12); public expectations e.g. Hydro. (P8); referrals from other towns (P14).
Equipment and space	Lack of adequate equipment (P6); space limitations for groups (P8).

Table 6.3 Broader influences on rural physiotherapy service provision

<b>Q 27 Are there broader influences on physiotherapy service provision: Public sector</b>	
State and federal influences	State and Federal directives and budgets (P1); [State] Health Direction (P5); National Health reform–Activity Based Funding (ABF) (P3); undoubtedly State/Federal Government funding/planning (P16).
Health services systems and processes	Policies and procedures (P1); funding (P2) State border issues; referral bases–people returning home from tertiary hospitals (P3); financial manager's budget constraints (P12); delays/complications in recruitment process (P2); ability to advertise etc. (P9); ever increasing paperwork/audits etc. (P14).
Funding	Funding (P2, P5); \$\$ (P9); financial state of health overall! (P10).
Rurality and Distance	Rural hospitals without physio service (P8); distance travelled for treatment can affect benefit (P8); at present I am the only physio for 30,000 sq. km as there are two vacancies in towns north of here (so

	added strain on already busy service). About 30–40 % of patients live >100 kms away (P14).
Available expertise	Ability to attract staff to rural areas and their skill set (P10); lack of expertise from other professions (P15).
Optional?	There is a feeling ... that outpatient services are viewed as optional by government/senior exec. Despite this our referrals are more frequent and more acute—we seem to be getting all the patients that aren't eligible [elsewhere] (P13).
<b>Broader influences on physiotherapy service provision: Private sector</b>	
Staff and service availability	Unable to provide adequate service due to lack of staff (PP1); not enough service provision in rural areas e.g. physio for children poorly staffed, hence inappropriate referrals to me (PP3).
Cost	Many can't afford many treatments, so come for one treatment and advice (PP4).
Regulatory	Work Health and Safety compliance. Medico-legal responsibilities—"professional" ethics re level of qualification (PP5).
Other	Distance (PP4); ageing population--> increased demand on health services (PP5).

Colleague responses were received from staff who described themselves as clinical colleagues and managers. This stakeholder group included seven allied health professionals (AHPs), four nurses, one doctor and one physiotherapy student. Resonating with influencing factors identified by physiotherapists, colleague and manager responses included physiotherapy staffing levels, recruitment, leave relief and funding. Issues raised included adequate and continuous staffing, the availability of physiotherapists in rural areas and lack of upper management support to replace staff who leave. These issues were exacerbated by recruitment challenges as highlighted in the following colleague responses:

*An inability to recruit staff despite repeated advertising. [CL3]*

*No replacement if physio is away, which makes things very difficult—especially if extended leave. [CL8]*

*A relatively high turnover of staff means continual orientation, induction programs. [CL2]*

Compounding the challenges were *issues of financial restraints* [CL9], *reports of losing positions* [CL13] and *expectations to maintain services during periods of short staffing* [CL3].

Colleagues identified a number of additional factors in rural, regional, and remote areas more generally. These included smaller teams, staff stability, lack of young health professional colleagues, distance from family and friends and different service models. They also highlighted factors influencing service delivery such as distance and the size of the service area. The impact of these factors included decreased continuity of care, increased client travel and loss or reduction of services. The additional factors influencing service provision in rural areas more generally were highlighted by the following responses:

*Without staff, services close, and without stable management and seniors, the department is jeopardised.* [CL4]

*Reduced access to services compared to city counterparts.* [CL7]

*Leads to an inconsistency in treatment. Can be very novice physio left with limited guidance.* [CL6]

*Diverse roles require broad knowledge and skills. Need to be expert in many fields—urban therapist have 'specialities' to cope.* [CL12]

Consumer responses, while limited, reflected a similar range of factors influencing service provision. Factors included staffing, funding and equipment availability. Also reported were increased waiting times, a lack of related services on site and follow up for rural doctors. Reported impacts included timeliness and access to services, the potential impact on outcomes and the impact of physiotherapists training in the city.

*Waiting times when physios are away.* [CN2]

*Not able to receive lymphoedema treatment [locally].* [CN4]

*Restrictions may affect outcomes.* [CN6]

*Physios trained in the city do not want to live and work in remote regions— family reasons. [CN5]*

In summary influencing factors included funding, staffing levels, expertise, management decisions and support, health service priorities and awareness and expectation of physiotherapy services. These factors should not be considered in isolation, but rather considered as a set of interactive factors (Figure 6.3). Physiotherapy service provision was also influenced by decisions at state and national levels, local implementation of these decisions at the regional or facility level and issues of rurality and distance. The different stakeholder groups described similar factors that influence RPSP. These issues were explored further in interviews (Table 6.4). The impact of factors such as budget constraints and recruitment challenges meant that services were ‘often scaled back’ [P4] with ‘services prioritised’ [P11] resulting in ‘lower prioritised patients not being seen as rapidly or have less input’ [P2].

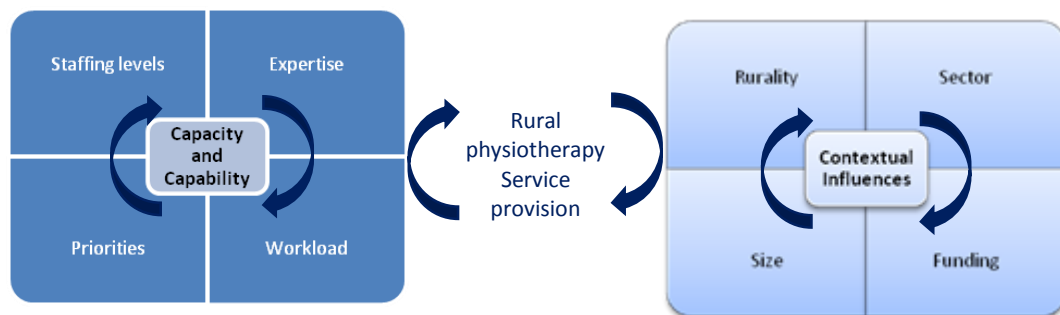


Figure 6.3 Factors affecting physiotherapy service provision

Table 6.4 Interview participant perspectives

Staffing	<i>I think also we’re never fully staffed, it’s not just about vacancies which are a hassle, and attracting people out this way is hard. [A3].</i>
Expertise and skills	<i>We wouldn’t be providing the paediatric service that we do if it wasn’t for [specific physio] sitting there.... Because she’s here and her skill level is high and her skill level is known, they refer [here] [A1].</i>
Recruitment approval and processes	<i>It was just the stress of it. You know I coped – we have been short staffed before because I knew we were trying to recruit [that was OK], but they just kept saying no. It was just the most incredible thing... they just weren’t recruiting and how could you say that? Like they understand what’s going on out here [A9].</i>

	<p><i>The recruitment was boring, the ad was wrong, the ad was a position description that was cut and pasted from [another health facility] and hadn't even gone through an edit and made correct for [this facility].</i></p> <p><i>..they did nothing about promoting it, it was a little boring ad so they got no response....to me they don't seem to basically care, so there's no way they'll be successful in recruiting if they can't even get the position description right [A1].</i></p>
Activity based funding (ABF)	<p><i>In terms of the federal reforms, I think ABF's going to be the risk for us at the moment ... we're too small to really operate under ABF... [D4].</i></p> <p><i>With that efficiency though, the model will need to change, because as patients move out of base hospitals into neighbouring facilities where that sub-acute model starts to switch in, then we've got a whole different way of providing that Physiotherapy service in a much more consultative framework [D2].</i></p> <p><i>Absolutely, ridiculous and I just don't understand, no thought about outcomes, no thought about patients, it's just about revenue, which I just think is backwards [A3].</i></p>
Decisions made at higher levels	<p><i>So what we're doing is we're reframing a lot of what all Allied Health, in fact the whole facility does in our smaller communities, to develop not an acute and aged care model, but a whole sub-acute model. There is going to be an increased acuity at some of our facilities that were doing some very, very manual physiotherapy work [D2].</i></p>
Knowledge and support	<p><i>Absolutely. There is definitely a fairly well defined concept of what physio can do and that is fairly narrow acute based background. ...we often lament if we had a medical manager who had worked closely with allied health in multi-disciplinary team, that this would be a completely different service [A2].</i></p> <p><i>Management makes a huge difference. I have a really supportive manager and she trusts me implicitly and that's been the biggest reason why I'm happy to be under community health because she's fantastic. ... [She] lets me get on and do the job; understands my clinical needs [A5].</i></p>
Location	<p><i>At present I am the only physio for 30,000 sq km as there are two vacancies in towns north of here. About 30-40 % of patients live more than 100kms away. I'm the only Allied Health therapist [here]...so I'm</i></p>

	<i>actually probably.... professionally more isolated than a lot of more remote areas [A8].</i>
Private physiotherapy:	<i>You can't afford to run at a loss but making money has never been my biggest incentive [B1].</i>
Availability and affordability	<i>The private community...those wishing to utilise Private Health...[and] we do Workcover; DVA; Compulsory Third Party and we do the Medicare program so the Enhance Primary Care program [B5].</i> <i>Preference...I don't treat chronic neurological conditions or complex chronic pain. Prefer not to treat children; plaster; splinting...I work alone at present, so can't manage very heavy patients [PP3].</i>

## 6.5 Discussion

Physiotherapy staffing levels were identified by consumers, colleagues and physiotherapists as a key RPSP influencing factor. As would be expected with different health services size, role and functions, physiotherapy staffing levels varied between sites of this study. However, a number of commonalities were identified in factors that informed staffing levels, such as funding, vacancies, approval to recruit and workforce supply. These findings reflect the rural physiotherapy workforce literature and reinforce the significance of and link between workforce and RPSP.

The level and range of expertise and skills were key factors influencing the provision of rural physiotherapy services. The diversity of roles across the sites of the study required specific expertise and skills. As previously described (Adams et al., 2014e), these varied from generalist skills required for smaller rural services, to more specialised skills in larger regional health services. Challenges of providing both generalist and specialised physiotherapy services were noted. For the smaller sites requiring a generalist skill set there was the '*need to be expert in many fields*' [CL12]. Similar to the pilot study conducted in another state, the ability to attract senior or specialised physiotherapists was more of a factor in larger services. Staff with specialised skill sets enabled service provision locally that patients would otherwise need to access in other communities. Competency and capability of the current workforce to be able to undertake the duties required were common factors influencing RPSP across sites and services. This was exemplified by comments such as '*...absolutely, the other thing about it is*



*competency* [A2] and *'... the first is my ability, so the service that I provide is based on what I'm capable of doing'* [B3].

The availability of colleagues who work with or support the provision of physiotherapy services was also noted. While the emphasis for both the number of staff and expertise was on physiotherapists, the importance of the availability of other staff with appropriate skills, ability and expertise was noted. This included clinical colleagues, locums, physiotherapy or allied health assistants and administrative support.

Cumbersome approval processes exacerbated the challenge of matching physiotherapy service capacity and demand. *'Recruitment is hard because the processes are cumbersome because there's so many people involved in the signoff process to actually get it to happen.'* [A3]. Errors and a lack of promotion of the local area to attract staff compounded recruitment challenges. At times, approval to recruit was repeatedly withheld to the point where the physiotherapy service for a major rural hospital was operating with under 50% of staff, the majority of whom were recent graduates. The consequences included closure and reduction of services and considerable staff stress. Stress has been identified as a significant factor influencing retention of staff in rural and regional areas (Harris, Cumming & Campbell 2006; Lindsay et al 2008; NRHA, 2004)

Many of the directives issued at a facility and regional (meso) level were in response to national and state (macro) level health reform and financing policies and directions. *'State and federal directives and budgets'* [P1] and the *'financial state of health overall'* [P10] were noted factors, as was ABF, which effectively established new service priorities. The flow-on effects of funding and priorities significantly influenced RPSP. These effects were found in both ABF funded facilities and the smaller rural hospitals in the region. New service funding often saw the development of stand-alone service teams charged with providing specific services prescribed by the funding agreement. Resulting fragmentation and duplication of services was identified as a potential challenge to service delivery. The required activity and cost reporting for the defined service funding was seen to limit flexibility and was identified as a risk to be addressed:

*I think the pots of money are probably a big challenge... it's a challenge in terms of how we work as teams with different pots of money and making*

*sure that there's that cohesion. I think that's a challenge and we need to overcome that to make sure that we still provide a really good service to people rather than these pockets of money that are isolated with their boundaries. [D1]*

Health facility and regional service or network managers significantly influenced RPSP. People in these positions made decisions that influence service provision such as the prioritisation of key indicators including access and financial targets and staffing reductions. The priorities on inpatients and supporting discharge from acute care were common factors identified across all public sector sites, with many patients transferred from the larger regional service to smaller rural services. The challenge of meeting these priorities were compounded when considered with other meso level decisions and directives. For example trying to meet length of stay requirements was made more difficult with a directive to cut staff positions in two of the larger facilities. Such decisions were perceived at times to be more about finance than service: '*... it was not service driven, it was just financial; it was bottom line*' [A1].

Knowledge of and support for physiotherapists was a factor noted across a number of sites. The presence or absence of managerial support at a facility or regional level was regarded as significantly influential. Perception, knowledge and awareness of physiotherapy roles had both positive and negative influences on physiotherapy services. Examples included proactive and supportive managers to managers who did not work closely with physiotherapists or in one site, where the attributes of one manager resulted in a number of staff resignations. Consistent with other rural studies, this was particularly important where services or teams had managers and leaders who were not physiotherapists (Stagnitti, Schoo, Dunbar and Reid, 2006, p 231). Trust was reported as a key factor by one participant, with frustration and missed opportunity evident in other responses.

Consistent with the rural health literature, rural location emerged as a key factor influencing physiotherapy service provision. Rurality influenced the availability of physiotherapy services, the range and level of services provided, access to services, patient travel distance, recruitment and retention of physiotherapists, organisational structure and reporting lines, and the capacity to sustain private physiotherapy services.

Community size, local service availability and affordability influenced access to private physiotherapy services. Where communities were large enough to sustain one or more private physiotherapy practices, factors influencing service provision revealed both similarities and differences to public sector physiotherapy services. Similarities included expertise, workforce supply, capacity, patient travel distance and other service providers. Differences included affordability of treatment, external funders, financial viability and choice of the range and type of services provided. A number of private practitioners mentioned that while making money was not the biggest incentive, the service had to be financially viable. Cost of treatment differentiated the community who could access private physiotherapy services or who could only attend for one treatment. The preferences and limitations of private practitioners also were noted as key influencing factors.

The systems theory-case study heuristic framework supported exploration of RPSP within the local context and within the broader health system. Exploring an issue of interest, such as rural physiotherapy, within a systems approach provides a wider lens than exploration through a single aspect lens such as workforce. Grouping influencing factors within organisational levels provides a conceptual map not only of influencing factors, but the connections between factors. Such a map may assist in enhancing understanding of the complexity of factors affecting RPSP. Adding to the findings of the pilot study (Adams et al., 2014e), a conceptual representation of factors influencing RPSP is provided (Figure 6.4).

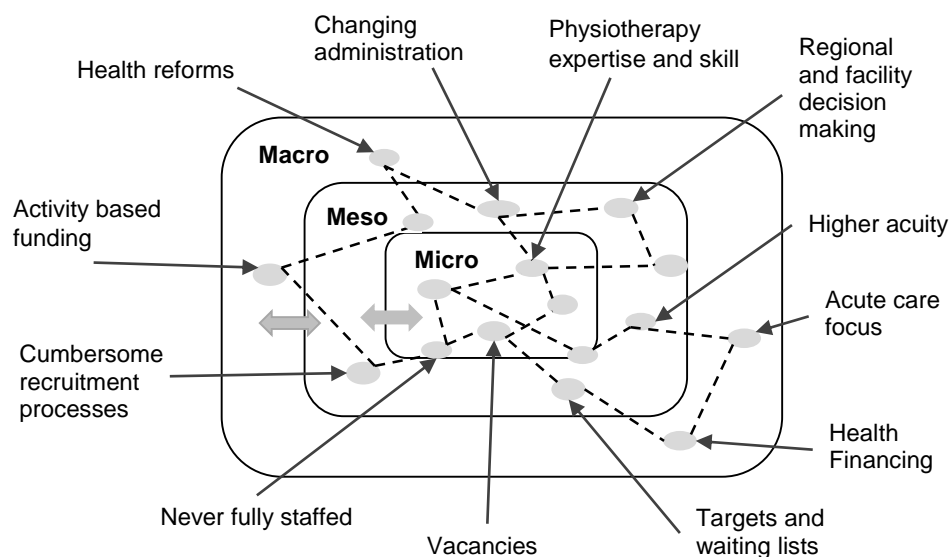


Figure 6.4 Factors influencing rural physiotherapy service provision

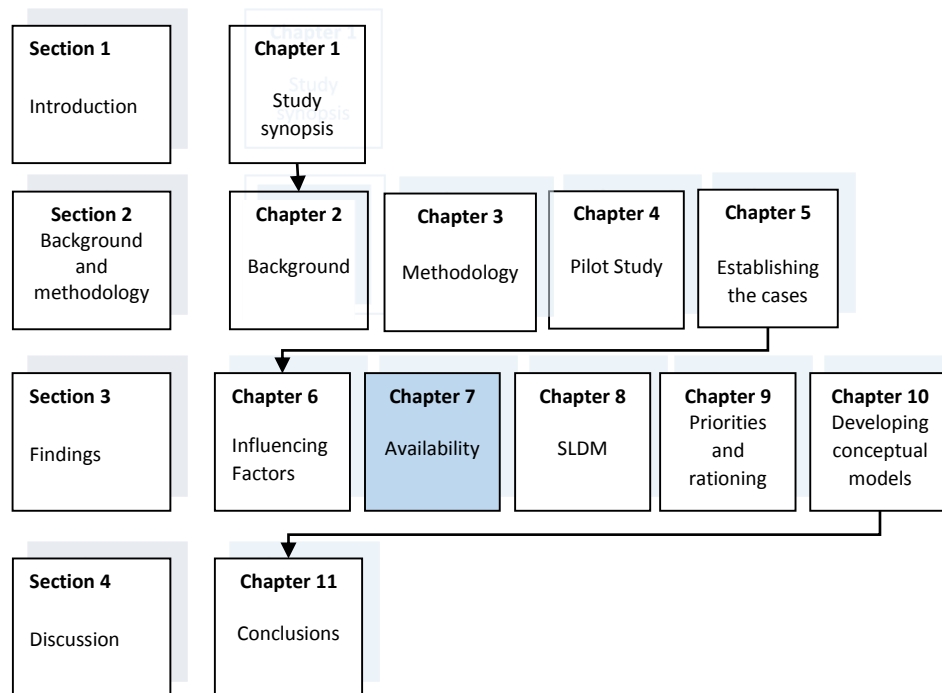
## **6.6 Limitations**

This study was undertaken in only one region within Australia that had a mixture of regional, rural and remote centres. Results may not be applicable to other areas with a different mixture of centres such as more remote locations and less regional centres. Although this study asked physiotherapists to identify stakeholders with knowledge of RPSP, not all potential stakeholders were involved as participants. This study only investigated RPSP. The results may not be applicable to other health disciplines and there may be different factors and interactions in setting where there are interdisciplinary service delivery models. This can be seen by the differences when comparing factors affecting public and private physiotherapy services provision.

## **6.7 Conclusion**

Adding to the rural physiotherapy literature, this study provides insight into how RPSP is impacted by factors identified by stakeholders. Workforce, higher level decisions, location, sector and funding are some of the factors identified. Workforce factors, including recruitment challenges for generalist and specialised physiotherapists, loss of positions and the impact of cumbersome recruitment processes raise issues of service availability and sustainability. Decisions, policies and directives from national and state level were identified as key influencing factors. Implementation of macro level decisions occurred at a regional and facility level. Factors at this level include service priorities and staffing levels. Managerial knowledge of the role and function of physiotherapy was an important factor at this level. Further exploration of how these factors may further influence service provision and decision making about RPSP is warranted.

## 7. Chapter 7: Availability



Adapted with changes from Adams, R., Jones, A., Lefmann, S. & Sheppard, L. 'Towards understanding availability and accessibility of physiotherapy services in rural Australia.' Submitted for publication September 2014.

### 7.1 Introduction

Simply quantifying the number of health professionals in rural areas by geographic classification does not reveal localised issues of service availability or accessibility. Descriptions of workforce maldistribution, such as physiotherapy, where only 20% of physiotherapists work beyond major cities (Australian Institute of Health and Welfare [AIHW], 2013, p. 52) imply, but do not describe, reduced service availability. Similarly, the dominant workforce focus prevailing in rural physiotherapy literature (Lindsay, Hanson, Taylor, & McBurney, 2008; National Rural Health Alliance [NRHA, 2004]; Struber, 2003; Williams, D'Amore, & McMeeken, 2007) tends not to progress the link between workforce shortages and impact on service

provision. Understanding local service availability would provide important insights into issues of accessibility to services such as physiotherapy in rural communities.

The detail of local service availability and accessibility is often not visible. The notion of a blinding effect when using catch-all terms such as 'rural health' (Farmer, Munoz, & Threlkeld, 2012, p. 187) may also extend to other umbrella terms such as 'allied health' or 'primary care'. The breadth of focus associated with catch-all terms and broad workforce descriptors, can '*blind us to understanding what lies beneath*' (Farmer, Munoz, & Threlkeld., 2012, p. 187). Workforce and service reports for the many professions considered to be 'allied health' exemplify this blinding effect when they are collectively reported as allied health rather than individual professions. Aggregated allied health workforce reports in broad geographical classifications further compounds the issue. The breadth of focus associated with both collective workforce descriptions and umbrella terms can render specific aspects of health service provision virtually invisible. Paucity of data (Scott & Cheng, 2010) pertaining to both collective and individual professions of allied health further limits insights into local service provision.

Part of a larger study investigating decision making about rural physiotherapy services, important initial steps were the exploration of local physiotherapy service availability and concepts of rurality. Many definitions of rurality are used to describe health service provision in regional, rural and remote settings (Wakerman, 2004; Wilson et al., 2009). In the absence of a singular definition of rural health, key factors or characteristics of rural health are offered. Humphreys (2009, p. 35) states '*the key factor differentiating rural and remote health from metropolitan health care is the effect of distance on accessibility to health care services*'. Gregory (2009, p. 5) asserts that '*rurality is more than just a synonym for remoteness: it is a combination of those things found in rural areas*'. He suggests that rurality can be seen in Australia currently as a set of characteristics including:

- *greater distances,*
- *lower socioeconomic status,*
- *lower educational levels,*
- *higher proportion of indigenous people,*
- *specific OH&S risks,*
- *specific cultural attitudes (including, and in particular, attitude to risk),*
- *poor access to services, and*

- *smaller population centres* (Gregory, 2009, p. 51).

Gregory (2009) also suggests that:

*The simplest and most relevant interpretation of ‘rurality’ for those interested in health and well-being is that it is a combination of the characteristics exhibited by places, communities and individuals in non-metropolitan areas. (p. 51)*

As with the numerous definitions of rural health, a number of classification systems have been used to differentiate rural, regional, and remote communities (Table 7.1). The classifications have been developed by different agencies for a range of functions including differentiating areas, identifying need and assisting in targeting programs (Schindeler et al., 2006). Different definitions can lead to different classifications and, in terms of program funding for instance, may alter eligibility for entitlements for individuals or a community. The heterogeneity revealed in McGrail and Humphreys’ (2009a) analysis of rural classifications systems is reflected in the self-evident statement ‘... *that if you have seen one country town, you have seen only one country town*’ (Larson, 2006, p. 2).

Table 7.1 Remoteness classifications

	<b>RARA</b>	<b>RRMA</b>	<b>ARIA</b>	<b>ARIA+</b>	<b>ASGC-RA</b>
Developers	CDHFS	DPIE and DHHS	DHAC/GISCA	GISCA/ABS	ABS
Year	1991	1994	1997	2001	2001
Base Unit	LGA	SLA	Distance*	Distance**	Av ARIA score
Groups	Metropolitan <i>Capital Cities;</i> <i>Other major urban&gt;80,000</i> Rural <i>Major&gt;20,000</i> + <i>Pop dens&gt;30/sq km;</i> <i>Other Rural</i> Remote <i>Major; Other</i> Off shore	Metropolitan <i>Capital Cities;</i> <i>Other Metro&gt;100,000</i> Rural <i>Large Rural</i> <i>Small Rural</i> <i>Other Rural</i> Remote	Highly accessible, Accessible Moderately accessible Remote Very Remote	Major cities Inner regional Outer regional Remote Very Remote	Major cities Inner regional Outer regional Remote Very remote Migratory
<b>Abbreviations:</b> RARA: Rural and Remote Area Classification RRMA: Rural, Remote & Metropolitan Areas Classification ARIA: Access/Remoteness Index for Australia ARIA+:Accessibility Remoteness Index of Australia 2011 Review			GISCA= Geographic Information Systems Cooperative of Adelaide, University of Adelaide Service Organisation <a href="http://www.gisca.adelaide.edu.au/">http://www.gisca.adelaide.edu.au/</a> LGA: Local government area SLA: Statistical Local Area *Road access distance to a service centre >5000 population		

ASGC-RA: Australian Standard Geographical Classification-Remoteness Areas	**refined with different weighting for Tasmania and 5 service centre categories (smallest 1000)
CDHFS: Commonwealth Department of Health and Family Services	
DHHS: Department of Health and Human Services	
DPIE: Department of Primary Industries and Energy	
DHAC: Department of Health and Aged Care	

Limitations of the applicability of geographical classifications to describe the provision of health services have been reported (McGrail & Humphreys, 2009a; Schindeler et al., 2006). McGrail and Humphreys (2009a) state ‘that purely *‘geographical’ classifications alone cannot capture all relevant aspects of health service provision within a single measure*’ (p.1 of 7). They argue that a suite of measures may be more appropriate than using a single measure to base decisions about rural health programs and resource allocation (McGrail & Humphreys, 2009b). The index of access to primary care in Australia (McGrail & Humphreys, 2009b) is one such example. This index has four key elements: availability of, and proximity to, services, health needs and mobility (Table 7.2).

Table 7.2 Elements of accessibility

Index for access to primary care
<ul style="list-style-type: none"> <li>• Appropriate supply (availability)</li> <li>• Reasonable distance/time impedance to available services (proximity)</li> <li>• The level and nature of need for those seeking health care (health needs)</li> <li>• The ability of individuals to access care at the time of need (mobility)</li> </ul>

\* adapted from McGrail and Humphreys (2009b)

However, measures of access to primary care do not reveal availability or accessibility to specific health services such as physiotherapy. The diversity of services provided by physiotherapists further challenges conceptualisation of accessibility and availability. Physiotherapy, available in Australia through both public and the private health sectors (Sheppard, 2001; Struber, 2003; Williams et al., 2007) is concerned with promotion of health and wellbeing and with prevention, treatment or rehabilitation of disorders or dysfunction of human movement (Higgs, Refshauge, & Ellis, 2001). Work settings of physiotherapists in regional, rural and remote areas include public hospitals, private practices, community based teams and non-government organisations (NGOs) (Sheppard, 2001; Struber, 2003; Williams et al., 2007).



Physiotherapy service provision and funding is service and sector dependent. Public sector services are primarily funded and provided through state and territory health departments (Council of Australian Governments [COAG], 2011, p. 14), with the Australian Government funding programs to enhance access in underserved areas and specific service programs (COAG, 2011; Department of Health and Aging [DoHA], 2013, 2014; Services for Australian Rural and Remote Allied Health [SARRAH], 2013). Private services are funded by the individual in a fee-for-service environment (Struber, 2003), with a range of rebates or fee supports through private health insurance, third party insurance, Work Cover and the Chronic Disease Management items within the Medicare benefits schedule (DoHA, 2013).

The diversity of rural and remote physiotherapy practice is revealed in rural physiotherapy studies. Sixty five percent of participants in a study investigating the work practices of rural and remote physiotherapists in South Australia and the Northern Territory, worked predominantly in private practice (Sheppard, 2001). Eighty five percent of respondents considered their practice to be general practice, with fifteen percent having developed specialised services such as sports and musculoskeletal, paediatrics, ante and post-natal care and remote Aboriginal health (Sheppard, 2001). Private practitioners in this study were less likely to practise in Aboriginal health, paediatrics, cardiorespiratory, gynaecology or neurology than those with hospital involvement (Sheppard, 2001). Two commonly practised clinical skill areas were reported: musculoskeletal (90%) and orthopaedic (86%) physiotherapy (Sheppard, 2001). In contrast, a Victorian study found 70% of respondents held public sector positions: 40% in public hospitals; 15% in community health centres and 15% in academic or government departments (Williams et al., 2007). Respondents described their clinical practice areas as outpatients (32%), general physiotherapy (25%) or musculoskeletal physiotherapy (22%). Further contrasting to the South Australian/Northern Territory study, 38% considered that they specialised in a particular area of physiotherapy.

The range and diversity of physiotherapy service provision in regional, rural and remote areas suggests the limitations of generalised statements about service access. The majority of publicly funded rural hospitals provide a range of outpatient, inpatient and community physiotherapy services, with more specialised physiotherapy services, such as intensive care, paediatrics and rehabilitation, established in metropolitan and larger regional facilities. Private physiotherapy services are often not viable in smaller, rural communities as they are market dependent.

Statements about physiotherapy service provision that do not reflect the variation and diversity of services may overly generalise issues of availability and accessibility. The notion of a suite of measures (McGrail & Humphreys, 2009b) therefore resonates with exploration of specific service provision in rural settings. The development of a measure of rural physiotherapy availability is described and considered as one of four elements that can assist in descriptions of health service accessibility.

## **7.2 Method**

A prioritised qualitative approach suited the exploratory nature of this research into rural physiotherapy service provision and related decision making. A system theory-case study heuristic provided a framework for exploration across sites of the investigation area (Adams, Jones, Lefmann, & Sheppard, 2014d). The investigation area is a large part of one Australian state with a mix of regional, rural and remote communities. Information was obtained through surveys and in-depth interviews. This chapter predominantly draws upon survey data to describe physiotherapy availability. Public physiotherapists were invited to participate in the initial phase of the research through local professional networks. Senior physiotherapists in the investigation site provided key physiotherapy contacts in the public sector physiotherapy departments. Surveys were mailed to key contacts for distribution to colleagues in their facility. Physiotherapists were invited to complete a survey describing service provision, setting and rurality and factors influencing service provision. Private physiotherapists working in the same communities were identified through listings in the Yellow Pages phone book and invited to complete the physiotherapy survey. Service provision, number of co-located physiotherapy colleagues, remoteness classifications and physiotherapist perception of rurality were used to develop a conceptual model of rural physiotherapy availability.

## **7.3 Ethics**

Ethics approval was obtained from the Human Research Ethics Committee of both James Cook University (approval number H3799) and the health services of the study. Following health reforms and local restructures in 2010–11, the single health network was divided into two distinct health service networks. The original network boundaries still formed the boundary of

the study and ethics and site specific approvals were sought from both newly formed networks. Data collection occurred from January to September 2012.

## 7.4 Results

### 7.4.1 Participants and sites

Twenty one physiotherapy surveys, sixteen public (P) and five private (PP), were received across eleven sites. As the researchers were interested to see how participants viewed their location, survey participants were asked to describe the location of the physiotherapy service simply as rural, regional or remote. Participant perspectives were then compared to remoteness classifications. Descriptions of physiotherapy services provided within each community were also obtained.

Physiotherapy participants described eight of the eleven sites as rural, two as regional and one as remote-rural. Remoteness classifications of each site revealed variation in the geographic classification of these communities. Two categories emerged when the communities were classified using ASGC-RA: inner regional and outer regional. However, of the six communities classified as outer regional, RRMA classifications differentiate five as RRMA 5 and one as RRMA 4. Further distinctions emerged within the five communities ASGC-RA classified as inner regional sites: three communities were classified as RRMA 3; one RRMA 4 and one RRMA 5 (Table 7.3).

Table 7.3 Variation between sites with ASGC-RA classifications

Site	2	4	6*	8	10^	1	3	5	7	9^	11*
	<b>ASGC-RA 2 Inner regional</b>					<b>ASGC-RA 3 Outer regional</b>					
<b>Pop</b>	39,329	38,037	2381	34,303	9730	15,192	4700	3174	19,818	912	653
<b>RRMA</b>	3	3	5	4	3	5	5	5	4	5	5
<b>Public FTE</b>	13.5	10	1	7	2	1.6	0.5	1	8	0.4	0.4
<b>Private practices</b>	6	6	0	4	2	3	0	1	1	0	0

<b>Public HHS beds</b>	200-500	100-200	<50	50-100	<50	<50	<50	<50	50-100	<50	<b>0</b>
<b>PPR</b>	Reg	Rur	Rur	Reg	Rur	Rur	Rur	Rur	Rem-Rur	Rur	Rur
<b>Case types</b>	Reg >10	Rur 4-10	Rur ≤1	Reg 4-10	Rur 2-3	Rur 2-3	Rur ≤1	Rur ≤1	Rur-Rem 4-10	Rur ≤1	Rur ≤1

ASGC-RA: current geographical classification system recommended for use by AIHW (2013)  
FTE: full time equivalent  
HHS: hospital and health service  
PPR: participant perspective or rurality  
RRMA: Rural, Remote & Metropolitan Areas Classification  
Rur=Rural; Reg=Regional; Rem-Rur=Remote-Rural  
\* ^ physiotherapist provided services to two sites

More relevant to provision of services such as physiotherapy was the considerable variation in population of communities classified as either inner or outer regional. The population of the five inner regional communities varied from 2,000 to 40,000 and the six outer regional communities varied from 600 to 20,000 people. It would be expected that demands upon a physiotherapy service would vary significantly with population size. Variability in the availability of physiotherapy services, as indicated by number of public physiotherapists and number of private physiotherapy practices, was also revealed (Figure 7.1). Local variation in service availability, population or rurality is not evident in national physiotherapy or allied health workforce descriptions where broad descriptions are more generally provided. This is evident, for example, in data produced by the AIHW to describe the physiotherapy workforce (AIHW, 2013). Descriptions in the AIHW report include:

- 35% of clinical physiotherapist FTE worked in the public sector (Table 5.1, p. 51).
- 20% of physiotherapists worked beyond major cities (Table 5.3, p. 52)
  - 13% in inner regional areas
  - 5% in outer regional areas
  - 1% in remote, and very remote, areas.

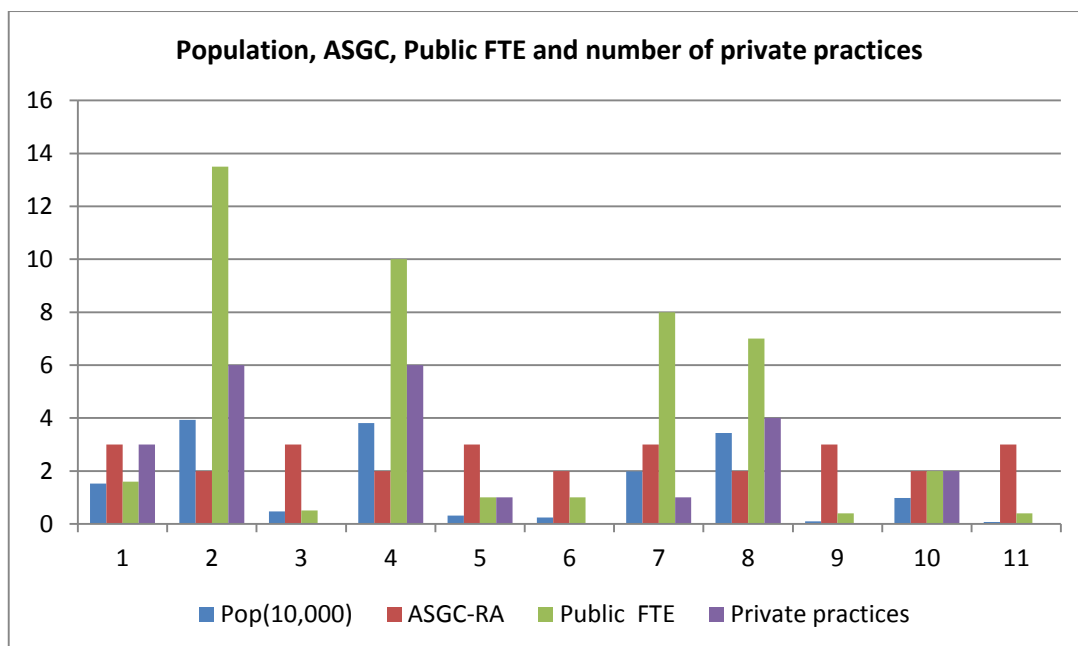


Figure 7.1 Population, rurality and physiotherapy

Local workforce and service descriptions provided by participants in this study begin to provide insight into issues of availability and accessibility of physiotherapy services not visible within collated national data. Consideration of service sector and setting adds another layer of detail to understanding issues of availability and accessibility. General outpatient type physiotherapy services form the core business of many private physiotherapy practices, however many smaller communities cannot sustain a private practice. Affordability is then a further dimension to availability as physiotherapy services are generally not covered by Medicare: the exception are the Chronic Disease Management items (previously Enhanced Primary Care or EPC items), where patients with a chronic condition can be referred by a General Practitioner for a total of five allied health consultations per annum.

Four of the eleven sites (3, 6, 9, and 11) relied solely on physiotherapy services provided through the local public hospital or health service. Service provision at these sites, while primarily ambulatory, was generalist in nature and included musculoskeletal rehabilitation, hand therapy, some paediatrics and neurological physiotherapy. Cardiac and pulmonary rehabilitation, healthy lifestyle programs and other preventative groups were also provided at the largest of these four sites. Population at these sites ranged from 600 to 5,000.

Three sites (5, 7 and 10) had only one private practice in addition to the public service. Population at these sites ranged from 3,000 to 20,000. Public physiotherapy services in sites

with a single private provider included a small rural hospital, a major rural referral hospital and a multipurpose centre. The variety in service availability begins to highlight issues of access to services. Private physiotherapy services, for example at site 7, were mainly for private patients with musculoskeletal conditions.

Four sites (1, 2, 4 and 8) had three or more private physiotherapy practices with the larger regional centres having up to six practices. However, access to public sector outpatient physiotherapy services decreased with increasing population size. The demands in the larger public hospital services necessitate prioritisation of inpatient services with outpatient service availability variable. For example, site 2 with an approximate population of 40,000 has numerous private practices but the public sector allocation to general outpatient physiotherapy (OPP) services is typically less than one FTE ( $\leq 1:40,000$  public OPP).

In contrast, in smaller rural sites, outpatient services often form the majority of the caseload. For example the sole part-time public physiotherapist at site 3, where there is no other locally based physiotherapy provider, allocates approximately one half time equivalent to OPP services ( $\sim 0.5: 4,700$  public OPP). Similarly site 5 with a population of 3,000, has a public sector OPP allocation of three to four days per week and there is also a local private physiotherapy practice.

#### ***7.4.2 Service range and type***

Service provision described by participants in this study reflects the diversity of physiotherapy services reported in the literature (Sheppard, 2001; Williams et al., 2007). Services included those provided by physiotherapists in public hospitals or health services, private physiotherapy practices, disability services, and specifically funded programs. Survey respondents differentiated between physiotherapy service types. Public sector services included acute inpatients and general outpatient type services, for example musculoskeletal physiotherapy and hydrotherapy. Rehabilitation inpatient and outpatient services were distinguished from general medical and surgical inpatient services and also general outpatient physiotherapy services. Participants also differentiated paediatric physiotherapy into services for orthopaedic or neurological and developmental conditions. For example, physiotherapy for management of plagiocephaly, developmental delay and neurological paediatric conditions

were differentiated from physiotherapy for orthopaedic conditions such as talipes or congenital hip dysplasia in terms of required skill sets and level of expertise.

In addition to public sector services, locally based private physiotherapy practitioners and specialist services such as rehabilitation and paediatric disability physiotherapy services add to the range of services. Visiting or outreach services complement local services in some communities. Four communities in this study had no local private physiotherapy practice (sites 3, 6, 9 and 11).

Only one community had a separate sub-acute rehabilitation facility (site 4), while two public sector services (sites 2 and 8) noted recent reduction in outpatient rehabilitation services. Private practitioner respondents primarily provided musculoskeletal physiotherapy services to patients who elected to pay for treatment, use private health insurance or for whom services were otherwise compensated such as workers compensation, motor vehicle insurance or Medicare (Chronic Disease Management items). Private practitioners did provide sessional visits to residential aged care facilities, but paediatrics and neurological rehabilitation were generally not provided.

The range of public inpatient and outpatient services in this study varied with facility size, role and function. Private capacity was influenced by financial viability and community size. Where public sector service capacity is limited, issues of affordability, proximity and mobility emerge as important aspects of physiotherapy service accessibility.

The relative invisibility of variation in physiotherapy capacity and service availability observed within the eleven rural communities of this study prompted the development of an availability index. The information collected in this study was used to inform the development of a framework or index for conceptualising rural physiotherapy availability. Differentiating elements that emerged from participant comments include rurality, population, size of public hospitals, the number of public sector physiotherapists expressed in fulltime equivalents (FTE), the number of private practices and provision of specialised paediatric and rehabilitation services. Each of the elements that form the index are discussed below, however it is the combination of elements that provides a more comprehensive picture of physiotherapy availability.

## Rurality

As participants described the impact of rurality as a significant influence on service provision, a measure of rurality was important to include in the proposed availability index. ASGC-RA was used as it the AIHW recommended geographic classification. Rurality impacted the availability of physiotherapy services; the range and level of services provided; access to services; patient travel distance; recruitment and retention of physiotherapists; organisational structure and reporting lines; and the capacity to sustain private physiotherapy services. Examples of participant comments on the impact of a rural or remote location on physiotherapy services include:

*It's a huge difference. I mean, you can say there's a lack of services here, in our area.*

[D3]

*And that was the big thing from city versus country physio or rural physio, a lot of my patients travel 6 hours to see me.* [B4]

*The capacity to access high level services is limited. ... so the capacity to access the higher level service I think is one of the things that defines this as remote.* [D4]

*I think you have to become more of a generalist specialist.* [B5]

*Yeah and people look at where we are on the map and they go "Oh my God it's all the way out there" you know?* [B5]

## Population size

Participant comments suggested that physiotherapy service provision is influenced by population size, both in terms of service demands, the capacity to provide services and the viability of private sector services. The inclusion of population was considered an important element in an index that reflected the availability of physiotherapy services in rural communities.

*I don't think that the population could actually support a significant private practice.*

[D4]

*The more the community shrinks the harder it gets, because the less there is to offer.* [D1]

*The Shire's about five and a half thousand; the town is about three thousand I think [and I'm point five for that size community]. It's been hard because of vacancies elsewhere*



*and when the physio at [a nearby town] is on leave, I get people coming also sometimes from there. [A8]*

### **Public HHS physiotherapy FTE and Private Practice**

The increased reliance on public sector services reported for rural communities (NRHA, 2004) was reinforced by participant comments. While a number of communities had no private physiotherapy services, many of the communities in this study had one or more private practices, which added valuable service capacity. However, the range and type of physiotherapy services offered was narrower than that of the public sector service. It could not be assumed that changes to service scope within the public sector physiotherapy would mean that private physiotherapists would be positioned to cover any emerging service gaps. For these reasons, it was considered important to include elements within the index to reflect both public and private physiotherapy services (public sector FTE and the number of private practices). Participant examples of the relative size and scope of some of the physiotherapy services are provided below:

*I'm in private practice, I do general physio ... so I don't do much neurological, I don't do many kids and I don't do anything really long term, chronic. I keep it to what I'm happy with. [B1]*

*I'm point five, full time equivalent [public sector]... and there have been times this year that I've been the only one in thirty thousand square kilometres. [A8]*

*There are 3 private practices in town, so they are covering some of that outpatient caseload, but it's only for those who have the ability to pay or who qualify for that enhanced primary care Medicare rebate thing. That's it. They don't cover a rehab. [A1]*

*To have private physios in a town this size and to have that many private physios and they are all busy – so that's good. [A5]*

### **Public bed numbers and funding**

The number, type and level of inpatient beds were noted by many participants as a key factor influencing physiotherapy service provision. The type of funding was also reported to influence activity, with participants often distinguishing between ABF and non-ABF or block funding when discussing factors influencing physiotherapy service provision. It was important

that the index contain elements reflecting the number of public sector beds and the type of funding (ABF or block funding):

*[Senior positions and expertise] also goes with the size of the hospital, because it goes with the type of services that your hospital offers, not just the size of your department. It's about getting people out of hospital ..., it's about the whole hospital, the business of the hospital. [D1]*

*You try and maximise how much money you get for a particular patient type... so they've worked out that on a certain day, say day three post hip or knee, that patient is going to get flowed out directly to a peripheral facility. So that we get the maximum amount of money, because they're not ABF funded they can then finish the job. [A3]*

*Size of hospital, generalist skills required, being able to do a bit of everything, within the Department that needs to be able to cover everything off... this hospital is about 150 beds, that includes quite a few renal chairs. [A1]*

*We're 80 beds and there's a few day surgery beds and a few renal chairs for day dialysis. [A9]*

*Effectively what's happening the moment is you get your ABF component, your block funded component, and then there's an adjustment which brings us up to effectively what we had last year. [D4]*

### **Two specific areas of physiotherapy to consider: rehabilitation and paediatrics**

The frequency of comments regarding rehabilitation and paediatric physiotherapy services suggested both were important elements to include in the proposed index. Recent reductions in outpatient rehabilitation services and the differentiation of the skill requirements of paediatric neurological and orthopaedic physiotherapy suggested potential constraints on the availability of these types of services. Participant comments below provide some support for the inclusion of these two elements in the index:

*The other group that misses out here is probably the rehab type ones, as in people who need ongoing physio for a long period of time.[B3]*

*One of the gaps in our service in [our town] at the moment is rehab out-patients. [D1]*

*One of the biggest factors is what is provided in the community area, so regardless of how many physios you've got or how remote you are, what the services are in that town... and if I compare [town x and town y] – very similar sizes – the provision of service at the hospitals is so different. [A5]*

*... and the paediatrics demand is skyrocketing..., there's quite a lot of referrals for kids who need serial casting, post botox, toe walking...some of whom will qualify for Cerebral Palsy Alliance, some of whom don't, but will require quite a lot of intervention. There's a huge waiting list, we're now just focussing on the high priority and the very high priority referrals. We even triage them in the very highs, little babies that need a check-up or a follow up, a preemie baby: that just doesn't happen. [A1]*

*[So in the sense you have prioritised paed's?] Yes, especially when I have another physio. If I was just by myself- and this is what I've done in the past – I didn't, I just I said I can't or I ended up with an odd sneaky one that I shouldn't have done. The problem is that it [the child's condition] just lasts forever and they go through crisis where you can really help them and other times when I just have to refer them, but to me I just think it's dismal – it's a dismal state – it's so substandard that it is just crying out, and who else is there to look at the paediatric patients. [A5]*

Combining these elements forms a useful construct to consider physiotherapy availability. Each element can be divided into categories and assigned a numerical value or score. For example, the ASGC-RA categories are assigned values 1–5, population is considered in nine categories ranging from 500–1000 to over one million and the number of public sector physiotherapists are also considered in nine categories ranging from no local physiotherapist to over fifty physiotherapists. Following the ASGC-RA categories where major cities are referred to as ASGC-RA 1, the larger the population or number of physiotherapists, the lower the value assigned. The elements described by participants were used to inform the development of a rural physiotherapy availability index (RPAI). The RPAI was then developed into a visual tool to enable swift calculation of the RPAI score for a given site (Figure 7.2).

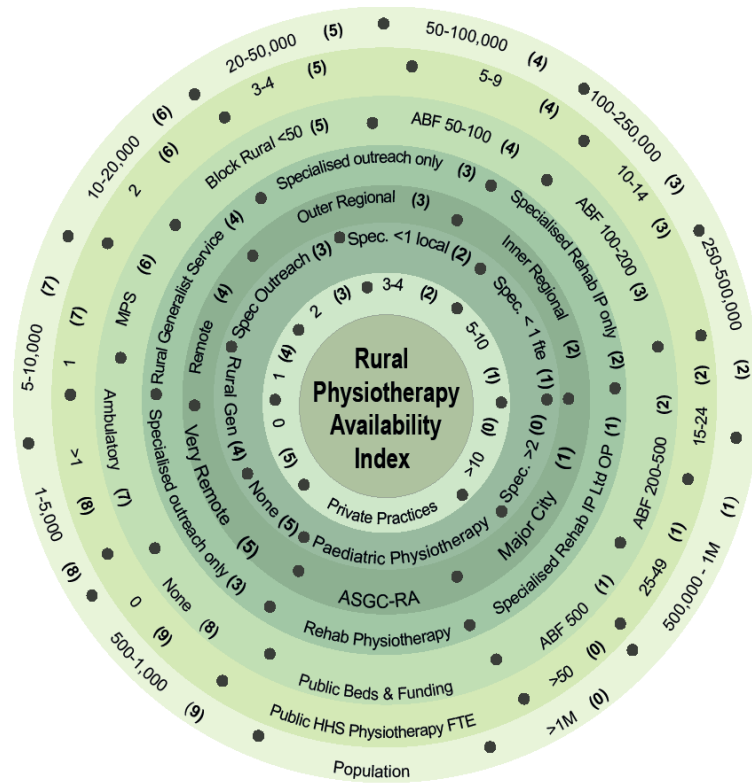


Figure 7.2 Rural Physiotherapy Availability Index

The addition of the RPAI score assists in describing and differentiating sites regarding rural physiotherapy availability more so than geographical classifications. This is not unexpected as each remoteness classification was not designed for this purpose. ASGC-RA only differentiated the sites in this study into two groups: Inner regional (RA2) or outer regional (RA3). RRMA scores formed three groups (RRMA3–5) with both ASGC-RA and RRMA classifications providing limited discrimination regarding physiotherapy service availability. The eleven sites of this study were differentiated into six clusters or categories when the elements of RPAI are considered.

Calculation of the RPAI score commences with identifying a score for population (outer circle) and progressing to the inner circle adding scores for each element. For example Site 5, with a population less than 5,000, and one public physiotherapist working in a rural block funded hospital with less than 50 beds with local services including a private practice and a paediatric disability service but no specialised adult services scores 33. In contrast, the inner regional site 2 scores 16. Site 2 has a population of nearly 40,000 and is the location of a large rural referral hospital with a range of physiotherapy services both public and private (Table 7.4).

Table 7.4 RPAI scoring examples

<b>RPAI elements</b>	<b>Site 5 RPAI score</b>	<b>Site 2 RPAI score</b>
Population	8	5
Public HHS physiotherapy FTE	7	3
Public hospital beds and funding	5	2
Rehab physiotherapy	4	1
ASGS-RA score	3	2
Paediatric physiotherapy	2	2
Number of private practices	4	1
<b>Total</b>	<b>33</b>	<b>16</b>

This enables insight into both specific aspects of physiotherapy service provision and a total as an indicator of rural physiotherapy availability (Table 7.5 and Figure 7.3). The higher scores (40–59) are indicative of limited availability of physiotherapy services. Sites 9 and 11 (RPAI 42 and 43), for example, have only a visiting physiotherapy service providing general outpatient physiotherapy services. Mid-range scores (20–39) reflect the presence of local services yet still with considerable variability in availability of services. For example, site 3 (RPAI 39) has only a 0.5 FTE public sector physiotherapist with no local private practice, whereas sites 7 and 8 (RPAI 25 and 21, respectively) have between 6–10 physiotherapists, at least one private practice and a visiting paediatric service. Lower RPAI scores (0–19) are indicative of a range of locally based services; however the higher scores within this range suggest limitations to the availability of some physiotherapy services. Site 2 for example, which has >10 FTE physiotherapists and numerous private practices in the community, has limited rehabilitation and paediatric physiotherapy service availability.

The sites of this study were predominantly rural with RPAI scores clustering in the mid-range; however the RPAI scoring would enable differentiation of major urban areas and more remote sites. The RPAI score provides a relatively speedy tool to gain insight into the availability of physiotherapy services. This information should be considered by health service policy and decision makers prior to making decisions that may adversely affect local community members' access to physiotherapy services.

Table 7.5 The eleven sites of this study grouped by RPAI scores

RPAI Score	Sites	RPAI Score	Sites	RPAI Score	Sites
0–4		20–24	8	40–44	9, 11
5–9		25–29	7	45–49	
10–14		30–34	1, 5, 10	50–54	
15–19	2, 4	35–39	3, 6	55–59	

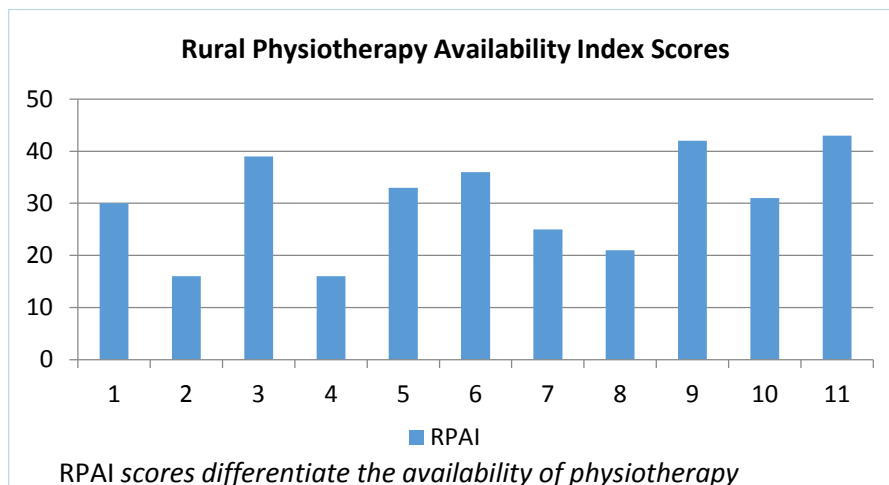


Figure 7.3 Differentiation of physiotherapy availability across sites

### 7.4.3 Accessibility

Measures of availability, however, form only one of the four elements that McGrail and Humphreys (2009b) identified that inform service accessibility (Figure 7.4). Greater insight into issues of accessibility to services such as physiotherapy can be gained when all four elements described in the primary care index are considered (Table 7.2). Health needs, described in the primary care index as the level and nature of need for those seeking health care, provides a starting point for considering issues of proximity and mobility (McGrail & Humphreys, 2009b). As the range and type of physiotherapy services varied in rural communities of this study, so did access to services to meet the specific health needs of individuals. For example, access to specialised neurological adult and paediatric physiotherapy services in rural areas is limited in comparison to ambulatory musculoskeletal physiotherapy services. As neurological adult and paediatric physiotherapy are specialised areas of physiotherapy practice, these services are typically located in major cities or large regional centres. Issues of access to services were highlighted by a participant from a large regional centre:

... one of the gaps in our service at the moment is rehab out-patients, we don't have it, except the prosthetic clinic because when they cut our FTE a couple of years ago. It was like how are we going to do that, well we'll have to do this; they farmed that off and that's gone. So when you're opening up new services and funding them that doesn't really allow for rehab out-patients...so that's a gap in service. [D1]

While ambulatory musculoskeletal physiotherapy services are located in many rural communities, where there is limited public physiotherapy outpatient services, access can be constrained by affordability. Comments by two private providers highlight this issue:

*It's probably 25% workers comp, probably 25% DVA [Department of Veteran Affairs] funding, probably 40% private and about 10% Medicare...and the Medicare ones, you know, they're as poor as poor, they just can't afford it. [B4]*

*I believe everybody's got a right to good health care but that doesn't necessarily fit in to the private practice model so I don't believe I have to provide treatment to people who can't afford to pay me for it. [B1]*

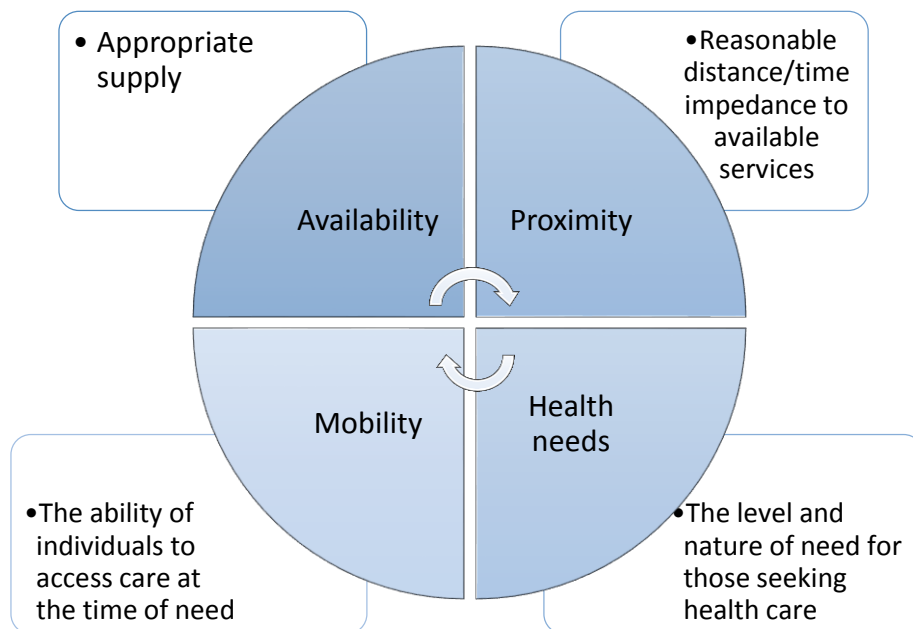


Figure 7.4 One measure of access – the index of access to primary care in Australia

## 7.5 Discussion

Numerous classifications systems have been used to described rurality or remoteness to assist in differentiating rural areas, identifying need and to assist in targeting programs (Schindeler et al., 2006). Different remoteness classifications resulted in variable groupings of sites in this study and provided little insight into access to services such as physiotherapy. The notion of a suite of measures (McGrail & Humphreys, 2009b) resonates with exploration of specific issues of health service provision and access in rural settings.

As with presumptions of homogeneity within geographic classifications, the use of catch-all terms and broad workforce descriptions do not reveal the heterogeneity of service provision. Available workforce data, often presented as a percentage of the total physiotherapy workforce or allied health professionals in ASGC-RA categories, provides limited insight into local service availability. Service availability varied with community and facility size, workforce availability and capacity. The conceptual rural physiotherapy availability index provides insight into the detail of local service provision and a possible measure for understanding availability of rural physiotherapy services. The scores provide a more discerning indicator of physiotherapy service availability in rural and regional communities than geographical classifications.

Access to physiotherapy services, as with primary care services, requires consideration of multiple factors or elements (McGrail & Humphreys, 2009b). Descriptions of physiotherapy workforce and service availability need to be complemented by factors such as proximity, health needs and mobility to better understand issues of accessibility. The RPAI may assist in informing decision making about service provision to improve access to services locally. The concept of the measure of rural physiotherapy availability may also be applicable to other rural allied health service providers.

## 7.6 Limitations

This study included a relatively small number of sites within one Australian state. The conceptual measure of rural physiotherapy availability developed from these sites may not be relevant to areas of Australia with a different mix of communities or health services. The varying scales for the scores for each element may unduly weight one element. The

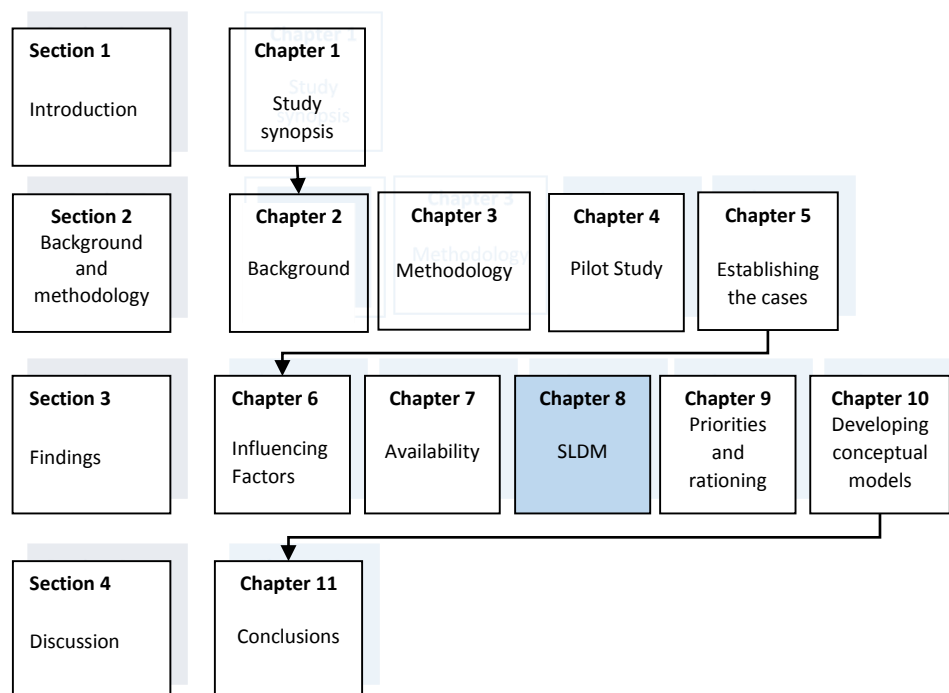


conceptual RPAI measure should be trialed across a larger number of sites to assess its broader applicability.

## **7.7 Conclusion**

Local availability of services such as physiotherapy is not visible in aggregated state and national data sets. Participant responses in this study provided insights into the detail of local service availability and accessibility. The variation in availability and capacity of physiotherapy services between communities prompted the development of a possible measure to aid more localised description and reporting. The RPAI is provided as one measure that could form part of the suite of measures suggested by McGrail and Humphreys (2009b) to describe access to primary care in rural communities. Mapping physiotherapy services in other areas using the RPAI and further exploration of factors affecting service provision and access are recommended as two areas for future rural physiotherapy research.

## 8. Chapter 8: Service Level Decision Making



Adapted with changes from Adams, R., Jones, A., Lefmann, S. & Sheppard, L. 'Decision making about rural physiotherapy service provision varies with sector, size and rurality'. *Submitted for publication July 2014.*

### 8.1 Introduction

Decisions about physiotherapy service provision occur within the context of organisations, locations and settings. Understanding the varying contexts can provide insight into decision making about service provision. Context is especially important in rural and regional areas. The self-evident phrase '*if you have seen one rural town, you have only seen one rural town*' is indicative of the uniqueness of rural communities (Larson, 2006). This uniqueness of place then combines with other factors to provide the context in which health services, such as physiotherapy, are provided. Other influencing factors include: location and availability of other services; internal factors such as organisational imperatives, culture, and workforce capacity and capability; and external factors including health financing, policy and workforce supply.

Physiotherapy services in Australia are provided through the public and private sectors of the health system (Sheppard, 2001; Williams, D'Amore, & McMeeken, 2007). Public services are primarily funded and provided through state and territory health departments, with the Australian Government funding programs to improve access to services in underserved areas such as rural and remote communities (Council of Australian Governments [COAG], 2011; Department of Health and Aging [DoHA], 2014; Services for Australian Rural and Remote Allied Health [SARRAH], 2013). Private services are funded primarily by a fee-for-service model, with an increasing range of rebates or fee supports available through private health insurance, third party insurance, Work Cover and Medicare (Struber, 2003; DoHA, 2013).

Inpatient, outpatient and community physiotherapy services are provided in the majority of publicly funded hospitals, with specialist physiotherapy services such as intensive care, burns, rheumatology, orthopaedics, geriatrics, paediatrics and rehabilitation established in metropolitan and larger regional facilities. Musculoskeletal physiotherapy continues to form the core of private sector physiotherapy services (Sheppard, 2001). Smaller rural settings require generalist physiotherapists as they must demonstrate high level of skills in a variety of areas of physiotherapy (Williams et al., 2007; Australian Physiotherapy Association [APA], 2011). Articles describing the work practices of physiotherapists in regional, rural and remote areas reveal differences in service provision between locations reflecting a responsiveness to context, setting and location (Sheppard, 2001; Williams et al., 2007).

Decisions are made at all levels of a system or organisation. Decision making within health services occurs at micro, meso and macro levels, which include decisions at the clinical or service level, the regional or facility level, and the state and national level respectively (Sibbald, Singer, Upshur, & Martin, 2009; Chapman & Sonneberg, 2000). At a macro level, health policies frame the broad context for health service provision. Meso level decisions use numerous approaches and are considerably influenced by macro-level decisions (Eagar, Garrett, & Lin, 2001). Two types of decision making occur at the micro level: clinical decisions at the patient–therapist interface; and individual decisions about service provision.

Clinical decision making at the patient-therapist level is well described, but descriptions of decision making at the service level are not readily evident in the physiotherapy literature (Edwards, Jones, Carr, Braunack-Mayer, & Jensen, 2004; Edwards, Braunack-Mayer, & Jones,

2005; Edwards & Richardson, 2008; Finch, Geddes, & Larin, 2005; Grimmer-Somers, 2007; Smart & Doody, 2007; Smith, Higgs, & Ellis, 2007, 2008a, 2010)–There is an emerging literature describing physiotherapy service provision in regional, rural and remote areas, but little beyond caseload prioritisation describing service level decision making (SLDM) (Sheppard, 2001; Williams et al., 2007; Miller-Mifflin & Bzdell, 2010). Differences in services provided and work settings between private and public physiotherapy services suggest different SLDM processes may be adopted. Similarly, the size of the service or facility and the geographical location in which the services are provided potentially influence SLDM. How and to what extent these factors influence physiotherapy SLDM in the varying rural settings is not evident in the literature.

This study sought participant perspectives on decision making about the provision of physiotherapy services in rural communities within the investigation area. Considering stakeholder perspectives within a systems framework across multiple locations enabled the researchers to discern differences between sector, size and rurality. Obtaining perspectives of a range of stakeholders, such as multidisciplinary team member colleagues, and facility, service or regional managers, provides a richer view of SLDM than a physiotherapy only perspective would provide. Descriptions of health service provision within the context of systems and rural location or place are important as the broader health system can both constrain and enable local health responses (Bourke, Humphreys, Wakerman, & Taylor, 2012). Decision making about rural physiotherapy service provision was explored within a systems-theory case study heuristic, which enabled consideration of both location and broader health system impacts.

## **8.2 Method**

A sequential mixed methods approach within a systems theory-case study heuristic was used to identify and explore factors affecting rural physiotherapy service provision and related service level decision making. A preliminary quantitative component preceded and guided the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration. This research approach supported consideration of the impact of contextual factors such as service location, size or sector.

Stakeholder perspectives were obtained through surveys and in-depth interviews. The investigation site was a large area of one Australian state with a mix of regional, rural and remote communities. Rather than a formal geographic classification of location, the researchers were interested in the participants' perspective of rurality (PPR). Participants were asked to describe their community as regional, rural and remote. PPR was then combined with the number of full time equivalent (FTE) public sector physiotherapists to form a matrix to inform case selection. Six case types in which to explore rural physiotherapy SLDM were identified within the study area, for example, a rural community with a sole physiotherapist (Rural  $\leq 1$ ) or a regional centre with more than 10 FTE physiotherapists (Regional  $>10$ ). The six case types that emerged were Rural  $\leq 1$ ; Rural 2–3; Rural 4–10; Rural-Remote 4–10; Regional 4–10; and Regional  $>10$ . Where common issues were identified, facilities are grouped as small (Rural  $\leq 1$ ; Rural 2–3) or large (Rural 4–10; Rural-Remote 4–10; Regional 4–10; and Regional  $>10$ ).

Purposefully designed surveys for physiotherapists, colleagues and managers had been piloted in another rural location (Adams, Sheppard, Jones, & Lefmann, 2014e). The physiotherapist survey was sent to public sector physiotherapists in the investigation area. These physiotherapists were also asked to identify stakeholders involved in decision making about physiotherapy service delivery, including other public sector physiotherapists, physiotherapists in private practice, colleagues and managers, and to distribute stakeholder-specific surveys. Physiotherapist participants were invited to participate in a follow up interview. Semi-structured, in-depth interviews were then conducted with a purposive sample of physiotherapists and other decision makers to gain more information on factors that influence decision making. This approach had been piloted in another rural area (Adams et al., 2014e).

Ethics approval was obtained from local human research ethics committee and from James Cook University (H3799). Site specific approval was obtained for each location in the study. Information sheets were provided to all potential participants. Written consent was obtained from all survey and interview participants. Data collection was undertaken from January to September 2012.

Survey data was analysed using descriptive statistics and recorded in Microsoft Excel spread sheets. Thematic analysis of open ended survey questions informed the development of initial themes and areas for further exploration in interviews. Interviews were audiotaped with full

interview transcripts and a summary developed by the researcher provided to interview participants for their review and comment. Recorded interviews were transcribed verbatim and entered into NVivo version 10. An iterative approach was used to guide the thematic analysis of qualitative data. Thematic analysis developed themes and concepts which were coded and then used to frame and account for the data. The principal researcher completed the initial analysis with co-researchers double coding one third of the interviews to add to the depth of analysis.

## **8.3 Results**

Survey responses from 34 participants (21 physiotherapists and 13 colleagues/managers) provided an initial picture of rural physiotherapy SLDM. In addition to the many common issues identified by physiotherapists and their colleagues or managers, physiotherapists indicated that potential outcomes of the intervention and the impact of students and the media were influences on SLDM. Colleague and manager survey respondents highlighted historical influences and staffing to population ratio; and one participant noted they had no input into decision making about physiotherapy services. Follow up in-depth interviews (14 physiotherapist, and 5 colleagues/managers) enabled further exploration of SLDM. Survey participants were coded alpha-numerically in the following groups: public sector physiotherapists (P), private sector physiotherapist (PP) and colleagues and managers (CM). Interview participants have been coded alpha-numerically in the following groups: public physiotherapists (A); private physiotherapists (B); colleagues (C); and managers or other decision makers (D).

### ***8.3.1 Survey data suggest commonalities and differences between sites and sectors***

In response to the question 'What factors do you consider when making decisions about which physiotherapy service to provide within your facility/service?' commonalities and differences emerged between sites and sectors. Physiotherapists took a range of factors into consideration when making decisions about service provision. Available skill and expertise were common considerations across public and private, and small and large facilities, as were patient or community needs (Table 8.1). Common to public sector participant responses in both small and large public cases were considerations of evidence and potential outcomes of providing an intervention, staffing levels, and availability of other services. While decisions

about service priorities occurred in both public and private settings, the underpinning factors differed. Acuteness of inpatients was a common public sector consideration, whereas time was a key consideration in private practice. Distinguishing factors between these two sectors were the impact of organisational priorities (prioritised by the public sector), complex governance structures (public sector) and financial viability (prioritised by the private sector).

A difference between larger regional and smaller rural sites emerged from the physiotherapists' responses about how decisions were made about which physiotherapy services were provided. Responses such as '*physiotherapist has 90% control*' [P15] and '*I make them*' [P14], from smaller cases (rural $\leq$ 1) suggest a degree of independence in SLDM. Physiotherapy department managers in larger services (case types with 4–10 or >10 FTE physiotherapists) had decision making responsibility; however it was constrained by the priorities of the health facility and by directions received from facility management. State level priorities were also noted as influencing what services were funded, particularly by physiotherapists in larger facilities.

Private practice physiotherapy respondents indicated the practice principal made the decisions about service provision. Consultation with staff and consideration of their areas of interest were common in larger practices. Other considerations were confidence to provide specific services, service gaps and profitability.

Table 8.1 Factors influencing rural physiotherapy SLDM identified in surveys

<b>Physiotherapists</b>	<b>Colleagues/managers</b>
Outcome and potential impact of service or intervention	Skill level
Available skills	Skill mix
Availability of staff	Expertise
Staffing level	Staffing ratio to population
Resources and costs	Staffing levels
Patient or community need	Vacancies
Priorities-department, facility and network	Workload
Availability other services	Institutional demands
Students	Agreed core business
Confident and competent staff	Budget pressures
Community and referrer expectations and referrals	Increased services without an increase in physiotherapists
Organisational plans and directives	Needs of community
Hospital business	Common health problems
Limits	Availability of other services locally and at discharge destination

### **8.3.2 Exploration of factors influencing physiotherapy service level decision making**

In-depth interviews with purposefully sampled physiotherapists and other key decision makers enabled further exploration of rural physiotherapy SLDM. The in-depth exploration reiterated and expanded on the factors identified in the survey, providing greater insight into SLDM. As interview participants discussed SLDM, it was possible to consider many of the factors described by survey participants as part of larger, overarching factors that influence SLDM. The researcher was able to group the factors and develop a set of overarching concepts/themes (Table 8.2). The individual factors and developing themes were explored, refined and explained further by successive interview participants. The overarching themes reflected the impact of broader system level decision making on rural physiotherapy SLDM. The discussions with interview participants also revealed more abstract concepts that influenced SLDM. Concepts such as visibility within the community, having a voice at the decision making table and a sense of connection to community are three such abstractions. Consideration of the relative influence factors across sites and services was assisted by the use of several conceptual constructs.

Table 8.2 Overarching factors influencing rural physiotherapy SLDM

<b>Health reforms</b>	National, state and local health reforms
<b>Health financing</b>	Activity based funding (ABF)*; block funding, new funding or 'buckets of money'; fiscal austerity measures
<b>Workforce</b>	Capacity; skill and expertise; 'stayers and leavers'; access to continuing professional development (CPD)
<b>Decision drivers</b>	Organisational priorities; new funding priorities and market capacity to sustain private practices; financial viability: evidence and data
<b>Distance from regional, state and national decision makers</b>	Knowledge of local issues; voice at the table
<b>Connection to community</b>	Visibility; accountability
<b>Rurality and size</b>	Recruitment and retention; generalist skill set; isolated; paperwork

\* ABF is a way of funding hospitals whereby they get paid for the number and mix of patients they treat.



### 8.3.3 Conceptual constructs

The *a priori* construct at the commencement of this study was that factors affecting SLDM would occur at all levels of the broader health system (macro, meso and micro levels). This construct provided a conceptual framework in which to consider rural physiotherapy SLDM. As survey and interview data were analysed, two additional constructs emerged to assist the conceptualisation of rural physiotherapy SLDM. The first of the emerging constructs was that of sector, size and rurality. This construct assisted in discerning which of the issues were more influential within specific contexts. The different contexts include for example, public and private sector services, smaller or larger case types and the rurality of the service. The last of the constructs was formed by a trio of higher order themes that evolved from the analysis of factors influencing SLDM. These themes were ‘policy and funding’, ‘capacity and capability’ and ‘visibility and accountability’. As discussions with interview participants progressed, it became apparent that some services were more influenced or sensitive to one of these higher order themes than others. The relative influence and interaction of factors within these three constructs is represented diagrammatically in Figure 8.1. Building on the diagrammatic representation of multilevel factors influencing the provision of physiotherapy services (Adams et al., 2014b), this refined representation overlays the two emerging constructs to form a conceptual map of rural physiotherapy SLDM.

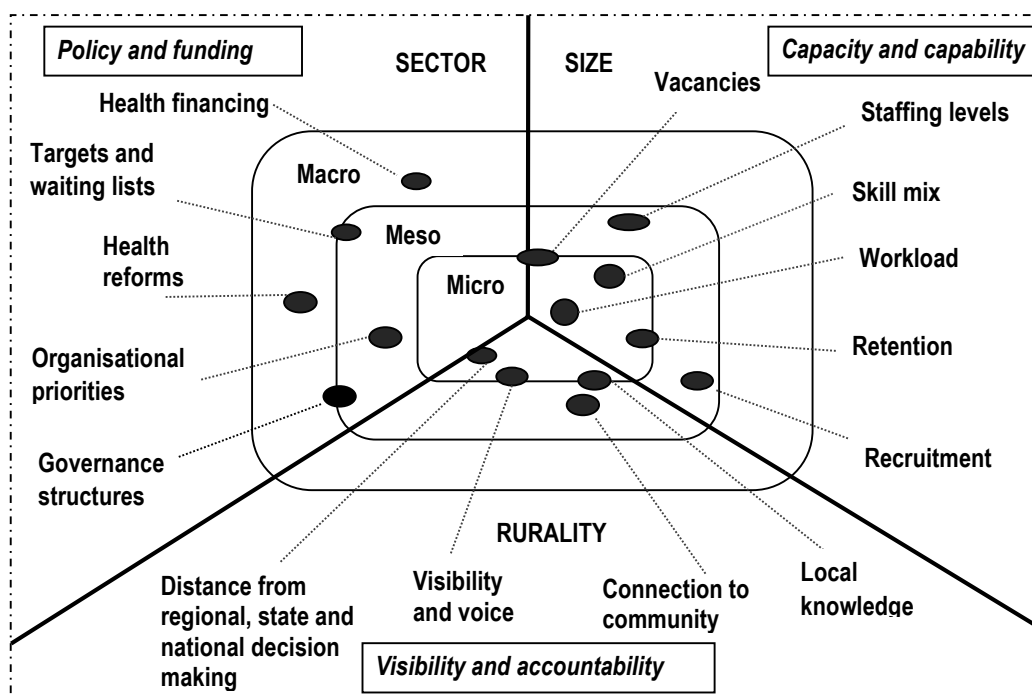


Figure 8.1 Conceptual map of rural physiotherapy service level decision making

### ***8.3.4 The relative impact of factors influencing SLDM and the usefulness of paired constructs***

As with factors influencing actual service provision, factors influencing SLDM occurred at macro, meso and micro levels of the health system (Adams et al., 2014b). The relative impact of SLDM factors varied. The map was a useful visual aide to consider the relative influence and interaction of factors influencing rural physiotherapy SLDM. Understanding the complex array and interaction of factors was aided by pairing relevant constructs that reflected the context and higher order themes. Influencing factors could then be considered within organisational levels within each of the paired constructs: 'sector – policy and funding'; 'size – capacity and capability' and 'rurality – visibility and accountability'. National and state policy and funding, for instance, influenced public sector SLDM more so than that of private sector physiotherapists. While capacity and capability were common across sites and sectors, the size of the service strongly influenced staffing levels, skill mix and the ability to recruit and retain physiotherapists. Recruitment to smaller services requiring generalist physiotherapists was often challenging and where prolonged vacancies occurred, people in the community had limited or no access to local physiotherapy services. Larger regional facilities reported challenges in recruiting to senior positions and vacancies resulted in a loss of specialised physiotherapy services for the local community and the surrounding region. SLDM was more reactive and constrained where there were multiple or prolonged vacancies. Rural services noted a stronger connection to the local community, accompanied by a sense of increased visibility and accountability than more regional services. Rural services also highlighted the challenge of being distant from decision making that occurs at the regional organisational governance level. Decision making at the physiotherapy service (micro) level was informed and influenced by decisions made at regional and facility (meso) level, and national and state (macro) level.

### ***8.3.5 The first paired construct: Sector and policy and funding***

The relative impact of health policy and funding was polarised around the two key sectors considered within this study: public and private sectors. The 2011 health reforms, for example, had significant impacts on public sector services and systems, but relatively little impact on the private sector. A similar pattern occurred with the introduction of activity based funding (ABF). The reverse was true for the level of autonomy in SLDM with private sector practitioners

reporting higher levels of autonomy than the public sector physiotherapists. Noting this pattern, health reforms and health financing are discussed with public sector the primary focus and decision making.

### **Health reforms**

Health reforms initiated at a national level were a stimulus for change at state, regional and facility levels. Interview participant comments reflected on the influence of the 2011 National Health Reform Agreement and subsequent state level decisions on organisational structures, governance and allocation of funding. The establishment of local health districts, each a corporate body governed by a local health service board, was a state level organisational and administrative change that featured in participant comments. Comments about the local impact of macro level changes revealed a sense of frustration and a perceived disconnect of decision makers from the daily challenges of service delivery. Participants discussed the reforms in terms of constant administrative change, increased organisational risk emerging from changes to health financing, and constraints on service delivery.

*I'll start with the state reforms ... there's two very clear pieces of reform that came through. One was January 2011, when the districts were established ... then the election in March I think was probably the biggest change ... the boards came back.*  
[D4]

*In terms of the federal reform the risk for us at the moment is that we're too small to really operate under ABF.* [D4]

*Look it's this constant change of administration – the changes to the health system itself and the change of government ... they change things all around; change health districts – they seem to bring a structure in ... and they still put different people on it in these admin jobs, ... you still sort of feel you're still top heavy and they always said that we would get more on the ground and we never did.* [A9]

### **Health financing**

Health system financing, notably the move to ABF, fiscal austerity measures and new targeted funding emerged as key influencers of SLDM. The introduction of ABF impacted on

physiotherapy SLDM in both large and small case sites of this study. Decisions made to optimise revenue within the ABF model created organisational priorities and influenced subsequent decisions about management of specific patient groups. This necessitated physiotherapy service re-prioritisation, which for some physiotherapists generated a level of frustration, while others were more pragmatic.

*I just don't understand why they would choose to pick orthopaedic in-patients, [which] seems to be their area of focus at the moment for ABF. What can we do to make the most money out of these people – they're the most predictable. I can tell them exactly how long they're going to stay for ... we've got medical patients who will stay for months and months and months because no one will make a decision about the medical care. You've got patients there with no plans, no decisions, so why are they focussing on predictable patients to try and shave time off, it makes no sense whatsoever. [A3]*

Managing length of stay (LOS), a key strategy to manage patient flow and to optimise funding within ABF facilities, had flow on effects to smaller rural 'block-funded' health services. Decreasing LOS of patients in larger regional facilities was achieved, where possible, by discharging patients earlier or transferring patients to nearby rural hospitals. Access to outpatient physiotherapy services following discharge varied depending on location and service capacity, while the transfer of patients changed the inpatient activity and acuity of rural hospitals. Such changes require consideration in local decision making about provision of physiotherapy services in order to meet shifting priorities.

*Yes acuity and being in hospital and getting people out of hospital ... because anybody in health that is looking at dollars looks at length of stay, and it's the only thing that counts. [A1]*

*That's economics, the [nearby] Base [hospital] just send them anywhere they can to get them out ... I mean when I told them that I will be away they just said "Oh we'll still send them there". [A8]*

The tightening of state budgets and changes to national health financing combined to influence regional and facility decision making. Fiscal austerity measures were implemented to

meet regional and facility financial targets specified in the purchasing and performance agreements with state health authorities. Strategies adopted included bed closures and reduction in FTE staffing levels. Where physiotherapy FTE reductions occurred, the resultant decreased capacity necessitated decisions about service priorities, including decisions about services that would not be provided. As a result, there were service reductions and gaps in areas such as rehabilitation, outpatient services, and paediatric services, particularly for children with developmental delay or disability. Private physiotherapists also noted these gaps, but did not consider service provision to these client groups to be within their service scope.

*The staffing establishment that we have now is significantly reduced on what we had had for many years before hand. 2008-9-10 was a period of considerable external review for this whole area ... a consistent figure of around 25% of allied health positions [were cut] by some mechanism or another. That severely curtailed our ability to provide out-patient services. We've had to basically can [cease] any out-patient rehabilitation service so when people have gone home after rehab,[we have] very little ability to monitor programs or run a basic sort of weekly exercise class for those teetering on the edge of keeping them fit and functioning in their home versus losing ability and then needing more care. [A1]*

*I've been here for 32 years, I'm in private practice, I do general physio, and over the years I've probably tailored it to the things I like doing, so I don't do much neurological, I don't do many kids and I don't do anything really long term, chronic. I keep it to what I'm happy with. I believe everybody's got a right to good health care but that doesn't necessarily fit in to the private practice model. [B1]*

Both opportunities and challenges emerged from funding enhancements for specific services, such as subacute care (e.g. rehabilitation), post-acute care and emergency department physiotherapy. Wariness and frustration accompanied new funding in facilities recently affected by reductions in staff or where new funding established specific service teams or positions. Where physiotherapy service capacity had been reduced by staff cuts, the addition of new program funding at times 'clawed back' capacity to pre-cut levels, but with less flexibility. Perhaps in response to decreases in existing services, physiotherapists in the newly funded services were approached to provide services beyond the specified service criteria,

generating a level of frustration or angst. Further consequences were fragmentation of services and decreased flexibility in physiotherapy service provision particularly where new funding was used to establish separate service teams or positions. When considered together, participant comments reflect missed opportunities to collaborate on decision making about physiotherapy service provision.

*Sub-acute [patient care funding] was an extra pot of money that was given out by the Commonwealth [national] government to enhance sub-acute rehab, stroke, psychogeriatric and all that sort of stuff ... and those pots of money and those services really only just redistributed stuff that originally happened. [A1]*

*I think the pots of money are probably a big challenge, I find at the moment, it's a challenge in terms of how we work as teams with different pots of money and making sure that there's that cohesion. [D1]*

*Each day, you'll be rung up and you'll field referrals where [they say] we've tried here, we've tried there, we've tried everywhere else, do you think you could fit them in, would you mind? And quite frankly a bean counter in Canberra can absolutely draw a line there, but me as someone who lives and works in the community, I'm much more uncomfortable with drawing the line that says you are eligible and you are not due to geography or the year you were born or whatever. It's a limited pot of money but the need is there. [A2]*

*ED [physio] is one of our artificial priorities because realistically, it wouldn't come up as a first thing that we would do, but because of the funding, it's one that's going to be maintained regardless of what is happening anywhere else. [A3]*

Newly funded services, with defined service criteria and targeted patient populations and reporting requirements, were seen to create service silos and decrease flexibility. Service criteria included age, condition and geography, for example 'over 65 orthopaedic' [A5] or 'within 20 km radius' [D1]. The funding and reporting requirements of new services established new priorities for service providers, and while enhancing services in some areas, created inequities and challenges due to the varied implementation.

*Sub-acute [program funding] was supposed to be for the whole region. But it was very good at giving gold standard service to those few ortho-geris that were in the ward and then encouraging them to be taken, transferred out to peripheral hospital. It happened a lot from [the nearby regional centre] and going out; we saw very little effect. [A1]*

*... so when you're all funded from little pots of money it can make you more silo and insular. [D1]*

*... sub-acute is a great concept of getting the communication and the responsibility that will follow the patient [over 65 orthopaedic] and follow them all the way ... and it's worked pretty well for us. [A5]*

*Especially when you've got to report against that funding, against that criteria, it limits the amount of people that are willing to be flexible around the edges. That's a risk with the pots of money and something we're going to have to overcome otherwise it's going to be problem with Australian healthcare. [D1]*

Changes in health financing and increased accountabilities for delivering services within budget perhaps explain one common participant perception that 'dollars drive decisions'. This included decisions about service delivery, staffing levels and service continuity:

*Absolutely ridiculous and I just don't understand, no thought about outcomes, no thought about patients, it's just about revenue, which I just think is backwards. [A3]*

*I think there is a real sense that suddenly someone will draw the line and go we can't afford this or this isn't generating enough money and so we will cut this service. There is certainly a sense that you are the one dangling. [A2]*

*I think that there is a commitment; that we are on a crest of a wave because they like people who get people out of hospital quickly, so we are certainly very lucky with that, but they are very concerned about activity based funding. [A2]*

Funding that enables access to private physiotherapy services was an important, but not a key determining factor, in SLDM by private physiotherapists in this study. There was a view expressed by a number of private physiotherapists that private practitioners provided services to 'the private community' defined by one participant as '*those wishing to utilise Private Health [insurance]*' [B5]. The percentage of private practice clients utilising private health insurance or where physiotherapy was otherwise funded varied between practices.

*It would have to be over 50%, I've never really looked at it. Actually it might be about 50%. [B3]*

*It's probably 25% workers comp, probably 25% DVA [Department of Veteran Affairs] funding, probably 40% private and about 10% Medicare ... and the Medicare ones, you know, they're as poor as poor, they just can't afford it. [B4]*

*We do Workcover, we do DVA, and we do the Medicare program so the Enhance Primary Care program and we do Compulsory Third Party. [B5]*

### **Directives or choice**

The level of autonomy emerged as a differentiating factor between services, most notably between public and private sector providers. This is consistent with the findings in a pilot study investigating SLDM conducted in another state (Adams et al. 2014e). Autonomy and scope of SLDM varied with the stakeholder's sector and position. Private sector physiotherapists revealed higher levels of autonomy in decision making about service provision. In contrast, public sector physiotherapists had less autonomy in determining service provision. This was most evident in the cases with larger facilities where physiotherapy led decision making was constrained by organisational priorities, service directives and decisions made at higher levels of the health system. Frustration was evident in the responses of some public sector physiotherapists when service directives were given without consultation or consideration of physiotherapy capacity to meet current and new service requirements. Private physiotherapists reported providing services that matched their areas of interest and expertise, and were financially viable. Public physiotherapist responses revealed a greater sense of obligation to meet the needs of the broader community and organisational priorities. Tensions and conflict were evident in public sector participant responses when resource constraints limited the range of services provided:



*Well I don't have control over our budget, and to be honest I don't even know if our community health manager does. [A5]*

*In terms of demand sometimes services are just created, sometimes decisions are made here without consultation on where the allied health services will be provided. They might re-jig rehab and decide they are opening four more beds but there's no thought whatsoever into whether physio or OT or anyone is capable of taking on another four beds. Decisions like that will be made and still people aren't consulted particularly well. [A3]*

*I don't believe I have to provide treatment to people who can't afford to pay me for it. I like doing what I do and I like doing it but not in a hospital setting. Is it choice? I still see and do things and stay later than I want to stay so that's not choice in that way, but it gives me pleasure in making my practice what I want it to be. [B1]*

Private practitioners described two attributes that constrained their SLDM. One was the compelling aspect of financial viability; if you don't work there is no income. This was especially relevant for sole practitioners and the long term sustainability of their business. While financial viability was an important SLDM consideration for physiotherapists in private practice, making money was not always the biggest incentive. The second attribute is self-reliance; critical factors include a combination of skill and expertise and physical capabilities.

*You can't afford to run at a loss but making money has never been my biggest incentive. [B1]*

*I need to make money to cover my costs, but money's never been a driving force in me working, and my attitude is, I want to do a good job and I want to help these people help themselves. [B4]*

*I'm more aware of my physical limitations and I'm much more likely to say now, than I was 10 years ago, just don't book any more. [B1]*

## Organisational priorities and governance structures

Regional hospital physiotherapy service decisions were framed within the business of the hospital. In larger ABF funded facilities, organisation priorities of LOS, bed block, waiting lists and the 'bottom line' were common in physiotherapy participant responses.

*Yes, I think waiting lists, especially for orthopaedics, waiting lists will drive decisions.*

[A3]

*[I] just think it's about being sucked into acuity. It's about getting people out of hospital ... and it's about the whole hospital, the business of the hospital. [D1]*

In the public sector services within both regional and rural cases, governance structures and reporting lines were frequently commented upon by physiotherapy participants. Perception, knowledge and awareness of the role of physiotherapy appeared to have both positive and negative influences on physiotherapy services. This was particularly important where services or teams have managers and leaders who are not physiotherapists. Trust was reported as a key factor by one participant, with frustration and missed opportunity evident in other responses. These contribute to the physiotherapist perceptions of organisational support; a key workforce retention factor:

*Management makes a huge difference. I have a really supportive manager and she trusts me implicitly ... let's me get on and do the job; understands my clinical needs.*

[A5]

*I know there are places where we've not been positively viewed to start with and then as we've gone on and just worked in a team and whatever, it's been much more seen as a positive thing and then people have been advocating for more of it [physiotherapy]. [D1]*

*We had a terrible one [manager] when she was away ... he was here for a year ... a lot of people resigned. It was devastating what he did in that time. [A5]*

Reflecting the layered decision making within complex health care systems, factors related to policy and funding were predominantly located at a macro level. Within this first set of constructs, many of the factors influencing rural public sector physiotherapy SLDM also occurred at a macro level. As such they are beyond the sphere of influence of physiotherapists based in the rural communities of this study. Meso level facility directives then added another layer of SLDM: also often beyond the influence of the micro level physiotherapists in the public sector. This contrasts with the autonomy in SLDM revealed by private sector participants.

Consideration of factors within this paired construct of 'sector and policy and funding' assisted in describing the layered nature of decisions that inform service provision and in discerning intersectoral differences. Both provide insight into not only the factors influencing service provision, but also insight into who makes decisions, the organisational or system level location of decision making and the scope of SLDM within the sphere of influence of rural physiotherapists.

### ***8.3.6 The second paired construct: Size and capacity and capability***

Capacity and capability were key factors informing SLDM and were commonly linked by participants to descriptors of the service or community size. The cases within this study included services located in large regional referral facilities, smaller rural hospitals and private physiotherapy practices. The number of physiotherapists within a service ranged from 0.4 to 14 FTE reflecting to some extent service size, but not necessarily service demand. The capacity to deliver services is linked to both the number of physiotherapists available, the demand on the physiotherapy service and the overall capability (including knowledge and expertise) of the physiotherapists. The sustainability of a physiotherapy service, no matter the size of the service, was dependent on the availability of physiotherapists.

#### **Workforce key to service sustainability**

The capacity to deliver and sustain a service emerged as a critical factor informing decisions about service provision. Workforce availability is a key factor in service sustainability, with available expertise then shaping what services could be offered. Staffing levels, and capability (skills, and expertise) were listed as key workforce factors across sites and sectors. Expertise was a significant influencing factor in both public and private services when physiotherapists

made decisions to provide or not provide a service. Private physiotherapy providers indicated they only provided services for which they were skilled. The autonomy to provide a specific scope of services aligned to the individual expertise was more characteristic of private physiotherapists. It appeared to be accepted by participants that there was no broader service obligation to the community. In contrast, when public sector physiotherapy services either did not have, or were unable to obtain the required expertise, participant comments about the subsequent gaps in service reflected the broader service obligation of the public sector services. For example, gaps in paediatric services were exacerbated by filling specialist paediatric positions, which is challenging as this is regarded as a highly specialised area with small numbers of 'experts' available.

*Staffing would be dependent on hospital size. [A6]*

*We could have a lovely 'see everyone' sort of service but we don't have the staffing, and we also don't have the expertise to do it. We're very wary of opening up services that we can't sustain. [A3]*

*I think staffing is the biggest issue here. [B5]*

*Yes, you're looking for a more specialist skill set, that's more challenging to start off with ... and rural ... and if it's part time, then it's whether you start striking at luck it lucky because they're here for another reason and that just reduces your odds hugely. [A1]*

*Then there's kids that go into nowhere land. When [the specialist paediatric physiotherapist] leaves here, if there is no-one with a reasonable skill level, there will be a gap because I can't pick up that ... I can't do it. [A1]*

Developing, maintaining and enhancing knowledge and skills relevant to the service scope is a key aspect of service capability. Access to professional development and education was noted by participants as an important workforce factor across sites and sectors of the cases in this study. The ability to access education helped inform physiotherapists' decisions to move to or stay in rural areas. Improved retention supports service sustainability and workforce stability enables a more proactive or planned approach to SLDM. Enhanced access through webinars

and podcasts, while viewed positively, were not as valued as face to face education and workshops.

*... the only thing I was going to add to it was professional development – it's a big difference [between city and country] – you have to go searching and over time I've developed a really good little network. [A5]*

*Education's really important, whether I stayed and what I did, and what I learnt, [Q: So that was one of your deciding factors about staying?] Critical factor about whether I wanted to stay as a physio ... I wasn't sure if I could leave the city and live in the country. [B4]*

Consistent with existing rural physiotherapy literature, issues of recruitment and retention of staff, workload and the generalist requirements of rural practice were noted. These challenges were compounded where there had been reductions in funded physiotherapy positions. Participants in this study provided insights into how issues related to capacity influenced decision making about rural physiotherapy service provision. In the two cases where reduction in physiotherapy funded positions occurred (regional >10 and regional 4–10) there was a dual impact. Not only was there a decreased capacity, but the reductions in staffing numbers decreased critical mass and decreased the capability to meet all the demands on the service. This was especially so for the 'regional 4–10' case site, where the number of physiotherapists dropped from 8.5 to 5.74 funded FTE physiotherapists.

*Not enough staff to cover workloads/annual leave. [P6]*

*It was just the stress of it. You know I coped – we have been short staffed before because I knew we were trying to recruit [that was OK], but they just kept saying no. [A9]*

*Without staff, services close, and without stable management and seniors, the department is jeopardised. [CL4]*

*[When we had less than half our staff] we had set wards [as the priority] and we closed outpatients. [A9]*

*[Staff cuts] severely curtailed our ability to provide outpatient services. We've had to basically can [cease] any outpatient rehabilitation service. [A1]*

### **Service and community size**

The size of a community was linked to the level, size and range of local health services, the demand on services, the ability to recruit health professionals and the capacity to support and sustain private physiotherapy providers. Recent years had seen the establishment of private practices in towns with populations of around 10,000 to 15,000. The limited capacity of many smaller or more remote communities to sustain a private practice increased reliance on public physiotherapy service providers.

*The fact that the health service does operate a pretty comprehensive service, there's not a lot room left in the market. If we were to reduce our services, yes it'd expand the market for private providers, but whether or not we'd get any private providers or have a community that could afford to access the private providers I don't think is the real question. I don't think that the population could actually support a significant private practice. I think that's one of the big drivers around why the system's the way it is. [D4]*

*I enjoy the community, I love the work. [It's a] lovely little place to work [and] that's one of the factors that why I stay here. I like the work and I like the students and the staff are generally very friendly. It's a very nice working environment. [A8]*

*I'm the only allied health professional really, as a therapist based [here]. So I'm probably, as an allied health professional, more isolated than more remote areas. There have been times this year that I've been the only one [physiotherapist] in thirty thousand square kilometres. It's difficult when you're by yourself and have to do all the bookwork. Its management and I'm on a lot of committees for the hospital and you've got to prepare for the bureaucratic nightmares of the EQUIP [Health Service Accreditation]. [A8]*

Considering issues of capability and capacity along with size assisted in better understanding the relative impact of size on SLDM. Not surprising is the relative congruence with service size and physiotherapy staffing levels. However, participants noted both insufficient capacity and

capabilities to meet particular demands expected of the service. The reduced capacity to provide public sector outpatients (regional>10), specialist paediatric services (regional 4–10) or a five day service (rural≤1 site 3) are three such examples.

Decisions about funding physiotherapy capacity were framed firstly at a national and state (macro) level, then further refined at the regional and facility (meso) levels. The decision about which services can be provided then sits largely within the domain of physiotherapists (micro level). Physiotherapy participants indicated they considered organisational directives and priorities and available physiotherapy staff and skill mix when making decisions about service provision. In terms of size, the larger the facility, the greater the demand generated by the organisational priority on inpatient activity, which then informed SLDM. For example, physiotherapy capacity allocation decisions were prioritised to inpatient services with reduction in some outpatient based services in the larger services (regional>10 and rural-regional 4–10). Smaller services (rural≤1) were more responsive to community demand for outpatient services, for example, yet were constrained by both their capacity (≤1FTE) and capability (generalist, sole provider).

### ***8.3.7 The third paired construct: Rurality and visibility and accountability***

Rurality provided another key differentiator, providing a lens through which to view SLDM. With increasing rurality, participants reported a stronger connection to the community and an increased visibility within the community. Participants located within the smaller communities (rural ≤1 and rural 2–3) suggested these factors increased their sense of accountability to the community. SLDM was informed by their greater knowledge of the local community, whereas physiotherapy SLDM in more regional settings appeared to be more influenced by organisational priorities than connection to the community. Increasing distance from regional, state and national decision makers also appeared to influence SLDM.

Community need, local demand and practitioner defined priorities were more common decision drivers in smaller rural facilities than the larger regional facilities. Physiotherapist participants in smaller rural health services suggested they had scope to decide which services to provide. Smaller services appeared to prioritise outpatient services in contrast to larger regional facilities where inpatient activity dominated service priorities.

*So it's all open ... but at the end of the day I choose to run four hours of my twenty hours for exercise class, that's been never any problem. [A8]*

*... but in terms of prioritising – if I've got someone with pneumonia being referred for a chest infection – I would prioritise a paediatric child who has a serial cast following botox, so they are outpatient, but I would still prioritise [them] over an inpatient with pneumonia [who] is on antibiotics [where] I am going to have a limited effect with that patient. [A5]*

*I would try and always aim for the exercise classes to keep running [and] triage your outpatients that certain chronic conditions will have to simply wait with some compassion. [A7]*

Distance from regional, state and national decision makers was an emerging theme across public sector services. Distance was viewed as either geographical distance from regional decision makers or hierarchical distance within organisations or facilities. Despite devolution of decision making forming a cornerstone of recent organisational restructures, there remained a sense that decisions influencing service provision occurred centrally at a distance from the service providers, often with limited transparency. Recent changes at state level were also noted to limit opportunity for participation and input by rural health professionals.

*[A previous restructure] saw the old districts collapsed into areas ... [their] responsiveness to needs out here is pretty low. But there was an Allied Health Advisor, I don't know if he ever got out here, I've never met him. [D4]*

*The interesting thing about here though is who decided what got cut and how much? There's not necessarily a lot of logic in that, it was just bottom line, it was just dollars and the positions were cut if they were not filled by permanent employees. It wasn't about services, it was about money. [A1]*

*Yes it is hard to tease out, because does someone sitting in an office somewhere say we'll have some physio but we won't have some radiography, I don't know. [D1]*



[Factors influencing decisions] *tend to be fairly external ... they tend to be from positions that aren't potentially at the coal face.* [A2]

*We've actually, over years, centralised people to rural locations and that we will outreach to a remote location should they need to.* [D2]

*Everything is centralised to regional and metropolitan; they are in their bed block constantly – they're constantly being harassed on their pages and over the phone system; 'We need beds; we need beds'.* [A5]

*And they're sort of hamstrung by policies that come from [the capital city] and so we don't even have a rural health task force anymore, that's been stopped ... rural people have trouble getting on those committees and also their small voice. Whereas before, at least we had some voice.* [A8]

### **Connection to the community**

Different perspectives on issues that influence decisions emerged from the stakeholder groups depending on organisational position, distance from regional, state and national decision makers or connectedness to the community. One example is the different perspectives about centralisation of physiotherapy services and replacing locally based services with specialist outreach or consultant models. A regionally based decision maker espoused these models in contrast to physiotherapists based in smaller rural communities who advocated continuation of locally based physiotherapists who can build and maintain knowledge and relationships and be responsive to local community need. Either decision can be justified. The perspectives also reflect the organisational level of the stakeholder, their organisational role and focus. The following participant comments reveal differing perspectives and motivations on just one issue (centralised or locally based physiotherapy services). The first perspective being of organisational imperatives such as efficiency and the second, the value added to communities by embedded services.

*... [earlier I] talked about the fact that the roles as they are probably won't continue, that we need to rethink how the Allied Health assistants, and maybe it's a consultative service to some of those communities that were historically always occupied by a physiotherapist. We still have some physiotherapists working in towns of less than 500*

*people, working full time equivalent roles. Now as an organisation that isn't the most efficient way of running a service, so we will look at new models of care. [D2]*

*What I notice in communities is the more services that are in a smaller community, the richer that community actually is. There is a certain wealth to the community – a diversity within the community. [A7]*

### **Voice at the table**

The importance of having a 'voice at the table' where decisions are made was noted by many physiotherapists. Such comments were provided in response to the question: 'Who else contributes to, or influences, the decisions about physiotherapy service provision within your facility/service and how do they do so?' The level of participation in facility level decision making varied between sites and was valued where physiotherapy representation occurred. One physiotherapy decision maker pragmatically recognised that they while they '*lacked the clout at a facility level*', they were able to determine where they allocated physiotherapy resources. It could not be assumed that the larger services with a greater number of physiotherapists would be included in facility level decisions that provided the framework for their SLDM. It appeared at times that physiotherapists in smaller facility based services had a greater opportunity to have a 'voice at the table'.

*Yes, representation, making sure we're there, sitting on committees and making physio a relevant service to be represented on that. [A3]*

*It's great. And to have that knowledge of what's happening within the hospital, before that flow down wasn't happening. So we'd be the last to know that there's a redevelopment or there's a change in some other service or plan or directive of the hospital. [A6]*

*I don't think we have enough clout to say which services are and aren't provided or a priority of the hospital. We have input into what we provide in that but because we're always trying to work out where we're getting our best bang for our buck and where the resources are best spent. But it's not us having the say over the development of that service; it's us going with it. [D1]*

## Visibility and accountability

Health professionals in smaller rural settings reported an increased community visibility which was regarded both as a positive and negative factor in terms of retention. Visibility within a rural community was at times accompanied by an increased sense of accountability, both of which can impact on decisions about physiotherapy service provision.

*It's a really interesting dynamic but I think it makes you more responsive to what the needs are of the community. In terms of retention, it's a double-edged sword. So you hear people who are happy in their work ... about how nice it is to be connected in the community and the patients know you and you're valued and they say hello to you at Woolies. As you see people become either tired or disillusioned, the language around the same issue changes dramatically. So I've got no privacy, even in the supermarket people want to talk to me – so it's exactly the same thing, but how it's perceived and described is vastly different. So I guess it does impact on how you provide your service. I don't think it's a constant. So if everything's good – like if everything's going well around somebody, it tends to be viewed as a positive. If other things in their work environment, well particularly their work environment aren't acting the way they'd like it, then all those things become negatives. [D4]*

*[In a smaller community] you see much more directly when you are there what happens and then when you're not there what happens, and for me a much higher sense of accountability. [A7]*

*In terms of service delivery I think it does make it much harder to not respond – I think it puts pressure on people. How much pressure ..., I don't think it's enormous. But I think people do think a little bit about it. If I shut the door at one minute to four, and somebody knocks on the door and I say, 'No, I'm closed'. It's very different because you know you're going to see them. [D4]*

## Evidence and data

Accountability was also discussed in terms of using evidence and data to inform decision making about services. Evidence from the peer review literature and activity and workforce data were sources of information physiotherapists and physiotherapy managers considered

when making decisions about physiotherapy service provision. Drawing upon the available evidence base was noted to be particularly important when making decisions about resource allocation when the demands exceeded available resources. Data, while limited in many areas, was used by both physiotherapists and their managers to manage rostering and workload allocation, for activity reporting and in submissions for funding of new services. Research evidence was used to inform decisions about service provision yet was considered 'a two edged sword' by some as the physiotherapy research base does not yet reflect all areas of practice. Lack of time limited greater participation in research to develop a local body of evidence.

*... where the resources are best spent, we've very much put that on current practice and research. [D1]*

*... provide them with stats with what we're doing, what we're able to do, not able to do, give them suggestions of how we can streamline services, save them money, and I guess let them know what happens when we are short staffed. [A6]*

*... we haven't done any sort of study on that and I think that they're hand in hand, we can only grow the service if we've got the evidence of best practice that we can then put to people who have money and purses and strings, but we will never be able to, it would take a real reshuffle of how we do our work as to part timers to actually see how we could incorporate that. Certainly we read widely, but we won't be able to show people evidence. [A2]*

*... evidence based practice, is a double edged sword in my opinion, because a lot of things we do don't have evidence. [D1]*

The third of the paired constructs provided a way to conceptualise some of the more abstract or higher order themes that emerged from the perspectives of participants. The connection to the community, increased visibility and sense of accountability within the community reinforced the uniqueness of each rural town and notions of the place.

## 8.4 Discussion

The findings of this study will be familiar to rural health professionals and to decision makers with responsibilities for rural health service provision. By seeking participant perspectives on decision making about the provision of physiotherapy services across a range of rural communities, this study sought to give voice to what is discussed at a local level. The findings affirm what is known, while adding insight into the detail at a local service level and discerning differences in physiotherapy services in the communities of this study. Obtaining perspectives of a range of stakeholders such as physiotherapists, their multidisciplinary colleagues, consumers, managers and other decision makers provided a richer view of SLDM than a physiotherapy only perspective would provide.

Decision making about rural physiotherapy service provision varied with the service size, location and sector. The conceptual map provided in Figure 8.1 summarises clusters of issues under broad headings such as capacity and capability, policy and funding and visibility and accountability. Sector, size and rurality then provided an additional construct to consider the SLDM factors clustered under these headings. Physiotherapy services were more influenced or more sensitive to some factors more than others. For example, participants in smaller rural communities were influenced by a stronger connection to the community and a sense of increased accountability when making decisions about service provision. Some factors, such as physiotherapy workforce availability and capacity, were common across services, sites and sectors. Whether public or private, small or large, rural or regional, the availability of specific physiotherapy expertise and experience relevant to a service underpinned decisions about services provided. However, service size determined the nature of physiotherapy expertise required and the degree of vulnerability to prolonged vacancies.

Challenging recruitment and retention of physiotherapists in rural areas is well described. However, smaller services with less critical mass were more vulnerable to workforce or skills shortages. Smaller services included smaller rural physiotherapy services, small private practices or specialised services in regional centres provided by a single physiotherapist. Vacancies increased workload of remaining physiotherapists and at times posed a risk to the sustainability of the service. Prolonged vacancies created services gaps and a loss of funding for positions was also reported. Consistent with the rural physiotherapy literature, participants

in this study identified workforce supply was a critical factor underpinning service delivery and a key consideration when deciding what services to provide.

Service or facility size largely determined the type of physiotherapy service provided and the expertise required. Larger regional health facilities required a mix of generalist and specialised expertise to meet the service requirements. Generalist services and expertise were more common in smaller physiotherapy services and musculoskeletal services and skill requirements common in the private practices of this study. Within public facilities, the proportion of physiotherapy services provided to inpatient physiotherapy increased with facility and community size as did the availability of specialised services. Conversely, the smaller the community, the greater proportion of time was allocated to outpatient physiotherapy service provision. This was important in smaller rural communities that were unable to sustain private physiotherapy services.

Size also influenced the level of discretion in SLDM. Larger regional services had more layers of decision makers (such as department manager, allied health manager, operational manager and general manager) compared to smaller facilities. Physiotherapists in smaller facilities had fewer organisational reporting layers, some reporting directly to the health service manager or through a community manager to the health service manager. Physiotherapists in smaller facilities, as with principals of private practices, reported greater independence in making decisions about physiotherapy service provision.

The prerogative to choose what services to provide emerged as a distinguishing factor between public and private sector services. The principals of private practices reported the choice of services provided was theirs to make. This contrasted with the public sector, particularly the larger services, where alignment to organisational or funding priorities influenced decisions about physiotherapy service provision. An early assumption of the researchers was that SLDM would not be the sole prerogative of physiotherapists. This assumption appears valid in public sector services, more so in larger organisations, but the principals of private physiotherapy practices do hold sole SLDM decision making prerogative. While the latter is perhaps not an unexpected finding, it was not an expressed assumption at the outset of the study. Influencing groups or contributors to public sector physiotherapy SLDM included clinical colleagues (nursing, medical and allied health); managers (facility, regional and state); referrers (doctors, other service providers), the community and the media.

State and national (macro) level policy and funding decisions were perceived to be more influential within public sector physiotherapy services than private sector services. National health reforms and changes to health financing generated organisational priorities at state, regional and facility level that influenced decision making about local physiotherapy service provision. At a national level, key influencing factors included the introduction of activity based funding, formation of local health boards and establishment of national performance targets. New policy directions at a state government level then framed decision making at a regional and facility (meso) level. Fiscal austerity measures and targeted service funding designed to achieve specific patient outcomes were two examples. In larger regional facilities, service targets and organisational priorities, such as optimising length of stay and revenue, then influenced service (micro) level decisions about physiotherapy service provision. In smaller rural services, local knowledge and consideration of community need were more influential SLDM factors.

SLDM in smaller rural communities was further influenced by a sense of increased accountability and obligation that comes with being part the community. Community need, local demand and practitioner defined priorities were more common decision drivers in smaller rural facilities. Emerging from participant comments was the notion of a SLDM continuum based on community connection and distance from regional, state and national decision makers. Decision making informing service provision or service boundaries often occurred higher up in organisations, at some distance from the coal face of patient-provider interaction. Physiotherapy participants reported professional conflict when access to services was limited by criteria (such as age or geography) specified by macro level decision makers who had limited connection to the local community. One physiotherapist, who lived and worked in the same community, exemplified this conflict when stating that they were ‘... *much more uncomfortable with drawing the line that says you are eligible and you are not due to geography or the year you were born or whatever*’ [A2].

In summary, rural physiotherapy SLDM varied with sector size and rurality. Private physiotherapy practitioners have the most discretion in the services they provide. Public sector physiotherapy services are constrained by government policy and organisational imperatives. The smaller the service, the fewer levels of bureaucracy and less acute inpatient care, which allowed greater flexibility at the service delivery level. Ultimately however,

services cannot be provided if the service is unable to attract clinicians with the requisite skills. Recruitment to regional, rural and remote communities remains challenging and attracting physiotherapists to smaller rural communities or physiotherapists with specialised expertise required in regional services is critical to service sustainability and a key consideration in SLDM.

## **8.5 Limitations**

This study was undertaken in one region of Australia that had a mixture of regional, rural and remote centres. Results may not be applicable to other areas with a different mixture of centres such as more remote locations and less regional centres. Although this study asked physiotherapists to identify decision making stakeholders, not all stakeholders were involved as participants. This may have biased results, for example state health department decision makers were not involved in this study and yet their decisions will influence the physiotherapy service provision in rural and regional areas. This study only investigated decision making related to rural physiotherapy services provision decision making. The results may not be applicable to other health disciplines and there may be different factors and interactions in setting where there are other service delivery models.

## **8.6 Conclusion**

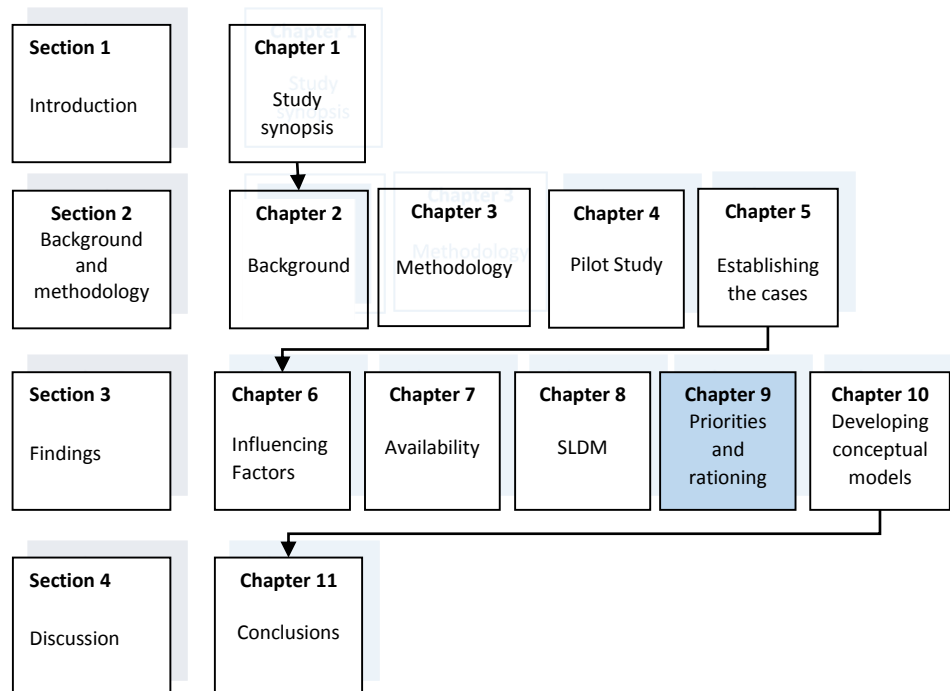
Multiple interrelated factors informed SLDM about rural physiotherapy service provision. System level influences from macro and meso level decision makers provide the framework within which micro level physiotherapy SLDM occurs. Service sector, size and rurality then further qualify local service options and influence SLDM. Understanding context and diversity is important to understanding local implementation of health system decisions and gaining insight into the variation in service provision between sites. The findings in this study are consistent with existing rural physiotherapy literature and reinforce the importance of physiotherapy workforce availability to service sustainability. This study adds to the rural physiotherapy literature by providing greater insight into decisions informing physiotherapy service provision. Exploring decision making about rural physiotherapy service provision within



a systems theory-case study heuristic enabled consideration of the impact of contextual factors such as service location, size and sector. Considering participant responses within this heuristic framework assisted in discerning commonalities and differences between sites and services.

Decisions made at macro and meso level directly influences decisions at a local service level. At times, decisions about service provision resulted in duplication or gaps in services to people in the communities of this study. This was evident when new services were funded with narrow service criteria which limited eligibility. Decisions about service provision need to take into consideration the current availability of services, the context of each location and the skill mix required. Devolved decision making may then optimise service delivery to meet local community needs whilst reflecting state and national policy and directives. An inclusive approach to devolved SLDM may produce better solutions for local service provision. Local decision making is further enhanced by having the right 'voices at the table'; knowledgeable about their role and 'connected to the community'.

## 9. Chapter 9: Priorities and rationing



Adapted with changes from Adams, R., Jones, A., Lefmann, S. & Sheppard L. (2014) 'Rationing is a reality in rural physiotherapy: A qualitative exploration of service level decision-making'. Submitted for publication April 2014

### 9.1 Introduction

The challenge of delivering health services equitably to Australia's rural population is exacerbated by health workforce maldistribution and fewer services in rural areas. Australia's 23 million people are spread across 7.6 million square kilometres, with 90% of Australians in 2011 living in urban areas (defined as cities or towns of more than 1,000 people) (Australian Bureau of Statistics [ABS], 2013). Over two-thirds (69%) of the population in 2011 lived in a capital city or other major city (ABS, 2013). Health workforce shortages and geographic maldistribution compound the challenge of delivering equitable health services beyond major cities. An estimated 80% of physiotherapists, for example, worked in major cities in 2012 (Australian Institute of Health and Welfare [AIHW], 2013, p. 52). Despite residents of rural and remote communities experiencing poorer health outcomes and exhibiting higher health needs (AIHW, 2008; Carey, Wakerman, Humphreys, Buykx, & Lindeman, 2013) many rural and remote communities do not have access to the range of health services that large urban

centres do (Humphreys, 2009; Wakerman et al., 2008). The challenge then becomes one of deciding what health services should be provided, where and to whom.

The impossibility of providing everything to everyone means making choices is inevitable. Where there is a demand-resource imbalance, decisions about resource allocation are required. Prioritisation, alternatively referred to as resource allocation or rationing (Martin & Singer, 2003; Sibbald, Singer, Upshur, & Martin, 2009; Arvidsson, Andre, Borgquist, Andersson, & Carlsson, 2010), occurs at all levels of the health care system where demand exceeds available resources (Martin & Singer, 2003; Arvidsson et al., 2010; Barasa, Molyneux, English, & Cleary, 2014). Rationing involves addressing questions such as: what treatments or health care services should be provided? How should these services be distributed amidst budgetary constraints? Who decides? How? Based on which criteria? (Putoto & Pegoraro, 2011, p. 63). Deciding what health services are provided is a key consideration in delivering appropriate and accessible health care for rural and remote populations (Humphreys, 2009).

Physiotherapists are autonomous health care professionals (Australian Physiotherapy Association [APA], 2011) and form an important part of the rural and remote health workforce (APA, 2011; Sheppard, 2001). Physiotherapists *play a key part in the acute care and rehabilitation of their clients and the promotion of health in their communities* (Higgs, Refshauge, & Ellis, 2001, pp.79-80). Provision of physiotherapy services in rural communities is not well described, however physiotherapy workforce shortages and geographic maldistribution infer fewer services compared to metropolitan settings. Rural physiotherapy literature describes workforce demographics and distribution, areas of work and workforce stressors (Sheppard, 2001; Williams, D'Amore, & McMeeken, 2007; Struber, 2003; Lindsay, Hanson, Taylor, & McBurney, 2008). Workforce stressors described in regional settings, including caseload quantity, increased activity, patient complexity and constant excessive workload (Lindsay et al., 2008) are reflective of service provision challenges. When combined with broader health system challenges such as increasing chronic disease, an ageing population and fiscal constraints, they also form the stimuli for prioritisation or rationing of physiotherapy service provision.

In contrast to clinical decision making (CDM), which is well described in the physiotherapy literature (Edwards, Jones, Carr, Braunack-Mayer, & Jensen, 2004; Edwards, Braunack-Mayer, & Jones, 2005; Edwards & Richardson, 2008; Finch, Geddes, & Larin, 2005; Grimmer-Somers,

2007; Smith, Higgs, & Ellis, 2007, 2008a; Smart & Doody, 2007), there is relatively little describing physiotherapy decision making at a service level. An emerging literature informing physiotherapy decision making about service provision includes prioritisation of patient populations (Brown & Pirotta, 2011; Miller-Mifflin & Bzdell, 2010), and physiotherapy and allied health caseload measurement and management (Christie, 1999; Simmons & Kuys, 2011; Schoo, Stagnitti, Mercer, & Dunbar, 2008; Scott & Cheng, 2010). This literature is indicative of the demand-resource imbalance that requires rural physiotherapists to make decisions about service prioritisation or rationing of services. How decisions are made about which physiotherapy services are provided in rural and regional Australia, is not evident in the rural physiotherapy literature. This chapter explores decision making about physiotherapy service provision in eleven rural and regional communities against a context of health care rationing. Definitions of rationing and common criteria are used to frame participant responses and guide discussion.

## **9.2 Rationing**

Putoto & Pegoraro (2011) provide an elegant coverage of issues of rationing in their chapter titled 'Resource Allocation in Health Care'. The following draws upon their work to provide a relatively brief overview of the complex issues involved in health care prioritisation or rationing.

Rationing, defined as 'the distribution of resources between programmes and persons in competition' (Putoto & Pegoraro, 2011, p. 63), takes place at all organisational levels. Three levels commonly referred to in health care are macro, meso and micro (Martin & Singer, 2003; Sibbald et al., 2009; Putoto & Pegoraro, 2011; Kapiriri, Norheim, & Martin, 2007, 2009) with decisions at higher macro levels often constraining lower level options (Table 9.1). In this study the term 'macro' is used to refer to health related factors that occur at a national or state level, 'meso' is used to refer to factors located at a regional or facility level and 'micro' those that occur at the physiotherapy clinical and service level.

Table 9.1 Organisational decision making levels

Macro	Meso	Micro
...the national or regional level, where the health care budget is decided	...local level (regional or hospital), where resources are allocated to different functions and local authorities make decisions about local priorities	...the care level, where health care professionals make decisions about who, how, when, where and how to care for patients
...includes decisions regarding increases or reductions in spending, or financing of particular programmes		
...represents the key constraint within which further divisions of funds between regions and local health providers.	...choices may involve the priorities attached to treatment services versus preventative medicine; particular patient groups, or certain hospital services.	...the question of professional prerogative can be limited by constraints from above.

Adapted from Putoto & Pegoraro, 2011, pp. 64–65

Rationing may be explicit, with decisions and their rationale made open and transparent, or implicit, where neither the decisions nor the reasons are clearly expressed (Kapuriri et al., 2009). Explicit and implicit rationing are well discussed in relation to macro level health service decisions (Putoto & Pegoraro, 2011) for example in the UK, New Zealand, Sweden and Oregon (Table 9.2) and in the medical literature (Mechanic, 1997). Mechanic (1997, p. 87) defined the terms as follows:

*Explicit rationing* refers to decisions made by an administrative authority as to the amounts and types of resources to be made available, eligible populations, and specific rules for allocation.

*Implicit rationing*, in contrast, refers to discretionary decisions made by managers, professionals, and other health personnel functioning within a fixed budgetary allowance.

While there has been a shift from implicit toward explicit rationing (Putoto & Pegoraro, 2011; Ham & Coulter, 2001) at a macro level, the presence of explicit rationing decisions does not fully resolve the dilemmas facing decision makers. The changes at a macro level have been

accompanied by the strategies at a meso and micro level, such as use of evidenced based guidelines (Ham & Coulter, 2001), which individual clinicians must interpret and apply in the clinical setting. It has been suggested that making choices in health care involves making judgements about the relative priority of different objectives and services (Ham & Coulter, 2001, p. 164). Such judgements, or ability to make considered decisions or come to sensible conclusions, requires a level of self-efficacy and competence in decision making (Smith, Higgs, & Ellis, 2008b, p. 94). The challenge of making decisions when faced with potential incompatibility between service objectives and the needs of a specific patient or client group is one faced by many clinicians at the micro level. For example, the potential incompatibility between efficiency and equity, means that conflict between objectives and trade-offs are a likely consequence. An understanding of individual and community preferences and values can inform these choices.

The discussion below on criteria, particularly distributive criteria, provides an added dimension to decision making about the allocation of resources. Clarifying values that guide decision making about health care rationing at a macro level can assist decision making about rationing or prioritisation of services at lower levels. However, there still remain challenges for the day to day application of rationing decisions at health service (meso) level and at the level of the clinician (micro level).

*The challenge is to improve both technical approaches and decision-making processes to enable the judgements that lie behind rationing to be as soundly based as possible*

(Ham & Coulter, 2001, p.167)

Table 9.2 Macro rationing strategies: International examples

Oregon	Netherlands	Sweden	New Zealand	Great Britain
Explicit list of funded treatments  (originally 565 of the 696 listed treatments)	Four Criteria -Necessity -Efficacy -Efficiency -Individual responsibility	Three Principles -Human dignity -Need and solidarity -Cost/efficiency	Confirmed essential services and developed guidelines for high cost and high volume services	Delegated priority setting to local authorities with national agencies undertaking treatment evaluation and service performance

after Putoto & Pegoraro, 2011, pp. 73–75

In Australia, a set of principles underpin the design of Australia’s future health system. The National Health and Hospitals Reform Commission [35] developed these in two functional categories (National Health and Hospitals Reform Commission [NHHRC], 2008). Firstly, service design principles (generally what citizens and potential patients want from the system; 1–8) and secondly, governance principles (generally how the health system should work; 9–15) (Table 9.3).

Table 9.3 National Health and Hospital Reform Commission design principles

Service design principles	Governance principles
<ol style="list-style-type: none"> <li>1. People and family centred</li> <li>2. Equity</li> <li>3. Shared responsibility</li> <li>4. Strengthening prevention and wellness</li> <li>5. Comprehensive</li> <li>6. Value for money</li> <li>7. Providing for future generations</li> <li>8. Recognise broader environmental influences which shape our health</li> </ol>	<ol style="list-style-type: none"> <li>9. Taking the long term view</li> <li>10. Safety and quality</li> <li>11. Transparency and accountability</li> <li>12. Public voice</li> <li>13. A respectful and ethical system</li> <li>14. Responsible spending on health, and</li> <li>15. A culture of reflective improvement and innovation</li> </ol>

### 9.3 Criteria

Criteria reflecting prevalent society values can assist to establish priorities or make choices at all organisational levels. Criteria are used to inform health policy and planning at macro and meso levels and are reflected in micro level decision making of clinical health professionals. Criteria have been classified as technical or distributive (Putoto & Pegoraro, 2011). Technical criteria refer to qualities that services must possess and have been suggested to be a prerequisite in any selection of priorities (Putoto & Pegoraro, 2011, p. 67). Whilst they can exclude interventions, they are not sufficient in themselves to establish how many, or which interventions to provide and to whom. Distributive criteria are a set of principles that establish an order of priority in the allocation of health care resources. They do not address the question of what must be guaranteed to individuals and society at large, but do help establish order of priorities in the choice between different patients or patient groups (Putoto & Pegoraro, 2011) (Figure 9.1).

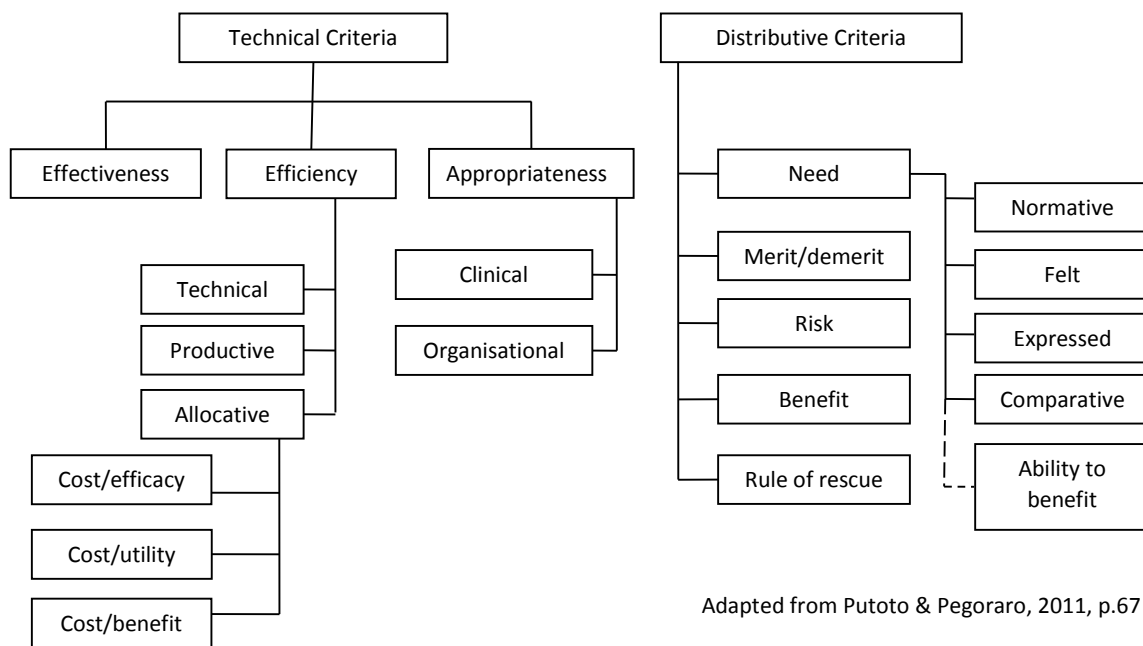


Figure 9.1 Technical and distributive criteria

Rationing, perhaps a more emotive term than priority setting, is often not a deliberate or conscious process (Putoto & Pegoraro, 2011, p. 66). Where rationing occurs at a micro level, it is often a means for professionals to cope with budgetary or other pressures and reflects the challenge for the day to day application of rationing decisions. Consideration of both technical and distributive criteria and a range of rationing methods, such as selection, denial, deflection and delay (Table 9.4) are strategies health professionals can adopt to aid their decision making.

Table 9.4 Methods of rationing

<i>Selection</i>	Using this method, recipients of care are selected on the basis of clinical benefit they will obtain, or the amount of time required to treat them.
<i>Denial</i>	This method involves the exclusion of certain patient populations because they are deemed unworthy, or because their needs are not seen as sufficiently important.
<i>Deflection</i>	This involves referring patients to other institutions. It is a form of rationing when a patient's needs can be met by other health or social services.
<i>Deterrence</i>	This involves deterring patients from accessing health care by the imposition of complex logistical/administrative requirements, such as inconvenient opening times, incomprehensible paperwork, and unhelpful staff. This type of rationing tends to disadvantage less educated and more vulnerable people.



<i>Delay</i>	This method includes the use of waiting lists. It is the most recognised form of implicit rationing in healthcare, and discourages patients from accessing health services.
<i>Dilution</i>	In this situation access to services is not denied, but the provision of services is reduced, such as the frequency of home visits
<i>Interruption</i>	This is the premature termination of a service or a treatment based on a maximum time limit for a given treatment, such as premature discharge from hospital or case closure.

after Putoto & Pegoraro, 2011, p. 66

This study's primary aim was to obtain participant perspectives on decision making about the provision of physiotherapy services in selected rural and regional communities. Considering their perspectives within a context of decision making criteria and health care rationing enabled placement of perspectives within the broader health system context.

## 9.4 Results

Survey responses from physiotherapists, colleagues, managers and consumers were analysed to identify key issues. Responses from physiotherapists revealed variable mechanisms and considerations about how decisions are made about which physiotherapy services are provided. Independent decision making by private physiotherapists (PP) contrasted with public sector physiotherapist (P) responses, which reflected the broader influence of both health service requirements and the community. Workload management, waiting lists and service prioritisation within the public sector contrasted to private physiotherapists' responses of expertise, clinician preference and affordability. Whilst no specific rationing strategy was framed in terms described by Putoto and Pegoraro (2011) (Table 9.4), waiting lists and service prioritisation were examples of delay and selection.

Colleague and manager survey responses revealed variable levels of knowledge of how decisions were made about which physiotherapy services are provided. Options included service decisions made by physiotherapist independently or after consultation with colleagues and managers; in response to directives and institutional or local demands. Considerations included staffing levels and expertise, workload demands and agreed core business.

Consumer responses were to the survey question about how the physiotherapy service could be improved. It was not assumed that consumers would be decision makers about service provision, but rather be drivers of service demand. Consumer responses included:

*Let there be more.* [CN 1]

*More physios-though very happy with my service.* [CN 2]

*Lymphoedema physios give help with Laser, massage, garments, advice etc. The physios in [this town] work very hard. Not enough of them!!* [CN 4]

*An increase in funds available.* [CN 5]

*More related services under one roof e.g. massage, scanning.* [CN 6]

In-depth interviews then enabled exploration of issues identified in the surveys. Decision making about service provision was considered within organisational levels and rationing strategies used. Responses revealed macro and meso level decision making influences and which then framed decision making at a service or micro level. Decisions impacting the provision of physiotherapy services in the rural and regional settings fell under two broad areas: health reforms or funding decisions. These two areas provide the organisational priorities on resource allocation that inform SLDM.

Meso level decisions identified by participants include those made at a regional or facility level. These decisions influenced the organisation and funding of services including service directives, priorities, funding and staffing levels. Examples of meso level decisions noted by participants include centralisation of services (from remote and rural areas to regional centres), budget and staff cuts, local implementation of national funded programs (e.g. sub-acute care), organisational priorities and performance indicators (length of stay, waiting list management, revenue targets).

Decisions at meso and macro levels then provide the framework for decisions about service provision at a micro level within clinical department or units. At this level, multiple methods of rationing or priority setting were evident in responses of physiotherapy participants.

Responses reflected a language of priorities (*you spread yourself pretty thin; you do prioritise, you have to [A4]*), rather than rationing, with no reference to specific methods of rationing. However many of the strategies or processes described by participants (Table 9.5) align with the rationing methods described by Putoto and Pegoraro (2011). Rationing decisions were

more apparent in public sector physiotherapy responses. Private physiotherapist responses revealed issues of capacity and self-direction.

Table 9.5 Methods of rationing used by physiotherapy participants

<p>Selection</p>	<p><i>Priority one is the ICU sort of work: your very early stage orthopaedic patients, your day one gut surgeries, day one strokes, that sort of stuff and then right down the bottom of the list is mobility aid assessments, mobility reviews. [ED is] an artificial priority ...it wouldn't come up as a first thing that we would do, but because of the funding, it's one that's going to be maintained regardless of what is happening anywhere else. [A3]</i></p> <p><i>I've only got a certain amount of time...it's an awful situation to have, but this is the one I have to spend more time with ...to know where am I going to get the best outcome ... you can't treat them equally and that's always been a frustration I think. [A9]</i></p> <p><i>Sub-acute [care program]: at the moment, their core area is fractures over 65, so they do ortho-geriatrics. [A3]</i></p> <p><i>Yes acuity and being in hospital and getting people out of hospital because anybody in health that is looking at dollars, looks at length of stay and it's the only thing that counts. [A1]</i></p>
<p>Denial</p>	<p><i>[When we had less than half our staff] we had set wards [as the priority] and we closed outpatients. [A9]</i></p> <p><i>[Staff cuts] severely curtailed our ability to provide outpatient services. We've had to basically can [cease] any outpatient rehabilitation service. [A1]</i></p> <p><i>When [the paediatric physio leaves], there will be a gap because I can't pick up [paediatric] neuro type or the disability, I can't do it. I can't do everything to that level. [A1]</i></p>
<p>Deflection</p>	<p><i>[Physio X's] job is to try and help flow them out to peripheral [hospitals], even if they're from here they might go out to [a peripheral rural hospital] where staff there can continue their exercises and help them not weight-bear and then once they're able to weight-bear, then they are appropriately brought back to rehab. [A3]</i></p> <p><i>That's right; so sometimes people need to be transferred to [Metropolitan centres] for anything more complicated. [A9]</i></p> <p><i>Well the in-patients, we have no influence who comes in as an in-patient. So our influence is then on who we send out to the community, who we send to rehab... [A6]</i></p> <p><i>Three out of four of our patients come from outside of [this regional city] so that's the other thing...what's available at the other end very much determines how easily we can move people on. [A3]</i></p>

	<p><i>Sometimes we are sending referrals out into the ether knowing that the town that that knee replacement patient is from, doesn't have a physio, and there's nothing that I can do except send that referral through, knowing there will be receipt at the other end and registered as a need, but I can't do anything else. [A3]</i></p> <p><i>Out-patient wise, we have quite a lot of private practices within the area and they're able to take all third parties and anyone with private insurance or if our waiting list is too long, we suggest other people go along and at least get initial treatment... [A6]</i></p> <p><i>We channel those [private or compensable patients] to private, but there's a lot of demand. [A3]</i></p> <p><i>They might come through [to the practice] and say "I've had a stroke" and I'll think I'll be more than happy to look at you...but I look at them, assess them and think, I really don't have the services here, or the rehab equipment here to do that for them, yeah I refer them off [to the public service]. [B5]</i></p>
<i>Deterrence</i>	<p><i>I think Case Managers put so much strain and stress on you, you're trying to get someone better and they're declining treatment and those sorts of things. ...you're getting someone back to work and then all of a sudden they stop the services and then the client goes backwards and returns to being off work... [B5]</i></p>
<i>Delay</i>	<p><i>Certainly there'd be waiting lists for Paeds...and general out-patients definitely. [A3]</i></p> <p><i>Okay so with our acute that's under 2 weeks...so they usually get them in within a couple of days; and certainly if anything comes across from ED ...that's on the spot stuff, and then we have 2 to 8 weeks – so your sub-acute and they probably take 2 weeks to get in ... and then greater than 8 weeks we usually go a month. [A9]</i></p> <p><i>I must provide the care for the acute inpatients and ED services – that is my core. I can do that and then there are the outpatients that can be sorted into waiting lists. [A7]</i></p>
<i>Dilution</i>	<p><i>Absolutely, [the post-acute service] are able to see people for six weeks post op or post hospital stay but they're limited to 25 kms from here. So if you live in [this regional city] you get a great deal, you get six weeks of home visits essentially but as soon as you're one metre out of that 25 kms, all you have is musculoskeletal outpatient [physiotherapy at ] your local facility. [A3]</i></p>
<i>Interruption</i>	<p><i>Out by day 5 or 6 ... [A9]</i></p> <p><i>[still send to a town that, at the moment doesn't have a physio] Of course we do, but I can't send them home with the same level of input as if they were local. There are lots of towns with no private practice ... or because there's no one at [the rural hospital] for three weeks. So you kind of just have to move them on anyway and the ability to bring them back, I can't do that, we're restricted. [A3]</i></p>

Examples of criteria used to inform service provision were evident in a number of participant responses, particularly technical criteria (Table 9.6). One participant (A5), who worked part

time and at times was the only physiotherapist, highlighted a number of ‘distributive criteria’ when discussing service priority decisions. This participant considered the evidence on effectiveness and expected outcome or benefit and made a judgement about the relative priorities of the competing demands on her time. In doing so, this participant demonstrated an understanding of individual and community needs. At times, contrary to the expected prioritisation of inpatients, this participant prioritised paediatric outpatients.

Table 9.6 Physiotherapy examples of applications of technical and distributive criteria

<b>Technical Criteria</b>	
Effectiveness	<p><i>We’ve very much put that on current practice and research... [D1]</i></p> <p><i>So we haven’t done any sort of study on that and I think that they’re hand in hand, we can only grow the service if we’ve got the evidence of best practice that we can then put to people who have money and purses and strings... but we will never be able to, it would take a real reshuffle of how we do our work as two part timers to actually see how we could incorporate that. [A2]</i></p>
Efficiency	<p><i>Look the biggest shift I think in Physiotherapy and Occupational Therapy is going to be in the ABF environment, and that’s going to be around the efficiencies and comparison between our services across our site, to look at the time of the intervention of Physiotherapy to particular diagnostic related groups based on the funding received. [D2]</i></p> <p><i>We’re always trying to work out where we’re getting our best bang for our buck and where the resources are best spent. [D1]</i></p>
Appropriateness	<p><i>I think it’s about the services the hospital offers and looking at our staffing, where we think we can make the most impact. So we’ve had a lot of say over where we provide the services. [D1]</i></p>
<b>Distributive Criteria</b>	
Need	<p><i>But whether that’s a values based thing too, rather than just choosing, it’s hard to call. [D1]</i></p> <p><i>So we look at the needs in our community and try and skill up with what we can do that makes it easier for them. [A9]</i></p>
Merit/Demerit	<p><i>Oh constant friction – self friction – so it’s a judgement call, it’s not a right or wrong and other people may prioritise differently. I think it’s so simplistic to say that they’re acute patients...that they are inpatients so they deserve to be treated...So anyone that I don’t need to see I try not to... I certainly see people who are deteriorating. [A5]</i></p>
Risk	<p><i>“Do they really need to see me?” “Yes I can see them as an out-patient”, and there is some pressure from them [ward nurses] but I can go back to the doctor and say this is why I haven’t see your patient; I do see its importance, but I’ve had to prioritise and I don’t get much problem with that, but the nursing staff I will get more just “Oh we never see the physio”. [A5]</i></p>

Benefit	<i>But someone with just a chest infection to me, I'm going to have a limited evidence based effect on this person whereas someone with a serial cast after botox... that's where I need to prioritise. [A5]</i>
Rule of rescue	<i>Priority one is the ICU sort of work. [A3]</i>  <i>And certainly if anything comes across from ED ...that's on the spot stuff. [A9]</i>

## 9.5 Discussion

Rationing or prioritising physiotherapy service provision was common to all sites of this study, particularly the public hospital based services. The imbalance between increasing consumer need and organisational demands on one hand, and constrained physiotherapy service capacity on the other, meant making choices was inevitable. The necessity of making such choices, while not 'liked' appeared to be seen as a necessary part of public sector physiotherapy service provision. Making choices about physiotherapy service provision involved making judgements about the relative priority of the different demands placed upon the physiotherapy service. Resignation, frustration and recognition of inequity, evident in physiotherapy responses, were accompanied at times by pragmatic acceptance, dismay or underlying anger. Two key issues combine to produce this increasing impost on micro level clinicians to make rationing decisions. The first is the relative invisibility of the range and scope of physiotherapy services to macro and meso level decision makers. The second is the devolvement of decision making to the micro level by regional and facility levels. The constrained capacity to respond to increasing organisational activity, patient complexity and acuity echo the workforce stressors described in regional settings (Lindsay et al., 2008).

Rationing physiotherapy services was more evident in the public sector. Private sector physiotherapist reported greater decision making autonomy over their scope of practice, which was guided by their business model and aligned to their areas of expertise. The need to ration or prioritise public sector physiotherapy services appeared to stem from a number of reasons. The SLDM conceptual map presented in the previous chapter indicates key factors that drive decisions about service provision, including decisions about what services to provide when demands exceed available resources. Increased organisational activity, targeted funding and service priorities combine with shortages in both available physiotherapy workforce and funded positions to necessitate rationing of services (Figure 9.2).

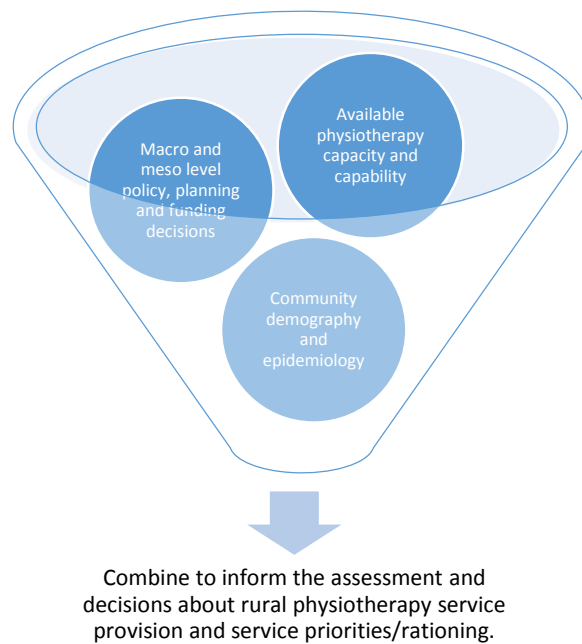


Figure 9.2 Factors informing physiotherapy service priorities

Workforce shortages in rural areas, including a shortage of physiotherapists are well described (AIHW, 2012; Williams et al., 2007; Lindsay et al., 2008; National Rural Health Association [NRHA], 2004; Higgs et al., 2001), however the shortage of positions, although mentioned (NRHA, 2004; Fitzgerald, Hornsby, & Hudson, 2001), is less evident in the peer reviewed literature. The reductions in the number of funded positions described by participants in this study further exacerbated challenges in service provision capacity. Subsequent implications of rationing physiotherapy services in rural areas are numerous. Time restrictions resulting from decreasing length of stay and early discharge can then compromise optimal service delivery and safe, effective discharge. Also important in rural and regional communities is the reduced access to physiotherapy services such as outpatient rehabilitation for both neurological conditions and orthopaedic procedures. Despite targeted funding for sub-acute care, variable access to sub-acute rehabilitation services was reported in many communities. Limited access to specialist paediatric physiotherapy for children with complex neurological or developmental conditions was also common across sites of this study. Decision makers should be cautious about assuming private physiotherapy providers will cover service gaps that may emerge from changes to public sector service provision. Similarly, it cannot be assumed that rural and regional private physiotherapy services will have the capacity and expertise to be key service providers under new schemes such as the National Disability Insurance Scheme (Productivity Commission, 2011). Rural private physiotherapy practices have very real capacity limits;

including the range of expertise, space and affordability. These combine with clinician preference and financial viability to negate such assumptions.

Conflict with professional and personal values was one implication of service rationing on individual physiotherapists charged with the dual dilemma of service provision within public sector budget constraints. Rural physiotherapy service provision required physiotherapists to make judgements about the relative priority of the competing demands on their service. Numerous examples of SLDM by physiotherapists were made in response to factors stemming from system levels beyond their sphere of influence. Macro level decisions, such as the introduction of ABF, national performance targets and funding new programs, shifted organisational priorities. While responsiveness to the new priorities was expected, there was variable higher level direction about what services could be reduced or not be provided at all when demand exceeded available resources. Examples described above included the new service priorities such as introduction of new services (ED physiotherapy and subacute care). Similarly, decisions made at the regional or facility level, such as the reduction in funded positions or the delays in recruitment approvals at a regional level, required physiotherapists to review what services could be maintained and which aspect of service provision would not be able to continue. These higher level decisions, often made without explicit directives or reference to possible service reductions, effectively devolve the decision of rationing service provision to physiotherapists at a micro level. The consequences were expressed in terms of patients (reduced access to service and inability to provide follow up treatment) and the physiotherapists themselves (frustration and friction).

*I've only got a certain amount of time...it's an awful situation to have, but this is the one I have to spend more time with ...to know where am I going to get the best outcome ... you can't treat them equally and that's always been a frustration I think.*  
[A9]

*Oh constant friction – self friction – so it's a judgement call, it's not a right or wrong and other people may prioritise differently.* [A5]

Limited communication and consultation about decisions by higher level decision makers to reduce service capacity or indeed add new services without additional physiotherapy resources compounded the conflict between service and professional and personal values. Perceived lack of autonomy is a key influencing factor in the retention of rural health



professionals (Campbell, McAllister, & Eley, 2012). Findings in this study of escalating workloads and a sense of being overwhelmed are consistent with key issues influencing retention of rural health professionals (Campbell et al., 2012). Such negative work factors more significantly influence retention where there is no personal connection to the community (Miles et al., 2010). The decision to stay then depends on factors such as personal resilience, connectedness to the local community (Campbell et al., 2012; Miles, Adams, Anaf, & Sheppard, 2010) and organisational support (Roots & Li, 2013). Understanding the environment of rural practice prior to arrival in a rural community has been identified to influence retention. It is important that current and future rural physiotherapists are appropriately informed and prepared to prioritise service provision and make rationing decisions to meet service requirements within organisational constraints.

What do these findings mean for physiotherapists working in regional, rural and remote areas? The knowledge that some level of rationing was common across the cases and sites of this study may be a useful consideration when physiotherapists are required to ration services locally. The findings suggest that the rationing or prioritising of services forms part of rural physiotherapy practice. It is important therefore to provide education and strategies to assist physiotherapist working in regional, rural or remote practice to respond to situations where demand for services exceeds the available resources. There is an extensive literature on service planning and evaluation that provides comprehensive coverage to address issues relating to service prioritisation or rationing. The background information and findings of this study may provide some assistance in this area by posing the following recommendations for initial consideration.

Firstly, assess the current service demands in terms of key drivers. Consider, for instance, macro and meso level planning and policy, community demography and available physiotherapy services within the local community. Frame questions in terms of technical and distributive criteria described above (Figure 9.1) by considering:

- The effectiveness and appropriateness of current service provision and the efficiency of the current service. For example, what are the organisational priorities that must be met? Has the effectiveness of services and interventions been maximised? Are there additional efficiency strategies that could be implemented?

- The local community need and the relative ability to benefit. What are the expectations of the local community? Are these expectations consistent with the organisations service priorities?

Secondly, assess the available physiotherapy capacity and capability of the service by considering workforce issues such as

- the number of funded positions,
- the level of experience and skill mix
- the alignment of capability to service requirements
- vacancy rates, intention to stay and the odds of successful recruitment.

Finally, assess the match of service demands to available resources. Where demands exceed available resources and service effectiveness, efficiency and appropriateness have been optimised, then consider which of the rationing strategies to implement (Table 4).

- It may be possible to maintain the service scope, but manage the demand by using the rationing strategies of delay (waiting lists), dilution (decrease the frequency of treatment) or interruption (imposition of time limits).
- Where it is not possible to maintain the current service scope or respond to new service requests, consider firstly referral of clients to other services (deflection), then use the criteria described above to identify the recipients of care (selection) and clarify what will not be provided (denial). The adoption of deterrence strategies such as the imposition of complex administrative requirements is a less explicit approach (Figure 9.3).

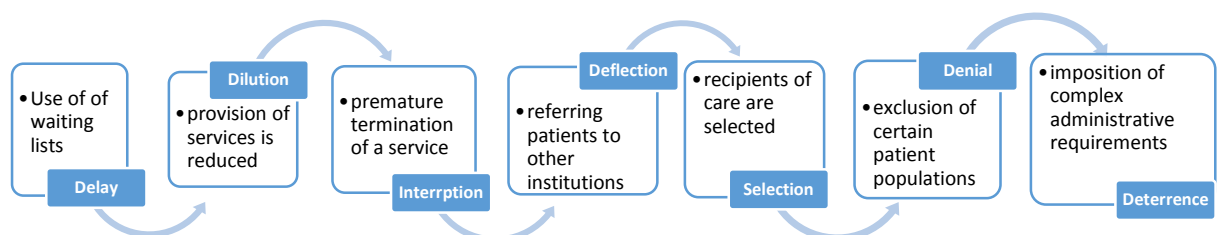


Figure 9.3 A possible sequencing of rationing methods (adapted from Putoto & Pegoraro, 2011, p. 66)

## 9.6 Limitations

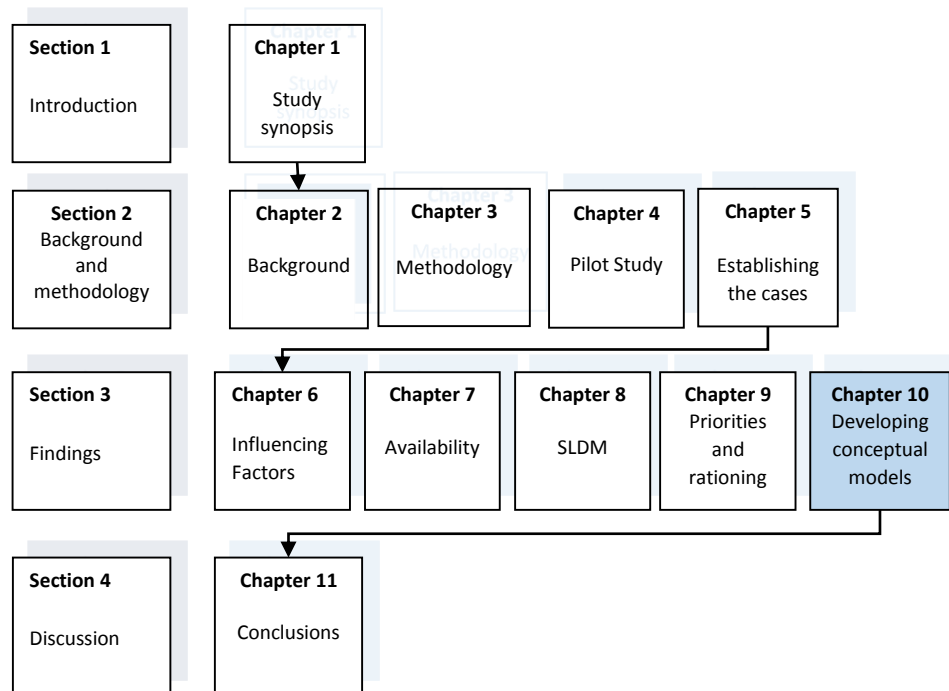
This study was undertaken in only one region within Australia, which had a mixture of regional, rural and remote centres. Results may not be applicable to other areas with a different mixture of centres such as more remote locations and less regional centres. Although this study asked physiotherapists to identify decision making stakeholders, not all stakeholders were involved as participants. This may have biased results, as for example state health department decision makers were not involved in this study and yet their decisions will influence the physiotherapy service provision in rural and regional areas. Also, the small number of consumer participants did not produce a detailed perspective from this key stakeholder group. Future studies could consider conducting local consumer focus groups. This study only investigated decision making about physiotherapy services provision. The results may not be applicable to other health disciplines and there may be different factors and interactions in settings where there are interdisciplinary service delivery models. This can be seen by the differences seen in comparing public and private physiotherapy services decision making.

## 9.7 Conclusion

Deciding what health services are provided is a key consideration in delivering appropriate and accessible health care for rural populations. Participant perspectives revealed the impact of macro and meso level decisions on the capacity to provide physiotherapy services in the rural communities of this study. Increasing constraints meant that rationing of physiotherapy services, particularly within the public sector, was commonplace. The effective devolvement of rationing decisions to the service level contributed to the stresses described by many participants working in public sector services. This study has revealed some consequences of service rationing that are relatively invisible at a system level yet so pertinent to individuals and communities. Decreased access to physiotherapy services was evident for example, for adults and children requiring neurological rehabilitation and for people requiring ongoing physiotherapy post-acute care. Responses of private physiotherapy providers indicate they are not positioned to address such service gaps, particularly when compounded by issues of affordability. Organisational and funding changes generated in recent state and national reforms have had significant, if unintended, consequences on the resources and capacity of physiotherapists in this study to deliver services in rural communities. This study provides

insight into rural physiotherapy service provision not usually evident and can be used to inform health service planning and decision making and education of current and future rural physiotherapists

## 10. Chapter 10: Developing conceptual models



Adapted with changes from Adams, Jones, Lefmann and Sheppard (2014) 'Service level decision making in rural physiotherapy: development of conceptual models'  
*Submitted for publication in April 2014.*

### 10.1 Introduction

Decision making about which services will or won't be provided is a relatively unexplored area in physiotherapy. Understanding how decisions are made and the factors influencing decisions about provision of services, such as physiotherapy, is increasingly important in an environment of increasing demand and constrained resources (Humphreys, 2009; Wilson et al., 2009). Physiotherapists respond to the challenge of delivering services in an increasingly complex health care environment (Carpenter, 2010). Changes in funding and policy and frequent organisational change are common at all levels of the health system (macro, meso and micro levels). In this study, 'macro' refers to factors or decisions at a national or state level, 'meso' refers to factors or decisions at a regional or facility level and 'micro' those occurring at the physiotherapy service or clinical level. Decisions about service provision occur at each level and within the context of organisations, location and settings. Recognition of these contextual

influences is particularly important in rural areas where significant variation and diversity of both the community and available health services exist (Humphreys, 2009).

The impact of providing health services within such complex environments is revealed to some extent in the physiotherapy literature (Blau et al., 2002; Carpenter, 2010; Lopopolo, 2002). Frontline practitioners are rarely involved in strategic level decision making that shapes their day to day practice (Carpenter, 2010), limiting their ability to influence the work environment (Blau et al., 2002). Involvement of physiotherapist in decision making at a service level, about what services to provide and to whom, is revealed in studies on physiotherapy caseload management and prioritisation (Brown & Pirotta, 2011; Miller-Mifflin & Bzdell, 2010; Simmons & Kuys, 2011). The importance of organisational and contextual influences highlighted in these studies also emerges in the physiotherapy clinical decision making (CDM) literature (Carpenter, 2010; Holdar, Wallin, & Heiwe, 2013). Culture and organisational factors such as decreasing length of stay, have been noted to influence CDM (Holdar et al., 2013). The interaction of contextual factors in CDM in acute respiratory wards/service was identified by Smith, Higgs and Ellis (2007). CDM was perceived to be constrained by contextual factors and was influenced by the individual characteristics of the physiotherapist, his/her knowledge and patient perceptions (Holdar et al., 2013). Similarly, physiotherapy service level decision making (SLDM) is influenced by the experience, views and values of both the physiotherapist and decision-makers and broader organizational factors (Adams, Jones, Lefmann, & Sheppard, 2014b) (Figure 10.1).

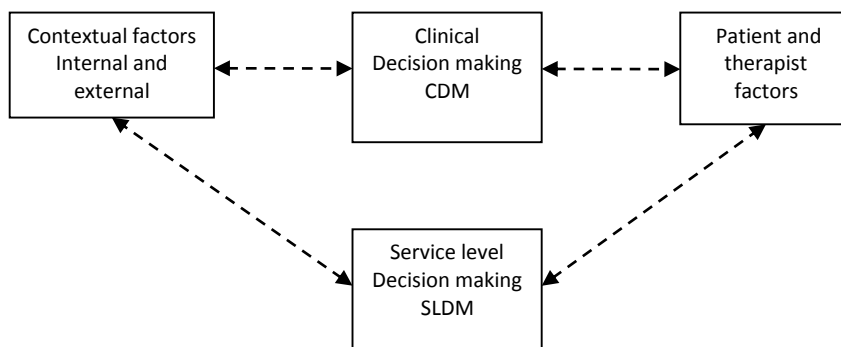


Figure 10.1 Factors influencing physiotherapy CDM and SLDM

Obtaining insight into how a specific service, such as physiotherapy, is influenced by both the broader health system and the local context in which it is delivered is important. The stimulus question prompting this research was *how does a physiotherapist in a rural town decide which services to provide?* Assumptions made at the outset were that decisions about physiotherapy service provision would be influenced by multiple stakeholders placed within all levels of the health system. This article, the final in a series exploring rural physiotherapy SLDM, draws upon the findings to propose 'conceptual' models of rural physiotherapy SLDM.

## 10.2 Methods

Exploring rural physiotherapy SLDM required an approach that could provide insight into local service delivery and contextual variability. Combining systems theory and case study methodology enabled a focus on the issue of interest and to consider that issue a system. This permitted exploration and description of a set of interrelated elements that form the system. The issue of interest in this study was how decisions are made about physiotherapy service provision in rural and regional health services. The system is the physiotherapy service level decision making system.

A preliminary quantitative component preceded and guided the prioritised qualitative data collection by informing purposive sampling and establishing preliminary results for further exploration (Clark, 2000). Stratified purposive sampling supported exploration of subgroups of interest (Patton, 2002) including physiotherapists, their colleagues, consumers, managers and other key decision makers. Participant perspectives of rurality (PPR) and the number of co-located physiotherapy colleagues formed a matrix to establish the case types (Adams, Jones, Lefmann, & Sheppard, 2014d).

Data collection commenced with surveys of public sector physiotherapists in the investigation site, a large rural area of one Australian state. Detailed elsewhere (Adams, Sheppard, Jones, & Lefmann, 2014e), the survey results assisted in identifying the case types and physiotherapists willing to participate in the second stage of the study. The second stage consisted of stakeholder specific surveys distributed by case site physiotherapists to stakeholders at their site, including managers, consumers and colleagues. Where present, private physiotherapists were identified from listings in the yellow pages phone book of each case site. In the final stage of data collection the principal researcher conducted face to face semi-structured

interviews with a purposive sample of participants knowledgeable about rural physiotherapy SLDM. The interview questions reflected both the questions and responses of the survey as the researchers sought to obtain greater insight into the issues raised.

Participant confidentiality was maintained by coding both participants and sites. Survey data was recorded in an excel spreadsheet with manual coding of data and thematic analysis. Interviews were recorded and transcribed verbatim with transcripts provided to participants for review and amendment. Thematic analysis was undertaken manually and electronically (NVivo V10) by the principal investigator with one third of the interviews also coded by a second researcher. Ethics approval was obtained from James Cook University (H3799) and the health services of the study.

The place of the researcher is particularly relevant to discuss within the prioritised qualitative component of this study. The principal researcher, a physiotherapist with many years of rural physiotherapy experience, can be considered an *insider researcher* (Morse, 2010). The value added by being an insider researcher included knowledge of the profession, rural physiotherapy practice and the language of the profession. Additional advantages included credibility and rapid rapport building with participants. The disadvantages are consistent with those expressed by Morse (2010), namely, the inability to provide a naive perspective and the risk of making assumptions or taking some practices for granted. Opposing or conflicting views may emerge from different stakeholders or between perspectives of participants and the researcher. This is consistent with the plurality accepted within qualitative research (Mantzoukas, 2004, p. 1000), and where they emerge, multiple views are reported. The research findings and conceptual models, influenced as they are by the views and experience of the researcher, are presented in anticipation that they may resonate with experiences of the reader.

### **10.3 Results**

Sixteen surveys were received from public sector physiotherapists (29.6% response rate) from eleven of the twenty five (44%) hospital locations. Six case types emerged from the matrix combining physiotherapy PPR and number of co-located physiotherapy colleagues (expressed as fulltime equivalents or FTE) (Table 10.1). A further 23 surveys were received from case site stakeholders: five private physiotherapy practitioners, thirteen colleague/manager surveys



and five consumer surveys resulting in a total of 39 surveys. Purposive samples of participants, knowledgeable about rural physiotherapy SLDM, were then interviewed by the principal researcher. Nineteen interviews were conducted including nine public sector physiotherapists, five private physiotherapists, four decision makers and one colleague (Table 10.1).

Table 10.1 Case types, surveys and interviews

Physio FTE		≤1	2–3	4–10	>10
<b>Remote</b>	Surveys				
	Interviews				
<b>Rural-Remote</b>	Surveys			4P, 4CL	
	Interviews			1DM, 1P, 1PP, 1CL	
<b>Rural</b>	Surveys	4P, 3CL, 1CN	2P, 1PP, 2CL, 2CN	1P, 1PP, 1CL	
	Interviews	2P, 1DM	1P, 1PP	1DM, 1P, 1PP	
<b>Regional</b>	Surveys			4P, 2PP, 1CN	1P, 1PP, 3 CL, 1CN
	Interviews			2P, 1PP	1DM, 2P, 1PP

*CL: colleague; CN: consumer; DM: decision maker; P: public physiotherapist; PP: private physiotherapist;*

In addition to informing the development of case types, survey responses provided an initial picture of physiotherapy service provision. Information included years of experience in rural physiotherapy (range 1 week to 39.5 years, average 18.7), physiotherapy services provided and factors influencing physiotherapy service provision and SLDM (Adams et al., 2014b). Consumer surveys focussed on available services and factors influencing physiotherapy service provision. While few in number, the responses highlighted issues of access to physiotherapy services. Factors noted included funding, staffing and equipment limitations. Issues raised included timeliness and access to services including increased waiting times, a lack of specific services on site for example lymphoedema (Table 10.2).

Table 10.2 Consumer perspectives

Role of physiotherapy	<p><i>Help you strengthen muscles, fix aches and pains-rehab you. [CN2]</i></p> <p><i>They are a necessary part of rehab after surgery. They also oversee exercise classes. [CN1]</i></p> <p><i>Lymphoedema physios give help with Laser, massage, garments, advice etc. [CN4]</i></p> <p><i>Promote safe mobility. Encourage mobility of limbs. Assist with encouraging patients to bring up sputum. [CN5]</i></p> <p><i>Rehabilitation of injured patients. Preventative treatment of perceived complaints. Post-operative treatment. [CN6]</i></p>
Factors influencing service provision	<p><i>Staffing/ funding. [CN2]</i></p> <p><i>Necessary follow up for rural doctors. [CN1]</i></p> <p><i>Not enough physios. In the summer months, anyone who has lymphoedema struggle. Heat is the enemy. [My town] is very hot!! Help is needed at this time of the year (constant help). [CN4]</i></p> <p><i>Money and funding. People trained as physios who want to work in area. [CN5]</i></p> <p><i>Availability of equipment; lack of related services on site. [CN6]</i></p>
Impact on service provision	<p><i>Waiting times when physios are away. [CN2]</i></p> <p><i>Not able to receive lymphoedema treatment in [my town].[CN4]</i></p> <p><i>Funding availability. [CN5]</i></p> <p><i>Restrictions may affect outcomes. [CN6]</i></p>

The emerging picture of rural physiotherapy service provision and SLDM is discussed in three sections. The first describes the complexity of factors influencing rural physiotherapy service provision. The second section seeks to highlight the value of adopting a systems approach in exploring rural physiotherapy SLDM. The final section describes commonalities that link physiotherapy SLDM to physiotherapy CDM and place both within the broader health care context.

### **10.3.1 The complexity of factors influencing rural physiotherapy service provision**

Existing rural physiotherapy literature has focussed on isolated areas of the multifactorial issues that emerged in this study, for example workforce availability or caseload management. Such studies, while yielding important insights, do not reveal the inherent complexity of health systems and service delivery. The adoption of a systems approach enabled the researcher to explore perspectives and issues at various levels of the health system. This exploration revealed the interplay of the multiple factors and processes at both the local and broader systems level. The interplay of elements (issues, factors and processes), both internal and external, is characteristic of open systems, which are *usually complex and often messy* (Daellenbach & McNickle, 2005, p. 172).

Factors influencing service provision were described in Chapter 6 along with a visual representation of two key areas: capacity and capability and their interaction with contextual influences (Figure 10.2). One key factor, availability, was then explored in more detail in Chapter 7 and its importance as one of four key components influencing access to physiotherapy services was highlighted (Figure 10.3). The four components of access described by McGrail and Humphreys (2009b) contribute a further dimension to the development of an overarching model of factors affecting service provision. In Chapter 8, a conceptual map was provided as a summary of rural physiotherapy SLMD (Figure 10.4)

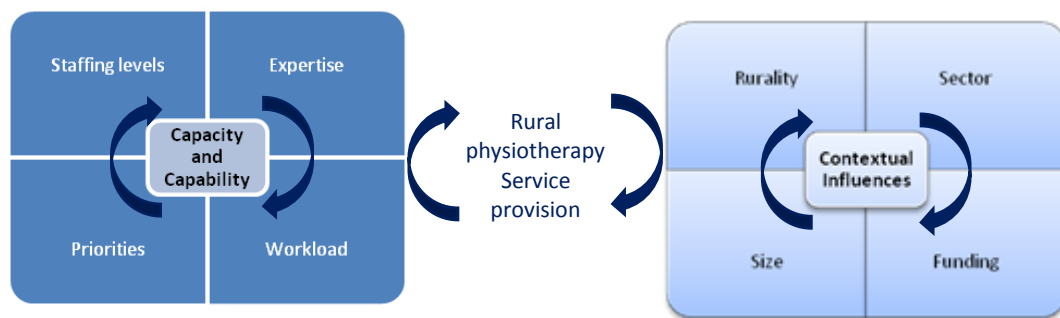


Figure 10.2 Factors influencing service provision

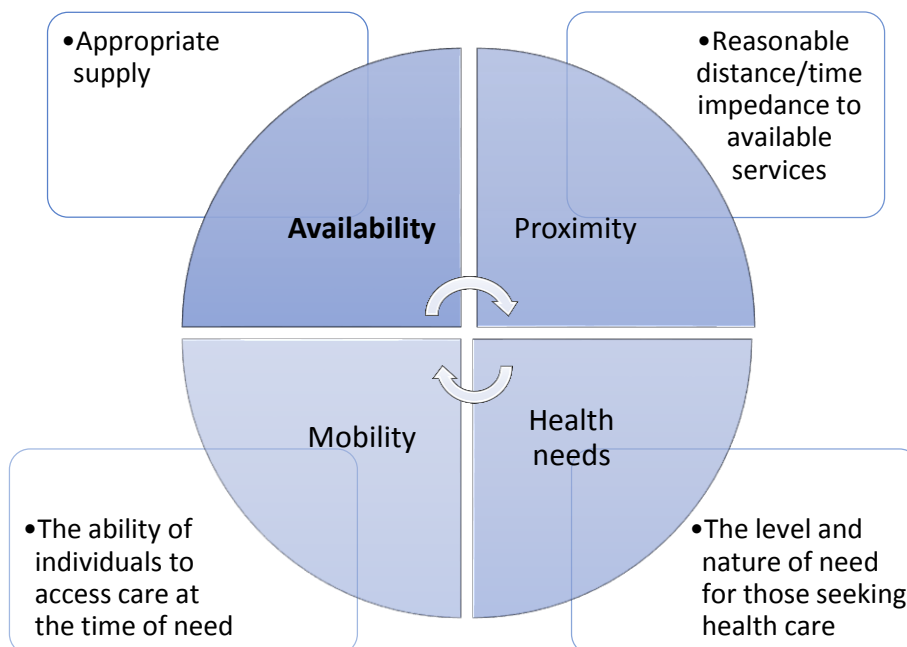


Figure 10.3 Availability – one component of access

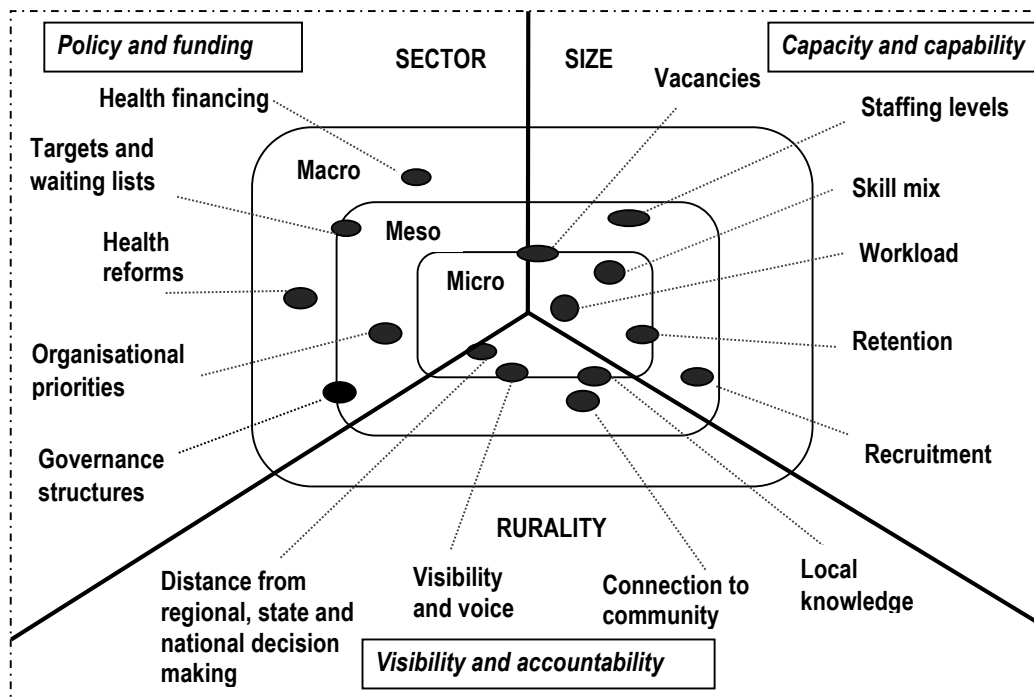


Figure 10.4 Conceptual map of rural physiotherapy service level decision making

The results in this study reveal complex interactions between overarching elements such as: workforce capacity and capability, contextual influences, layered decision making and issues impacting access. Each overarching element is composed of multiple individual elements or issues articulated by the participants of this study (Table 10.3). Adopting a case study approach then enabled the exploration of a single issue of interest, SLDM, across a range of cases to discern commonalities or differences.

Table 10.3 Factors influencing rural physiotherapy service provision and SLDM

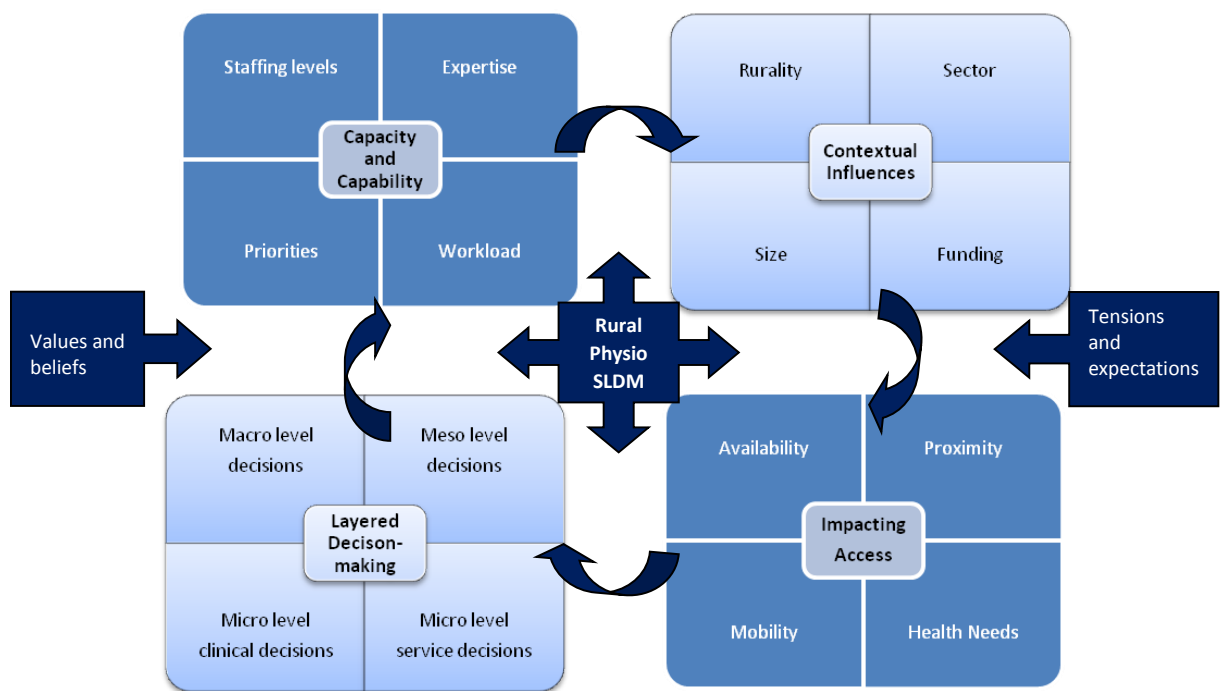
Overarching elements	Stakeholder perspectives
<b>Capacity and Capability</b> <i>[Including staffing levels, expertise, workload and priorities]</i>	<b>Regional 4 – 10:</b> <i>Rural [recruitment] is hard... limited applicant pool...even city struggling. Specialist... is harder...Then, if part-time, even harder. Need to be coming for another reason...work does not drive people to come rural.</i>  <b>Rural 2 – 3:</b> <i>The first is my ability, so the service that I provide is based on what I'm capable of doing.</i>
<b>Contextual influences</b>	<b>Rural 1:</b> <i>At present I am the only physio for 30,000 sq km as there are two vacancies in towns north of here. About 30–40 % of patients live more than 100 kms away.</i>

<p><i>[Including rurality, size, sector (public private or NGO) and funding]</i></p>	<p><b>Rural-Remote 4 – 10:</b> <i>Given the scale and the fact that the health service does operate a pretty comprehensive service... there's not a lot room left in the market. If we were to reduce our services, yes it'd expand the market for private providers, but whether or not we'd get any private providers or have a community that could afford to access the private providers</i></p>
<p><b>Layered decision making</b></p> <p><i>[Macro, meso and micro (service and clinical) levels]</i></p>	<p><b>Rural-Remote 4 – 10:</b> <i>I'll start with the state reforms... there's two very clear pieces of reform that came through... when the districts were established... then ... probably the biggest change... the boards came back.</i></p> <p><b>Rural-Remote 4 – 10:</b> <i>Look it's this constant change of administration – the changes to the health system itself and the change of government.... they change things all around...</i></p> <p><b>Regional 4 – 10:</b><i>And quite frankly a bean counter in Canberra can absolutely draw a line there but, but me as someone who lives and works in the community, I'm much more uncomfortable with drawing the line that says you are eligible and you are not due to geography or the year you were born or whatever ...</i></p>
<p><b>Impacting access</b></p> <p><i>[Availability, proximity, mobility and health needs (McGrail &amp; Humphreys, 2009)]</i></p>	<p><b>Rural-Remote 4 – 10</b> <i>In terms of delivering a service, the capacity to access high level services is limited. If you wanted to engage a specialist or physiotherapist who specialized in say, cystic fibrosis or something like that, minimum travel is 500 kms. And so the capacity to access the higher level service I think is one of the things that defines this as remote.</i></p> <p><b>Rural≤1:</b> <i>...what I notice in communities is the more services that are in a smaller community, the richer that community actually is...there is a certain wealth to the community—a diversity within the community.</i></p>
<p><b>Value and beliefs</b></p> <p><i>[Whose values and beliefs; alignment of values, being valued ]</i></p>	<p><b>Rural-Remote 4 – 10:</b> <i>So the question then around whose values, I think is more about whether values align or not. And I think when there's competition between the values, you get that sort of misalignment of the values or beliefs.</i></p>
<p><b>Tensions and conflict</b></p> <p><i>[Between personal-professional values; community need and organisation priorities]</i></p>	<p><b>Rural 2 – 3:</b> <i>Oh constant friction – self friction – so it's a judgement call, it's not a right or wrong and other people may prioritise differently. I think it's so simplistic to say that they're acute patients.</i></p>

The interplay of overarching elements is represented in a conceptual model of factors influencing rural physiotherapy service provision (Figure 10.5). The four key areas (capacity and capability, contextual influences, access, and layered decision making) contain multiple sub elements or issues. Each of these can be influenced by the values or beliefs of decision

makers with varying expectations and tensions emerging to form a further part of this multifactorial challenge of rural physiotherapy SLDM. Incorporating the potential for differences in perspectives or values in the conceptual model is important as it allows for divergent or conflicting views.

This conceptual representation provides insight into the complexity of rural physiotherapy service provision and reveals the potential for variation in local services. The variation and diversity that are features of rural communities and health services (Humphreys, 2009; Sheppard, 2001) requires the consideration of local context, external influences, the availability of other services, and issues of access to specific services required by people in the local community. Viewing service provision through a single lens, such as workforce availability, risks generation of only partial solutions to the challenge of delivering sustainable rural health services.



*Access quadrant adapted from McGrail and Humphreys 2009*

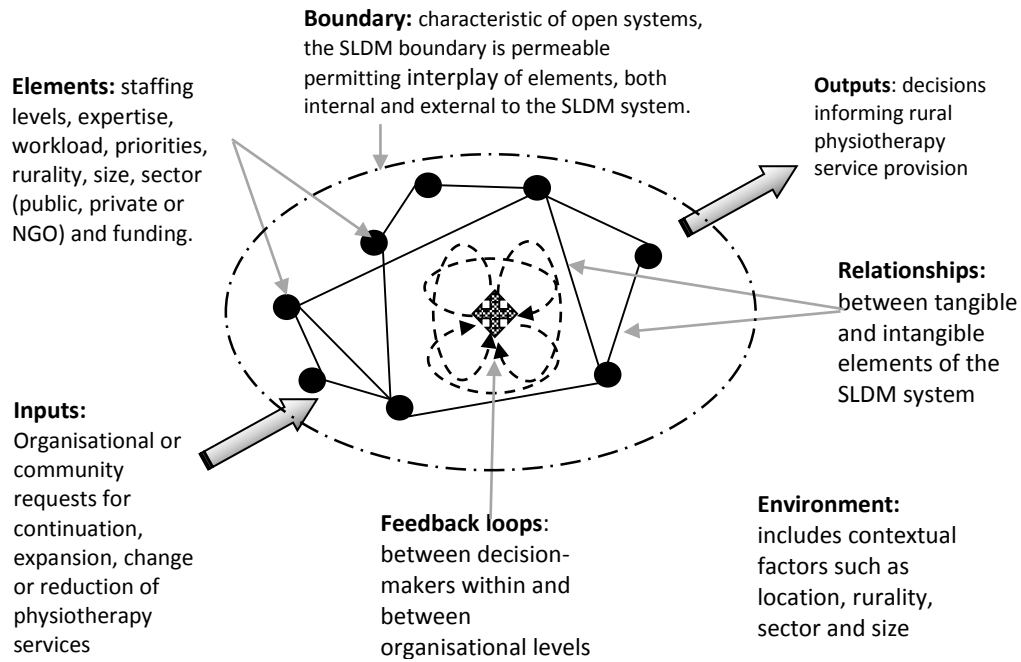
Figure 10.5 Factors influencing rural physiotherapy service provision: a complex interaction of multiple elements

### ***10.3.2 The value of a systems approach in exploring decision making about rural physiotherapy service provision***

Soft system approaches were developed to deal with complex problem situations, often ill-defined, and where different stakeholders may hold different perceptions about the situation (Daellenbach & McNickle, 2005, p.172). This is particularly relevant to the provision of health care which occurs within complex organisations comprising multiple systems. Framing SLDM as a 'system' enabled the researchers to: identify an issue of interest as a system; describe the system in terms of elements and interactions both internal and external to the system; gain insight into the context of the issue of interest; and to capture different stakeholder perspectives.

Perceiving a specific issue as a system within a broader organisation can generate new representations of the issue of interest and variety in the way the issue is thought about (Lane, 1999). In this study the system is the rural physiotherapy SLDM system, which can be linked to other health care structures, processes and systems. The rural physiotherapy SLDM system included both tangible and intangible elements within a broader organisation that, when viewed together, connect to form a system. For example, tangible elements include the number of physiotherapists or distance to nearest physiotherapy service and intangible elements include physiotherapy expertise or perceptions of the value of physiotherapy services.

The physiotherapy SLDM system can be represented diagrammatically, with inputs, outputs, permeable boundaries and relationship between system elements including feedback loops. The detail within each of the system components are informed by the perspectives of participants and then summarised by the researcher into an abstract conceptual model (Figure 10.3). For example, when considering this SLDM system, inputs may include requests for new services or directives to reduce staff; elements are factors described by participants that influenced SLDM and outputs are the decisions about which physiotherapy services will be provided (Table 10.4). This representation further highlights the complexity of health service provision and may form a useful construct for service planning.



Adapted from Anaf, 2008

Figure 10.6 The rural physiotherapy SLDM system

Table 10.4 SLDM system components

System components	Stakeholder perspectives
Inputs	<p>2008-9-10 was a period of considerable external review for this whole area. A consistent figure of around 25% of allied health positions [were cut] by some mechanism or another. [A1]</p> <p>In terms of demand, sometimes services are just created, sometimes decisions are made here without consultation on where the allied health services will be provided. [A3]</p> <p>We've actually, over years, centralised people to rural locations and then we will outreach to a remote location should they need to. [D2]</p>
Elements	<p>Yes, I think waiting lists, especially for orthopaedics, waiting lists will drive decisions. [A3]</p> <p>I think staffing is the biggest issue here. [B5]</p> <p>We could have a lovely 'see everyone' sort of service but we don't have the staffing, and we also don't have the expertise to do it. We're very wary of opening up services that we can't sustain. [A3]</p> <p>I think that's part of it, but I also just think it's about being sucked into acuity. It's about getting people out of hospital ... and it's about the whole hospital, the business of the hospital. [D1]</p>



	<i>Look the biggest shift I think in Physiotherapy and Occupational Therapy is going to be in the ABF environment, and that's going to be around the efficiencies and comparison between our services across our site. [D2]</i>
Boundaries	<i>And they're sort of hamstrung by policies that come from [the city]. [A8]</i>  <i>Three out of four of our patients come from outside of [this Regional city] so that's the other thing...what's available at the other end very much determines how easily we can move people on. [A3]</i>
Outputs	<i>ED [physio] is one of our artificial priorities because realistically, it wouldn't come up as a first thing that we would do, but because of the funding, it's one that's going to be maintained regardless of what is happening anywhere else. [A3]</i>  <i>I think we need to have our priorities and work out that we provide a basic service and we do better things when we can, but trying to spread ourselves too thinly on the ground means that nothing gets done well. [D1]</i>  <i>[Staff cuts] severely curtailed our ability to provide outpatient services. We've had to basically can [cease] any outpatient rehabilitation service. [A1]</i>
Relationships	<i>One of the issues for Allied Health is almost learned helplessness, in terms of striving to maintain this purity as a clinician ... is quite a failure to look at the system you're working in and try and constructively influence that system. And as a result I think people miss or fail to see how their actions are actually changing or influencing the system. [D4]</i>  <i>Management makes a huge difference. I have a really supportive manager and she trusts me implicitly ... let's me get on and do the job; understands my clinical needs. [A5]</i>
Feedback loops	<i>Especially when you've got to report against that funding, against that criteria, it limits the amount of people that are willing to be flexible around the edges. That's a risk with the pots of money and something we're going to have to overcome otherwise it's going to be problem with Australian healthcare. [D1]</i>
Environment	<i>[In a smaller community] you see much more directly when you are there what happens and then when you're not there what happens, and for me a much higher sense of accountability. [A7]</i>  <i>It's a really interesting dynamic but I think it makes you more responsive to what the needs are of the community. In terms of retention, it's a double-edged sword. So you hear people who are happy in their work ... about how nice it is to be connected in the community and the patients know you and you're valued and they say hello to you at Woolies. As you see people become either tired or disillusioned, the language around the same issue changes dramatically. [D4]</i>
A:Public physiotherapist; B: Private physiotherapist; C:Colleague; D: Decision maker	

Decision makers in this study considered SLDM from varying perspectives depending on their position or level within the organisational (macro, meso or micro). Meso regional and facility level decision making was framed by macro national and state level policy, service directives and funding. Physiotherapists were then required to implement decisions made at higher organisational levels (e.g. facility, region, state or national) and make day to day decisions about local service provision (micro level)(Figure 10.7).Then, within the context of the local community, organisation and service demands, physiotherapists considered service specific factors such as: how many physiotherapists were funded and available to provide services, their levels of expertise and the available evidence to inform best practice service delivery.

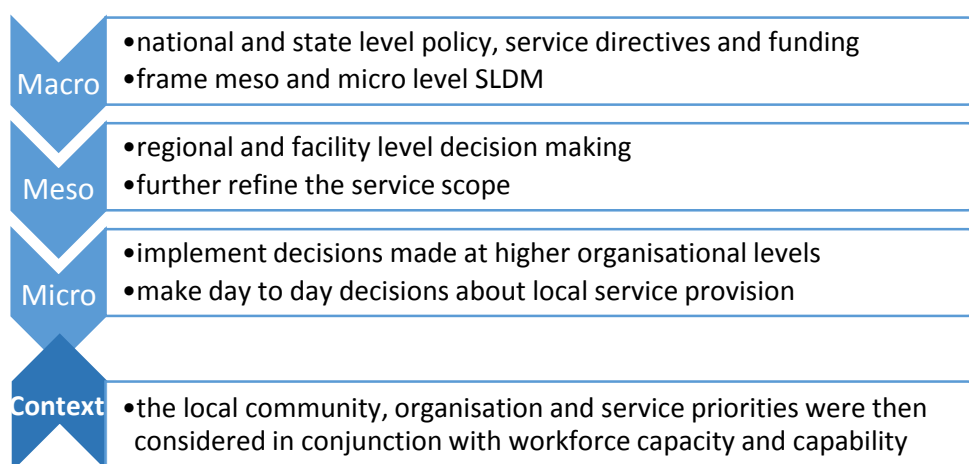


Figure 10.7 Multi-level factors frame and influence SLDM

Physiotherapy resources were then allocated to service areas aligning to organisational priorities and community demand. Where the demands on the service exceeded available resources, a range of rationing or prioritising strategies were implemented by physiotherapy decision makers (Figure 10.8).

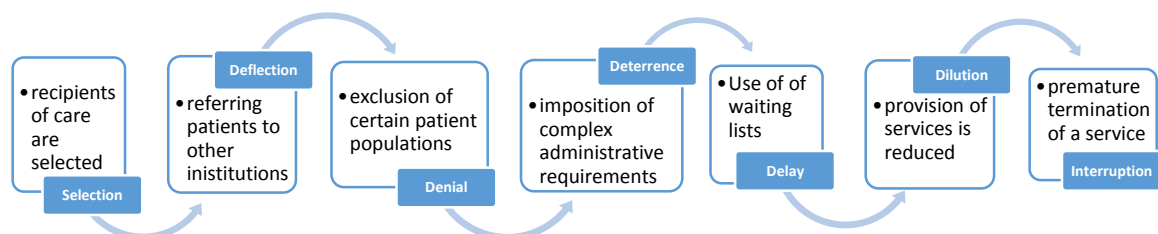


Figure 10.8 Methods of rationing (adapted from Putoto & Pegoraro, 2011, p. 66)

Conceptualising decision making processes about physiotherapy service provision as system with key features also assisted the development of a model of physiotherapy led SLDM (Figure 10.9). The assessment process of organisational and community priorities and available capacity forms part of an iterative cycle of SLDM: itself a system, with inputs, outputs and processes described by participants in this study. The iterative SLDM cycle includes assessment, prioritisation, allocation, deflection or delay (referrals or waiting lists), evaluation and review (Figure 10.9).

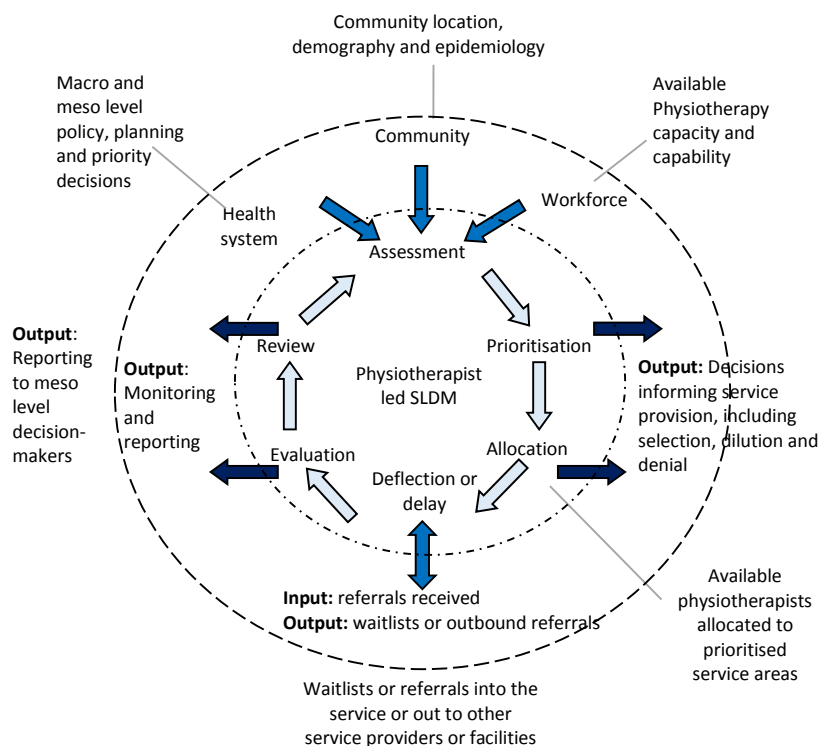


Figure 10.9 Iterative physiotherapy SLDM cycle with key system influences and outputs

Factors influencing the assessment phase varied across cases, however commonalities were observed according to service size, for instance between small, medium and larger services. Respectively these include the following case types from Table 10.1: small-Rural $\leq 1$ ; medium-Rural 2–3 and Rural-Remote 4–10; and larger-Rural 4–10, Regional 4–10 and Regional $>10$ . The assessment phase of the SLDM cycle in the larger public sector services was strongly influenced by both health system and workforce factors. Health system decisions at a macro and meso level, notably activity based funding; organisational priorities and workforce

availability were noted influences on SLDM in these larger facilities. In contrast, community and workforce appeared to be more influential to the assessment phase of the medium sites and the connection to the community in smaller sites (Table 10.5). The number of funded positions and the ability to recruit and retain physiotherapists was noted at each of the sites of these case types (Tables 10.3 and 10.4). The value of adopting a case study approach enabled the researchers to consider commonalities and differences within the iterative SLDM cycle across cases.

Table 10.5 Key influencers of assessment phase of SLDM cycle

Smaller	
Rural ≤1	<p><i>I think communities really value physios ... in these small communities; you become part of the community and you're valued. [A8]</i></p> <p><i>I know in other areas that physios have been told they've got to do this area or that area and that worries me a bit, because I try and do what I think the community want me to do. [A8]</i></p>
Medium	
Rural 2–3	<p><i>So the skill base of the physios that we have; the skill base of the community; expectations of doctors and the nursing staff; patients expectations of how often they should be seen and who they should be seeing. [A5]</i></p> <p><i>Yes I'm the only permanent staff member ....and then back-to-back locums. So we've had one locum for at least six months and now we'll have another three month one starting when the other one finishes. [A5]</i></p>
Remote- Rural 4–10	<p><i>It always come back to what my community needs and the sort of referrals I get... knowing your community and knowing their needs. [A9]</i></p> <p><i>I think the biggest thing is getting staff and keeping them. [A9]</i></p> <p><i>How can you build a sense of social responsibility and "embededness" when you've got FIFO's [fly in fly out staff] who aren't embedded here, responsible, – the community doesn't have the opportunity then to critique what you're doing and how you're doing it. [C1]</i></p>
Larger	
Rural 4–10	<p><i>What the hospital sees as core business. So you know, we might think that women's health and paed's, as an example, is the most important thing in the world but if the hospital doesn't see that then they're not going to support us in doing that. [A6]</i></p> <p><i>The other thing that we're really needing to work on and I come back to all of the work that will happen under ABF and efficiency, is the clinical transfer of care. [D2]</i></p> <p><i>It is hard to recruit, especially because a lot of our positions are senior positions... so it's finding someone that hasn't got ties somewhere else that's willing to move to somewhere new and different. [A6]</i></p>
Regional 4–10	<p><i>Acuity and being in hospital and getting people out of hospital...length of stay activity based funding, they are going to be huge drivers. [A1]</i></p>

	<p><i>The fact that they got rid of 20% of the physio staff and physio from acute system work really clearly [indicates] where their priorities were, which then leaves post rehab people, who need the support to continue to work hard to get those functional outcomes, without... They don't have that now. [A2]</i></p> <p><i>Yes, there's the pool of available staff, there's who's in town, there's not usually spares, and you've got a smaller area that you can capture from [compared to capital cities]. [A1]</i></p>
Regional >10	<p><i>It's about the whole hospital, the business of the hospital ... I don't think we have enough clout to say which services are and aren't provided or a priority of the hospital. [D1]</i></p> <p><i>Or they'll add a new fracture clinic with no thought as to where the physio service will come from to provide that level of cover. [A3]</i></p>
<p>Population: Smaller &lt;10,000; medium 10–20,000; larger 30–40,000          Bed numbers: Smaller &lt;50; medium&lt;100; larger sites beds at these three sites vary 50–100; 100–200 and 200–500 reflecting a key factor in considering each a separate case type          PP: Public physiotherapist; B: Private physiotherapist; C:Colleague; D: Decision maker</p>	

### **10.3.3 Linking physiotherapy SLDM to physiotherapy CDM and placing both within the broader health care context**

Common to both CDM and SLDM is that the decision making occurs in real world situations in which health care services are provided. Both deal with complex problems, often ill-defined, where different stakeholders may hold different perceptions about the problem at hand. Also common to CDM and SLDM is that a simplistic, linear model would fail to capture the complexity and overlapping decision making (DM) processes. These challenges have been articulated in the concepts of Naturalistic Decision Making (NDM)(Orasanu & Connolly, 1993). Eight characteristics of NDM (Orasanu & Connolly, 1993, p. 7) are useful reflective points for the findings of this study:

- Ill-structured problems
- Uncertain dynamic environments
- Shifting, ill-defined or competing goals
- Action/feedback loops
- Time stress
- High stakes
- Multiple players
- Organisational goals and norms.

These characteristics resonate with those of highly complex health care systems namely: multiple elements and interrelationships that are dynamic, and at times not well understood, that exist in an ever-changing or fluid environment (Daellenbach & McNickle, 2005, p.108). The characteristics and challenges of NDM articulated by Orasanu and Connolly (2005, p.7) reinforce the applicability of adopting a systems approach for examining real world events such as rural physiotherapy SLDM.

Physiotherapy CDM literature identifies both contextual/organisational factors and personal/professional factors that influence clinical decisions. Smith, Higgs and Ellis (2008b, p. 96) suggest that CDM cannot be separated from the context in which it occurred. Perspectives on SLDM that emerged in this research revealed the importance of both contextual/organisational factors and personal/professional factors. These commonalities with CDM allowed the researcher to place emerging findings about SLDM in the context of the physiotherapy CDM literature. This is further reinforced by the similarities of SLDM to processes of clinical decision making including:

- Making choices between available options
- The iterative nature of decision making
- The interaction between context and decision making (Smith et al., 2008b, p. 96)
- The requirement to consider multiple foci when making decisions
  - CDM: diagnosis, intervention, interaction and evaluation (Smith et al., 2008b, p. 90)
  - SLDM: assessment, prioritisation, allocation, referrals, evaluation and review
- Use of diverse knowledge base, including evidence based literature (Smith et al., 2008b), outcomes and, for SLDM, activity data.

Finally, adopting a systems approach enabled the development of a conceptual model that not only reflected SLDM as revealed by participants, but that was able to connect physiotherapy SLDM to CDM (Figure 10.5). This conceptual model makes explicit the connection of both SLDM and CDM to the context of the organisation and the broader health system. The complexity of factors influencing both clinical and service level decision making is reflected by placing both within the broader context of health service delivery. This includes the health system policies, politics and priorities; the health need of individuals and communities; rural location and access to services; and workforce availability, capacity and capability. This model may be a useful tool to assist physiotherapists working in rural areas to consider factors that

may influence their decision making. Linking CDM and SLDM enables reflection on decision making at both the clinical level of the patient-therapist interaction and the service level when making decisions about physiotherapy services provision.

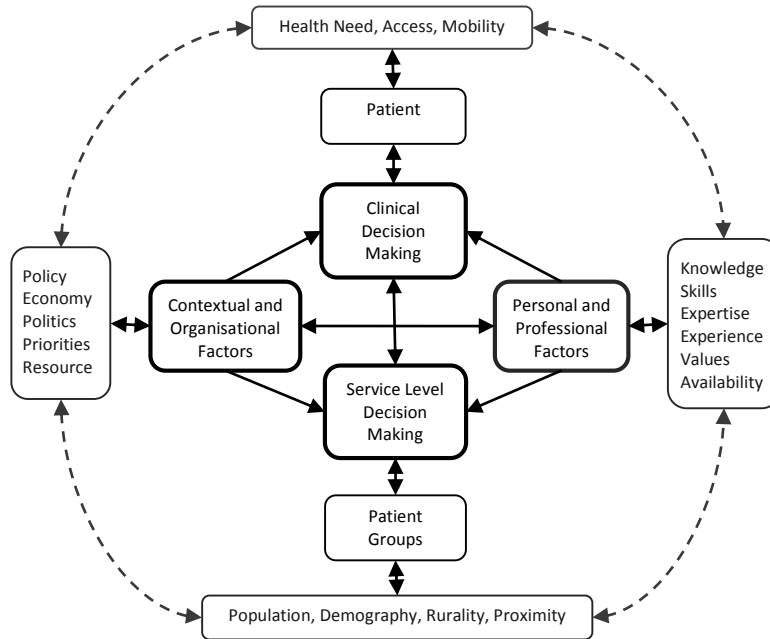


Figure 10.10 Linking physiotherapy clinical and service level decision making

## 10.4 Discussion

Service level decision making is not a one dimensional process, but rather results from the complex interaction of multiple issues. This is the first time that the researchers are aware of that the issues informing rural physiotherapy SLDM have been pulled together in visual and descriptive way. The models reflect the approach adopted by the researchers to obtain insight into this important, but relatively unexplored area of physiotherapy. A prioritised qualitative enquiry enabled the researchers to obtain insights about rural physiotherapy service provision and SLDM. Combining systems theory and case study methodology offered the opportunity for in-depth exploration and comparison between cases in the context of the system.

The features or elements of the rural physiotherapy SLDM system emerged from stakeholder perspectives on factors influencing service provision and decision making about provision of physiotherapy services (Tables 10.2–10.5). Workforce availability has long been identified as a critical factor in rural health services (Humphreys, Jones, Jones, & Mara, 2002; Humphreys,

2009; NRHA, 2004). This study adds to the rural workforce literature by providing local insights into issues of capacity and capability and how this impacts physiotherapy service delivery. Contextual influences of rurality, location, service sector and size then further inform local service provision and influence SLDM (Adams et al., 2014a). Two examples in this study are firstly, how increasing rurality, while strengthening connection to the local community, can constrain local service provision and secondly, the differentiation of public and private physiotherapy services. The latter is highlighted by the layered decision making processes within the public health sector compared to the relatively autonomous SLDM in private settings. Values and beliefs of service providers, decision makers, consumers and community then appear to influence how services are viewed, for instance in terms of priorities and how decisions made at higher levels of the organisation are implemented locally. Conflict and tensions emerged where values and expectations differed between stakeholders.

Combining these five system features then provides insight into the sixth feature: access. The four components of access described in relation to rural primary care resonate with issues of access to rural physiotherapy services. McGrail and Humphreys (2009a) described the four components as: appropriate supply (availability), distance and time to available services (proximity), the level and nature of need for those seeking health care (health needs) and the ability of individuals to access care at the time of need (mobility). A focus on a specific health need then enables consideration of the availability and proximity of services to address the health need of the individual and the ability of the individual to access care at the time of need. This focus can highlight specific issues of access to physiotherapy services rather a generalised statement of availability of physiotherapy services. Emerging from this more specific focus are issues of access to a range of physiotherapy services including both generalist and specialised services. Examples include access to physiotherapy services to meet the needs of people following episodes of acute care or for adults following stroke or for children with disability (Adams et al., 2014c). The currently available statistical data does not reveal this level of detail of local service provision. This study sought to look beyond current data limitations. To do so required a different approach and a framework that could provide insight into service delivery and variability in a way existing statistical data does not.

Similar to Holdar et al.'s (2013) findings on CDM, decision making about physiotherapy service provision is influenced by organisational priorities and external factors which frame SLDM. Internal factors relating to the individual physiotherapist or decision maker, including



experience, knowledge and values also influence SLDM. The models presented above seek to reflect both the complexity of the rural physiotherapy SLDM system and the relationships to the broader health system.

## **10.5 Limitations**

This study was undertaken in a rural area of one Australian state with a mixture of regional, rural and remote centres. Results may not be applicable to other areas with a different mixture of centres such as more remote locations and less regional centres. As this study only investigated physiotherapy service provision and SLDM, the findings and resulting models may not be applicable to other health disciplines and there may be different factors and interactions in settings where there are other service delivery models. Although physiotherapy participants were asked to identify decision making stakeholders, not all stakeholders were involved as participants. This may have biased results, as for example state health department decision makers were not involved in this study and yet their decisions will influence the physiotherapy service provision in rural and regional areas.

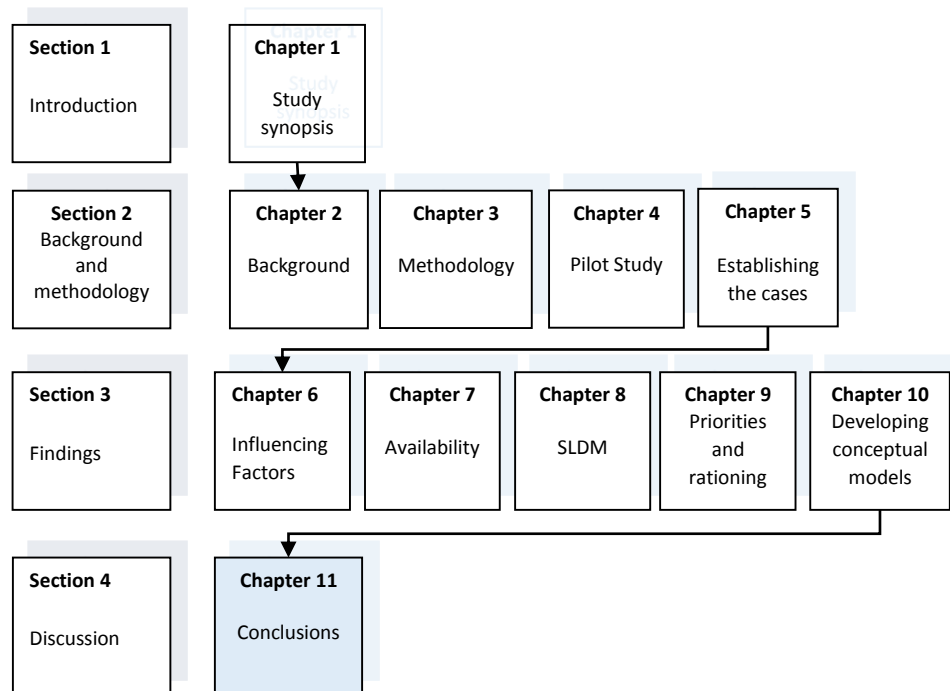
## **10.6 Implications for physiotherapy practice**

The conceptual models are presented as representations of rural physiotherapy SLDM. The models reflect stakeholder perspectives of factors influencing service provision and SLDM and provide insight into decision making processes informing rural physiotherapy service provision. Uniting the multiple perspectives obtained without losing the differentiating detail or the many influencing factors and decision making processes was challenging. Four models were therefore provided rather than further diminishing the differentiating detail by collapsing all into a single model.

Rural physiotherapy service provision and related SLDM is the result of a complex interaction of factors that influence both service provision and decision making (Figure 10.2). Rural physiotherapy SLDM can be considered a system and represented diagrammatically, with inputs, outputs, permeable boundaries and relationship between system elements (Figure 10.3). The iterative nature of physiotherapy SLDM cycle (Figure 10.4) was identified and while generally consistent across settings, there was variation in key system influences and outputs depending on the service size and location. Finally, commonalities emerged that make

possible a link between physiotherapy SLDM and physiotherapy CDM and that can place both within the broader health care context (Figure 10.5). Each conceptualisation reflects a new contribution to the rural physiotherapy literature and each provides a way of thinking about rural physiotherapy SLDM. The findings of this exploratory study may inform future rural physiotherapy research and contribute to future service planning and decision making about rural physiotherapy service provision.

# 11. Chapter 11: Conclusions



## 11.1 Introduction

Unlike earlier rural physiotherapy research, this thesis offers a theoretical framework to explore the multifaceted factors influencing rural physiotherapy service provision and service level decision making (SLDM). It is the first known study where stakeholders have been given the opportunity to describe factors influencing the provision of rural physiotherapy services and decisions about service provision. Taking a mixed methods approach provided the opportunity to obtain the perspectives of a broad range of stakeholders followed by a more detailed exploration of issues influencing rural physiotherapy service provision and related decision making. Data collection was aided by the adoption of an inverted pyramid or funnel approach and a sampling matrix formed by key aspects of the research question.

This research used an innovative ‘collective case study-system theory-mixed methods’ research framework. The framework, an extension of the interpretivist-systems case study framework developed by Anaf (2008), allows exploration of the perspectives of multiple stakeholders across different settings and services about an issue of interest. This is highly relevant to health service researchers to enable investigations of a specific issue in complex organisations. A priority-sequence mixed methods model was used to guide the practical

integration of qualitative and quantitative approaches to explore rural physiotherapy service provision and SLDM within the systems theory-case study heuristic. This research framework provided a significant and unique approach to physiotherapy research and to understanding organisational issues, such as how and why health care services are provided. A synopsis of the research findings aligned with the research aims is provided (Table 11.1) with a view to highlighting future research directions.

Table 11.1 Synopsis of the research findings

Research aim	Existing literature	Existing research deficits	Research findings
<b>Research aim 1.1</b> How do key stakeholders describe the factors influencing rural physiotherapy service provision?	None identified specific to rural physiotherapy service provision.	There is no research on what different stakeholders identify as factors influencing rural physiotherapy service provision.	This study identified factors at multiple levels of the health system that influence the provision of rural physiotherapy service provision. Factors included national policy and directives, regional and facility service implementation within established priorities and funding models and available physiotherapy workforce capacity and capability. <b>Thesis section:</b> Chapters 4, 6, 7
<b>Research aim 1.2</b> How do physiotherapists in rural Australia describe the impact of the identified factors on provision of physiotherapy services?	There is a growing literature describing the challenges of the rural physiotherapy workforce.	There is however little beyond workforce and few explicit links to the impact on service provision.	The impact of factors described by the physiotherapists in this study included: establishment of service priorities; availability of resources for service provision; capacity of local physiotherapy services and at times, loss of positions and reduction in services resulting in decreased access to physiotherapy services in some communities or for some patient groups. <b>Thesis section:</b> Chapters 4, 8, 9
<b>Research aim 2.1</b> How do rural physiotherapy stakeholders decide which services to provide?	There is a comprehensive rural health literature including priorities for service provision and potential service delivery models.	There was no literature specific to rural physiotherapy that described how stakeholders decide which physiotherapy services to provide.	Decisions about service provision by physiotherapy stakeholders (the physiotherapists, their managers and other key decision makers within the study area) considered health reforms, health financing, organisational priorities, workforce, available evidence and location and community capacity.

			<b>Thesis section:</b> Chapters 8, 9
<p><b>Research aim 2.2</b></p> <p>What decision making processes do physiotherapists in rural Australia use to establish service priorities and the scope and range of their service?</p>	<p>There are international and metropolitan examples of physiotherapy caseload and workload management. There is also a well-developed physiotherapy literature on clinical decision making.</p>	<p>There was no literature specific to rural physiotherapy that described how physiotherapists in rural Australia decided what services to provide.</p>	<p>Decision making at the physiotherapy service (micro) level was informed and influenced by decisions made at national and state (macro) level and regional and facility (meso) levels. Physiotherapist perspectives suggest that decision making varied with sector, size and rurality. Where there was an imbalance between service demands and physiotherapy capacity physiotherapists prioritised or rationed service provision.</p> <p><b>Thesis section:</b> Chapters 4, 9</p>
<p><b>Research aim 2.3</b></p> <p>How does variation in the number of staff in rural physiotherapy service impact service provision and service level decision making?</p>	<p>The physiotherapy workforce is described in broad geographical classifications that reveal only 20% work beyond major cities.</p>	<p>The detail of local rural physiotherapy staffing levels and impact on service provision and related decision making is not evident in the literature</p>	<p>Workforce was a key factor in service sustainability with available expertise then shaping what services could be offered. When physiotherapy services were unable to obtain required expertise, gaps in local services occurred. Workforce factors, including recruitment challenges for both generalist and specialised physiotherapist, loss of positions and the impact of cumbersome recruitment processes raise issues of service availability and sustainability</p> <p><b>Thesis section:</b> Chapters 4, 6, 7, 8, 9</p>
<p><b>Research aim 2.4</b></p> <p>How does service provision and service level decision making differ with increasing rurality?</p>	<p>There is an extensive literature describing the challenges of providing health services in rural, Australia. Descriptions of rural physiotherapy service provision include those by Sheppard (2001) and Williams, D'Amore, &amp; McMeeken, 2007.</p>	<p>There is no literature explicitly addressing how increasing rurality impacts the provision of physiotherapy services or decisions about rural physiotherapy service provision.</p>	<p>Health service size, role and function combined with the number of funded physiotherapy positions and available staff to influence both service provision and service level decision making (SLDM). The diversity of roles across the sites of the study required specific expertise and skills varying from generalist skills required for smaller rural services, to more specialised skills in larger regional health services. Challenges of providing both generalist and specialised physiotherapy services were noted.</p> <p><b>Thesis section:</b> Chapters 4, 5, 6, 7, 8, 9</p>

## **11.2 A summary of findings**

### ***11.2.1 Chapter 2: Background and context***

Chapter 2 provided the contextual background and literature relevant to the exploration of rural SLDM. Firstly, the background information provided the broader context for this research and addressed three key areas: physiotherapy in Australia, the Australian health care system, and rural health. Secondly, the paucity of literature specific to SLDM informing rural physiotherapy service provision necessitated the adoption of a wider approach to incorporate literature in spheres other than physiotherapy. The approach described was guided by two key assumptions: 1) that decisions about physiotherapy service provision were likely to be influenced at multiple levels of the health care system; and, consistent with rural health care more broadly, 2) a relative resource scarcity required decisions to be made about which physiotherapy services can be provided within local, rural communities. There was little documented reasoning as to why these decisions were made or what motivated people in the 'system' when making decisions about service provision. This chapter pointed to a gap in the available rural physiotherapy literature identifying a niche for the findings of this research.

### ***11.2.2 Chapter 3: Described the methodology and method***

The systems theory-case study heuristic method adopted supported the use of both qualitative and quantitative approaches to explore a health care issue of interest, namely rural physiotherapy SLDM. The priority-sequence model then guided the practical integration of these approaches within the systems theory-case study heuristic.

The quantitative component guided the prioritised qualitative component by informing the purposive sampling and establishing preliminary results for further exploration. The qualitative component supported exploration of stakeholder perspectives of rural physiotherapy SLDM by enabling participants to reveal their thoughts and perceptions within the context of their service setting. Adopting a constructivist worldview within the qualitative paradigm recognised that individuals develop multiple and varied meanings of their experiences. Case study design supported data collection from multiple sources to explore complex and contextual conditions. The collective case study design then supported the exploration of contextual issues across a range of sites and importantly, privileged the issue rather than the

case. Finally, considering rural physiotherapy SLDM as a system provided a broader holistic approach to understanding than would be achieved by investigation of the respective elements of the system in isolation. Together, the approach adopted provided a framework that enabled exploration of a relatively unexplored area of physiotherapy, whilst recognising the complexity and variety of settings in which rural physiotherapy services are provided.

### **11.2.3 Chapter 4: The pilot study**

This small study provided valuable information for the conduct of the larger study to follow. The iterative data collection process generated information through the initial surveys for exploration in subsequent interviews. Despite the small sample size, a rich and detailed description emerged of factors affecting rural physiotherapy service provision and decision making about service provision. Two sites forming the cases in this study (rural  $\leq 1$  and regional  $>10$ ) were a useful interstate comparison for the findings in the cases within the investigation area. The applicability of a systems approach was confirmed as participants described the complex array of factors influencing their service. Influencing factors were identified at all levels of the health system and varied with geographical setting

### **11.2.4 Chapter 5: Establishing the cases**

Two key factors relevant to rural physiotherapy were used to establish the case types in which to explore rural physiotherapy service provision. These were participant perspectives of rurality (regional, rural or remote) and the number of co-located physiotherapy colleagues. In view of the expressed limitations of geographic classification systems, the researcher was interested in how participants described the rurality of their service setting. The number of co-located colleagues was the second potential differentiating factor of rural physiotherapy service provision. This is consistent with the literature in which workforce and position shortages are recognised as characteristics of rural physiotherapy.

This chapter described the identification of cases in the investigation area using a sequential mixed methods approach within a systems theory-case study framework. The investigation site was a large area of one Australian state with a mix of regional, rural and remote communities. Six case types emerged from the responses using the dual measures of rurality

and workforce numbers. Fewer case types would have emerged if a single measure of rurality was the only differentiating factor. The framework used to establish the cases provided a structure to explore physiotherapy service provision within and between cases.

### ***11.2.5 Chapter 6: Factors influencing service provision***

An assumption at the outset of this research was that factors influencing physiotherapy service provision would occur at multiple levels of the health system. This informed both the methodology (use of a systems approach) and research method (stratified purposive sampling and data collection using surveys and interviews). Obtaining perspectives of stakeholders, such as multidisciplinary team colleagues, consumers and managers avoided isolating the research to a physiotherapy-only perspective. The systems theory-case study heuristic framework supported exploration of rural physiotherapy service provision within the local context, as well as within the broader health system.

Workforce, higher system level decisions, location, sector and funding are some of the factors identified. Workforce factors, including recruitment challenges for both generalist and specialised physiotherapists, loss of positions and the impact of cumbersome recruitment processes, raise issues of service availability and sustainability. Decisions, policies and directives from national and state level were identified as key influencing factors. Implementation of macro level decisions occurred at a regional and facility level and were noted to be a key factor influencing service provision. Factors at this level include service priorities and staffing levels. Managerial knowledge of the role and function of physiotherapy was also an important factor at this level.

### ***11.2.6 Chapter 7: Rural physiotherapy availability***

Simply quantifying the number of health professionals in rural areas by geographic classification does not reveal localised issues of service availability or accessibility. Collectively reporting the individual professions considered to be an allied health profession and aggregating allied health workforce reports in broad geographical classifications further limits the visibility of local service availability and accessibility.



The relative invisibility of variation in physiotherapy capacity and service availability observed within the eleven rural communities of this study prompted the development of an index for conceptualising rural physiotherapy availability. Differentiating elements that emerged from participant comments include rurality, population, size of public hospitals, the number of public sector physiotherapists expressed in fulltime equivalents (FTE), the number of private practices and provision of specialised paediatric and rehabilitation services. Combining these elements forms a useful construct to consider physiotherapy availability.

The higher RPAI scores (40–59) were indicative of limited availability of physiotherapy services. Mid-range scores (20–39) reflect the presence of local services, yet still with considerable variability in availability of services. Lower RPAI scores (0–19) were indicative of a range of locally based services; however the higher scores within this range suggest limitations to the availability of some physiotherapy services.

The rural physiotherapy availability index is offered as one measure that could form part of the suite of measures to describe access to primary care services in rural communities. The RPAI score provides a relatively speedy tool to gain insight into the availability of physiotherapy services. This information should be considered by health service policy and decision makers prior to making decisions that may adversely affect local community members' access to physiotherapy services.

### ***11.2.7 Chapter 8: Service level decision making***

Multiple interrelated factors informed SLDM about rural physiotherapy service provision. The overarching themes reflected the impact of broader system level decision making which provided the framework for micro level physiotherapy SLDM. Further exploration of these factors occurred in interviews, where discussion with participants revealed more abstract concepts that influenced SLDM. Concepts such as visibility within the community, having a voice at the decision making table and a sense of connection to community were three such abstractions.

Service sector, size and rurality then further qualify local service options and influence SLDM. Understanding context and diversity is important to understanding local implementation of health system decisions and gaining insight not only into physiotherapy SLDM, but also into

the variation in services provided between sites. Consideration of the relative influence factors across sites and services was assisted by the use of several conceptual constructs. The conceptual constructs were used to frame the discussions on SLDM and informed the development of a conceptual map of factors influencing rural physiotherapy SLDM. The findings presented in this chapter reinforce the importance of physiotherapy workforce availability to service sustainability.

### ***11.2.8 Chapter 9: Priorities and rationing***

Despite residents of rural and remote communities experiencing poorer health outcomes and exhibiting higher health needs, many rural and remote communities do not have access to the range of health services as large urban centres. This was confirmed once again in this study on rural physiotherapy. The challenge facing many physiotherapists was to decide what services should be provided, where and to whom. Where there was a demand-resource imbalance, decisions about resource allocation or rationing of services was required.

Participant perspectives revealed the impact of macro and meso level decisions on the capacity to provide physiotherapy services in the rural communities of this study. Increasing constraints meant that rationing of physiotherapy services, particularly within the public sector, was commonplace. Participants considered organisational priorities, community need and available resources. They used their judgement to make decisions about the relative priorities of competing demands by drawing on available evidence and data. This study revealed some consequences of service rationing that are relatively invisible at a system level yet so pertinent to individuals and communities. Decreased access to physiotherapy services was evident for example, for adults and children requiring neurological rehabilitation and for people requiring ongoing physiotherapy post-acute care.

### ***11.2.9 Chapter 10: Conceptual models of rural physiotherapy SLDM***

SLDM is not a one dimensional process, but rather results from the complex interaction of clusters of systems issues. Framing SLDM as a 'system' enabled the researcher to: identify an issue of interest as a system; describe the system in terms of elements and interactions, both

internal and external to the system; gain insight into the context of the issue of interest; and to capture different stakeholder perspectives.

The adoption of a systems-approach revealed the interplay of the multiple factors and processes at both the local and broader systems level. The results in this study reveal complex interactions between overarching elements such as: workforce capacity and capability, contextual influences, layered decision making and issues impacting access. The development of conceptual models is a way of reflecting this complexity and the emerging picture provided by participants on rural physiotherapy SLDM.

### **11.3 Stakeholder perceptions of factors influencing rural physiotherapy service provision and SLDM**

This study provides insight into how rural physiotherapy service provision is impacted by factors identified by stakeholders. Workforce, higher system level decisions, location, service sector and funding are some of the factors identified. Workforce factors, including recruitment challenges for both generalist and specialised physiotherapists, loss of positions and the impact of cumbersome recruitment processes raise issues of service availability and sustainability. Decisions, policies and directives from national and state level were identified as key influencing factors. Implementation of macro level decisions occurred at a regional and facility level. Factors at this level include service priorities and staffing levels. Managerial knowledge of the role and function of physiotherapy was an important factor at this level. Multiple interrelated factors informed SLDM about rural physiotherapy service provision. System level influences from macro and meso level decision makers provide the framework within which micro level physiotherapy SLDM occurs. Service sector, size and rurality then further qualify local service options and influence SLDM. Understanding context and diversity is important to understanding local implementation of health system decisions and gaining insight not only into physiotherapy SLDM but also into the variation in services provided between sites. The findings in this study are consistent with existing rural physiotherapy literature and reinforce the importance of physiotherapy workforce availability to service sustainability. This study adds to the rural physiotherapy literature by providing greater insight into decisions informing physiotherapy service provision.

Simply quantifying the number of health professionals in rural areas by geographic classification does not reveal localised issues of service availability or accessibility. This study generated two potentially valuable constructs to explore rural physiotherapy service provision. The first potentially useful construct was a way of describing physiotherapy service locations. The use of dual measures, such as the combination of participant perspective of rurality (PPR) and the number of co-located physiotherapist full time equivalents, was found to be a more sensitive descriptor than singular measures such as a geographic classification.

The second potentially useful construct developed was the rural physiotherapy availability index (RPAI). The relative invisibility of variation in physiotherapy capacity and service availability observed within the eleven rural communities of this study prompted the development of this availability index. The RPAI is provided as one measure that could form part of a suite of measures (McGrail & Humphreys, 2009b) to describe access to physiotherapy services in rural Australia. Differentiating elements that form the index emerged from participant comments. These elements include rurality, population, size of public hospitals, the number of public sector physiotherapists expressed in fulltime equivalents (FTE), the number of private practices and provision of specialised paediatric and rehabilitation services. Further research should be undertaken to determine the validity and reliability of this tool.

#### **11.4 Stakeholder decision making processes used to inform rural physiotherapy service provision**

Decisions about health service provision occurred at all levels. Comprehensive macro level policy decisions, including health reforms and health financing decisions, provided the framework for decisions at meso and micro levels. Incremental implementation of policies then occurred at regional and facility levels with study participants revealing a decision making focus on institutional based approaches rather than population based planning approaches. A focus on efficiency and health care costs, combine with institutional based decision making, to provide a challenging environment for rural health service provision, including provision of physiotherapy services. Community size and location then limit market mechanisms such as increasing competition and diversity. In terms of physiotherapy services, study participants revealed challenges of providing services in an environment of constrained resources. The constraints were more evident in public sector services, with a number of participants indicating they were unable to provide services in some communities or for some patient

groups. Where there are no other physiotherapists providing these services, there is a potential for reduced accessibility of services.

Deciding what health services are provided is then a key consideration in delivering appropriate and accessible health care for rural populations. Increasing constraints meant that rationing of physiotherapy services, particularly within the public sector, was commonplace. This study has revealed some consequences of service rationing that are relatively invisible at a system level yet so pertinent to individuals and communities. Decreased access to physiotherapy services was evident for example, for adults and children requiring neurological rehabilitation and for people requiring ongoing physiotherapy post-acute care. Responses of private physiotherapy providers indicate they are not positioned to address such service gaps, particularly when compounded by issues of affordability. Organisational and funding changes generated in recent state and national reforms have had significant, if unintended, consequences on the resources and capacity of physiotherapists in this study to deliver services in rural communities. This study provides insight into rural physiotherapy service provision and SLDM not usually evident and can be used to inform health service planning and decision making and education of current and future rural physiotherapists.

## **11.5 Developing and presenting conceptual models of SLDM informing rural physiotherapy service provision**

The development of conceptual models is a way of reflecting the emerging picture provided by participants on rural physiotherapy SLDM. The models reflect:

- the complexity of factors influencing rural physiotherapy service provision;
- the value of a systems approach in exploring decision making about rural physiotherapy service provision; and
- the commonalities that link physiotherapy SLDM to physiotherapy CDM and place both within the broader health care context

The adoption of a systems approach revealed the interplay of the multiple factors and processes at both the local and broader systems level. The results in this study reveal complex interactions between overarching elements such as: workforce capacity and capability, contextual influences, layered decision making and issues impacting access. Each overarching

element is composed of multiple individual elements or issues articulated by the participants of this study (Figure 10.2). Adopting a case study approach then enabled the exploration of a single issue of interest, SLDM, across a range of cases to discern commonalities or differences.

Soft system approaches were developed to deal with complex problem situations, often ill-defined, and where different stakeholders may hold different perceptions about the situation (Daellenbach & McNickle, 2005, p. 172). This is particularly relevant to the provision of health care which occurs within complex organisations comprising multiple systems. Framing SLDM as a 'system' enabled the researchers to: identify an issue of interest as a system (Figure 10.3); describe the system in terms of elements and interactions both internal and external to the system; gain insight into the context of the issue of interest; and to capture different stakeholder perspectives. Conceptualising decision making processes about physiotherapy service provision as a system with key features also assisted the development of a model of physiotherapy led SLDM. Decision makers in this study considered SLDM from varying perspectives depending on their position or level within the organisational (macro, meso or micro). Physiotherapy SLDM included allocating resources to service areas aligning to organisational priorities and community demand. This assessment process forms part of an iterative cycle of SLDM: itself a system, with inputs outputs and processes described by participants in this study. The iterative SLDM cycle includes assessment, prioritisation, allocation, deflection or delay (referrals or waiting lists), evaluation and review (Figure 10.4).

Common to both CDM and SLDM is that the decision making occurs in real world situations in which health care services are provided. Both deal with complex problems, often ill-defined, where different stakeholders may hold different perceptions about the problem at hand. Also common to CDM and SLDM is that a simplistic linear model would fail to capture the complexity and overlapping decision making processes. Perspectives on SLDM that emerged in this research revealed the importance of both contextual/organisational factors and personal/professional factors both previously identified in the physiotherapy clinical decision making literature. Adopting a systems approach enabled the development of a conceptual model that not only reflected SLDM as revealed by participants, but that was able to connect physiotherapy SLDM to CDM. This conceptual model makes explicit the connection of both SLDM and CDM to the context of the organisation and the broader health system (Figure 10.5).

## **11.6 Limitations and recommendations**

This study included a relatively small number of sites within one Australian state. The research framework described was applied to an investigation of physiotherapy service provision in one area within Australia which had a mixture of regional, rural and remote centres. Results may not be applicable to other areas with a different mixture of centres such as more remote locations and less regional centres. As this study only investigated physiotherapy service provision and SLDM, the findings and resulting models may not be applicable to other health disciplines and there may be different factors and interactions in settings where there are other service delivery models. This can be seen by the differences seen in comparing public and private physiotherapy services decision making.

Although this study asked physiotherapists to identify decision making stakeholders, not all stakeholders were involved as participants. This may have biased results, as for example state health department decision makers were not involved in this study and yet their decisions will influence the physiotherapy service provision in rural and regional areas.

Participant perception of rurality and public sector staffing numbers, while relevant to this study to define cases, may not be applicable to other studies. The approach to describing service location using the dual measure may not be applicable across professions or to other areas with a different mixture of services or locations.

The conceptual measure of rural physiotherapy availability developed from these sites may not be relevant to areas of Australia with a different mix of communities or health services. The varying scales for the scores for each element may unduly weight one element. The conceptual RPAI measure should be trialed across a larger number of sites to assess its broader applicability.

## **11.7 Future research directions**

Rural physiotherapy SLDM is an underexplored area. This is the first known study of physiotherapy SLDM in rural and regional communities of Australia. Exploring decision making about rural physiotherapy service provision within a systems-theory case study heuristic should be explored further as it enables consideration of the impact of contextual factors on

local service provision. This would form a basis for examining in more detail, access to specific physiotherapy services in different communities.

The heterogeneity of rural physiotherapy service provision is not revealed when only single measures of rurality, catch all terms such as rural health or broad workforce descriptions, for example rural allied health, are used. Dual measures, for example rurality and FTE are more descriptive of service location and multiple measures, such as the RPAI, provide greater detail about the availability of services. The RPAI takes into consideration multiple elements including workforce, service and community size and current workforce and service.

The conceptual RPAI measure should be trialled across a larger number of sites to assess its broader applicability and to assess the scores used for each element. Mapping physiotherapy services in other areas using the RPAI would provide greater insight into physiotherapy service availability in specific communities. Additional considerations, such as the provision of outreach services (expressed in the number of service days per month) or telehealth services (expressed as occasions of service per month) may be useful to reflect local service delivery models.

Future research could continue to explore rural physiotherapy service provision through further exploration of factors affecting service provision and SLDM in other areas of Australia. A more detailed examination of the tensions that emerged between the needs of the community and organisational priorities and between the priorities of different levels of decision makers would inform future rural physiotherapy SLDM. Similarly, further comparisons of public and private provision of physiotherapy services in rural communities would identify service barriers and gaps and better inform decisions and assumptions about service provision and access to physiotherapy services. It would also be informative to trial the conceptual SLDM models with rural physiotherapists and key decision makers and to broaden the research focus to include professions other than physiotherapy.

In summary this research:

- Is the first known study of physiotherapy SLDM in rural and regional communities of Australia.
- Provides dual descriptors of location relevant to understanding the provision of services such as physiotherapy (PPR and FTE).



- Details the development of the RPAI.
- Reinforces the importance of and the link between workforce and position shortages and physiotherapy service provision.
- Differentiates the range, type and variation of physiotherapy services provided within the local communities.
- Provides insight into factors influencing the range physiotherapy service provision and SLDM.
- Presents conceptual models of SLDM.

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## 13. Abbreviations

ABS	Australian Bureau of Statistics
AHPRA	Australian Health Practitioner Regulation Agency
AHP	Allied Health Professional
AIHW	Australian Institute of Health and Welfare
APA	Australian Physiotherapy Association
APC	Australian Physiotherapy Council
ARIA	Access/Remoteness Index for Australia
ASGC-RA	Australian Standard Geographical Classification Remoteness Areas
CDHFS	Commonwealth Department of Health and Family Services
CDI	Chronic Disease Items of Medicare benefits schedule
CDM	Clinical Decision Making
COAG	Council of Australian Governments
DHHS	Department of Health and Human Services
DoHA	Department of Health and Ageing
DPIE	Department of Primary Industries and Energy
EPC	Enhanced Primary Care items of Medicare benefits schedule
FTE	Full time equivalent
GISCA	Geographic Information Systems
GP	General Practitioner
HHS	Hospital and health service
LGA	Local government area
MBS	Medicare Benefits Schedule
NDM	Naturalistic decision making
NGO	Non-government organisation
NRHA	National Rural Health Alliance
OECD	Organisation for Economic Co-operation and Development
OPP	Outpatient physiotherapy
PBS	Pharmaceutical Benefits Scheme

PPR	Participant perception of rurality
RARA	Rural and Remote Classification
RPAI	Rural Physiotherapy Availability Index
RPSP	Rural Physiotherapy Service Provision
RRMA	Rural, Remote & Metropolitan Areas classification
SARRAH	Services for Australian Rural and Remote Allied Health
SLA	Statistical Local Area
SLDM	Service level decision making
WCPT	The World Confederation for Physical Therapy

## 14. Glossary

Activity based funding	Activity based funding (ABF) is a way of funding hospitals whereby they get paid for the number and mix of patients they treat. If a hospital treats more patients, it receives more funding. Because some patients are more complicated to treat than others, ABF also takes this into account.	<a href="http://www.ihipa.gov.au/internet/ihipa/publishing.nsf/Content/funding">http://www.ihipa.gov.au/internet/ihipa/publishing.nsf/Content/funding</a>
Allied health	For the purpose of the audit, the focus has been on those professions to be covered by the National Registration and Accreditation Scheme, namely chiropractors, optometrists, osteopaths, pharmacists, physiotherapists and psychologists.	Australian Government Department of Health and Ageing (2008). <i>Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.</i> Commonwealth of Australia, Canberra
Australian Bureau of Statistics Census (ABS Census)	The Australian Census is a census of all Australian households conducted every 5 years by the Australian Bureau of Statistics (ABS). The aim is to obtain information about every member of the Australian population. ABS Censuses were conducted in 1996, 2001 and 2006.	<i>Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.</i>
Casemix	Casemix refers to the use of classifications that bundle patient care episodes into clinically coherent and resource homogeneous groups. Casemix commonly means the mix of types of patients treated by a hospital. Casemix is an information tool that allows policy makers to understand the nature and complexity of	<a href="http://www.health.vic.gov.au/abf/definitions.htm">http://www.health.vic.gov.au/abf/definitions.htm</a> accessed 10 June 2013

	healthcare delivery and that enables the measurement of hospital performance, aiming to reward initiatives that increase the efficiency of hospitals.	
Clinical Leadership	Clinical leadership can be defined as an ongoing process of engagement between a credible healthcare professional and fellow service providers and support staff, where the locally connected clinician champions the cultivation of high quality patient care at service level.	Regional, Rural and Remote Health Workforce Strategy Draft Background Paper, p. 32
Community health services	Diagnostic, therapeutic and preventative health services provided for individuals in the community, funded by the states and territories.	<i>Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.</i>
Full Time Equivalent (FTE)	The Full Time Equivalent (FTE) measure of supply is based on the total hours worked by the health professional divided by the hours in a standard working week for that profession. This varies for different professions.	<i>Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.</i>
Medicare	Australia's universal public health funding system	<i>DoHA, 2013</i>
National Health Reform Agreement	The National Health Reform Agreement, signed by all Australian governments in August 2011, commits to funding public hospitals using ABF where practicable.	<a href="http://www.ihpa.gov.au/internet/ihpa/publishing.nsf/Content/funding">http://www.ihpa.gov.au/internet/ihpa/publishing.nsf/Content/funding</a>
Remoteness Area (RA)	The Remoteness Area structure within the Australian Bureau of Statistic's Australian Standard Geographical Classification breaks down geographical regions into five categories: major cities, inner regional, outer regional, remote and very remote. It is updated to take into account factors such as new road networks, new area	<i>Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.</i>



	boundaries and actual services provided through centres.	
Rural, Remote and Metropolitan Areas (RRMA)	The Rural, Remote and Metropolitan Areas (RRMA) classification was developed in 1994 by the Department of Primary Industries and Energy, and the then Department of Human Services and Health and breaks down geographical areas into metropolitan, rural and remote areas.	<i>Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.</i>
University Departments of Rural Health (UDRH)	University Departments of Rural Health are located in rural areas and provide clinical placements and training for medical, nursing and allied health students. They also offer education, support and research opportunities for health service providers in the local area. They are often collaborative enterprises involving more than one university.	<i>Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.</i>



## 15. Appendix A: Ethics Approval

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## 16. Appendix B: Information sheets and consent forms



### **INFORMATION SHEET:** Key decision maker participants

**PROJECT TITLE:** Factors influencing Australian rural, regional and remote physiotherapy organisational decision making

You are invited to take part in research investigating factors influencing the provision of physiotherapy services in rural, regional and remote areas and how decisions are made about which services to provide.

The research is being conducted by Robyn Adams and will contribute to the requirements for her Doctor of Philosophy degree at James Cook University.

We are seeking to obtain multiple perspectives to inform the description of factors influencing the provision of physiotherapy services in rural, regional and remote areas. We are also interested in how decisions are made about which services are provided.

- **The first stage** of the research involves data collection through the completion of a physiotherapist survey and consumer, manager and colleague questionnaires.

- The **second stage** seeks to gain a more in-depth understanding by interviewing a purposive sample of responding physiotherapists and key decision-makers.

As a person with knowledge of the physiotherapy service and the organisation, we consider your opinion to be valuable, which is why we are inviting you to be involved in this research. We intend to use the responses from the interview to help develop a better understanding of how decisions are made about which physiotherapy services are provided in rural, regional and remote areas and related influencing factors. The responses from surveys questionnaires and interviews will then inform the development a conceptual model of organisational decision making of rural, regional and remote physiotherapy service provision.

If you agree to be involved in the research, you will be required to complete a **consent form** indicating you agree to be participate in a semi-structured interview with the principal researcher and that you have read this form. The interview, with your consent, will be audio-taped, and should take approximately 60 minutes of your time.

The interview will be conducted at a venue of your choice. The semi-structured interview will seek to obtain your perspective on organisational or service level decision making that informs physiotherapy service provision in rural, regional and remote areas.

Taking part in this research is **completely voluntary** and you can stop taking part in the research at any time without explanation or prejudice. You may also withdraw any unprocessed data from the research. Should you wish to withdraw, you may do so by informing either the principal investigator or the supervisor (contact details provided below).

Confidentiality will be maintained through allocation and separate storage of codes for any re-identifiable data and collapsing smaller data sets where individual identification may be possible. Information obtained will be collated, analysed and stored for use within the thesis or future research publications No identifying features (names and contact details) will be published in any future written thesis or research publication.

The ethical aspects of the project have been approved by the Human Research Ethics Committee (HREC) of the Greater Western Area Health Service.

If you have any concerns or complaints please contact: The Executive Officer, PO Box 143 Bathurst NSW 2795 or telephone (02) 6339 5601.

If you have any questions about the research, please contact Robyn Adams or Professor Lorraine Sheppard.

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**INFORMATION SHEET:** Consumer, managerial and colleague participants

**PROJECT TITLE:** Factors influencing Australian rural, regional and remote physiotherapy organisational decision making

You are invited to take part in research investigating factors influencing the provision of physiotherapy services in rural, regional and remote areas and how decisions are made about which services to provide.

The research is being conducted by Robyn Adams and will contribute to the requirements for her Doctor of Philosophy degree at James Cook University.

We are seeking to obtain multiple perspectives to inform

- The description of factors influencing the provision of physiotherapy services in rural, regional and remote areas.
- We are also interested in how decisions are made about which services are provided.

As a person with local knowledge and experience of the physiotherapy service, we consider your opinion to be valuable, which is why we are inviting you to be involved in this research.

We intend to use the responses from the questionnaire to help develop a better understanding of the factors influencing physiotherapy provision in areas beyond large metropolitan settings, such as capital cities.

If you agree to be involved in this research, you will be required to complete two forms.

- The first is a **consent form** indicating you agree to be involved in this research and that you have read this form.
- The second form is the **questionnaire** which seeks your comments on factors influencing rural, regional and remote physiotherapy practice.
- The short questionnaire should take no more than 15 minutes to complete.

- Return of a completed questionnaire in the absence of completed consent form will be considered implied consent.

The questionnaire seeks to obtain your perspective on factors influencing rural, regional or remote physiotherapy service provision.

Taking part in this research is **completely voluntary** and you can stop taking part in the research at any time without explanation or prejudice. You may also withdraw any unprocessed data from the research. Should you wish to withdraw, you may do so by informing either the principal investigator or the supervisor (contact details provided below).

Confidentiality will be maintained through allocation and separate storage of codes for any re-identifiable data and collapsing smaller data sets where individual identification may be possible. Information obtained will be collated, analysed and stored for use within the thesis or future research publications. No identifying features will be published in any future written thesis or research publication.

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If you have any concerns or complaints please contact: The Executive Officer, PO Box 143 Bathurst NSW 2795 or telephone (02) 6339 5601.

If you have any questions about the research, please contact Robyn Adams or Professor Lorraine Sheppard

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## **INFORMATION SHEET    Physiotherapy participants**

**PROJECT TITLE:** Factors influencing Australian rural, regional and remote  
physiotherapy organisational decision making

You are invited to take part in research investigating:

- factors influencing the provision of physiotherapy services in rural, regional and remote areas  
and
- how decisions are made about which services to provide.



The research is being conducted by Robyn Adams and will contribute to the requirements for her Doctor of Philosophy degree at James Cook University.

We are seeking to obtain multiple perspectives to inform the description of factors influencing the provision of physiotherapy services in rural, regional and remote areas.

We are also interested in how decisions are made about which services are provided.

- The **first stage** of data collection is through completion of surveys and questionnaires.
- The **second stage** seeks to gain a more in-depth understanding by interviewing a purposive sample of physiotherapists and key decision makers.

As the perspectives of rural, regional and remote physiotherapists are pivotal to this research, we consider your opinion to be valuable, which is why we are inviting you to be involved in this research.

We intend to use the responses from the questionnaires, surveys and interviews to help develop a better understanding of physiotherapy service provision in areas beyond large metropolitan settings, and to inform the development a conceptual model of organisational decision making of rural, regional and remote physiotherapy service provision.

If you agree to be involved in the research you required to complete two forms.

- The first is a **consent form** indicating you agree to be involved in this research and that you have read this information form.
- The second form is the **survey**, which seeks your comments on factors influencing physiotherapy service provision rural, regional and remote areas.
  - The survey should take no more than 20 minutes to complete.
  - Return of a completed survey in the absence of completed consent form will be considered implied consent.

You *may* also be invited to participate in an interview.

- You will be asked to consent to this process separately.
- The selection process for participation in interviews will be informed by the survey results and be guided by geographical setting and number of physiotherapists working with you.
- In the semi-structured interview you would be asked to provide your perspective on organisational or service level decision making that informs physiotherapy service provision in rural, regional and remote areas.

Subject to consent, the interview, will be audio-taped, and should take approximately 60-90 minutes of your time.

- The interview would be conducted at a venue of your choice.
- Subject to consent, interviewed participants would be asked to distribute a short questionnaire to:
  - managers (up to 3),
  - interdisciplinary colleagues (up to 6),and
  - place prepared packages for potential consumer participants containing information sheets, informed consent forms, questionnaires and reply paid envelopes in physiotherapy reception or waiting areas.
- Suggestions of key decision making stakeholders who could be invited to participate in a 60 minute interview would also be sought.

The consumer, manager and colleague questionnaire seeks to obtain their perspective on factors influencing physiotherapy service provision in rural, regional or remote areas. The key decision maker interviews would seek to obtain their perspective on organisational or service level decision making impacting physiotherapy service provision in rural, regional and remote areas.

Taking part in this research is ***completely voluntary*** and you can stop taking part in the research at any time without explanation or prejudice. You may also withdraw any unprocessed data from the research. Should you wish to withdraw, you may do so by informing either the principal investigator or the supervisor (contact details provided below).

Information sheets, informed consent forms, questionnaires and reply paid envelopes will be pre-packaged and provided should you form part of the follow up selection and agree to assist with distribution of consumer, managerial and colleague questionnaire. Should you provide

suggestions for follow up interviews, your name will not be provided to colleagues interviewed unless you provide your permission.

Confidentiality will be maintained through allocation and separate storage of codes for any re-identifiable data and collapsing smaller data sets where individual identification may be possible.

Information obtained will be collated, analysed and stored for use within the thesis or future research publications No identifying features will be published in any future written thesis or research publication.

The ethical aspects of the project have been approved by the Human Research Ethics Committee (HREC) of the Greater Western Area Health Service.

If you have any concerns or complaints please contact: The Executive Officer, PO Box 143 Bathurst NSW 2795 or telephone (02) 6339 5601.

**If you have any questions about the research, please contact Robyn Adams or**

**Professor Lorraine Sheppard.**

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**INFORMED CONSENT FORM: Key Decision maker participants**

PRINCIPAL INVESTIGATOR SUPERVISOR	<b>Robyn Adams</b> <b>Professor Lorraine Sheppard</b>
PROJECT TITLE:	<b>Factors influencing Australian rural, regional and remote physiotherapy organisational decision making.</b>
SCHOOL	<b>Public Health, Tropical Medicine and Rehabilitation Sciences -Discipline of Physiotherapy</b>

I understand the aim of this research is to identify factors influencing the provision of physiotherapy services in rural, regional and remote areas and how decisions are made about which services to provide. I consent to participate in this research, the details of which have been explained to me, and I have been provided with a written information sheet to keep.

I understand that my participation will involve participation in a semi-structured **interview**, and I agree that the researcher may use the data and results as described in the information sheet.

I acknowledge that:

- any risks and possible effects of participating in the **interview** have been explained to my satisfaction

taking part in this research is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;

- that any information I give will be kept strictly confidential and that no names will be used to identify me within this research without my approval;

*(Please tick to indicate consent)*

<b>I consent to be interviewed</b>	<input type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/>	<b>No</b>
<b>I consent for the interview to be audio taped</b>	<input type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/>	<b>No</b>

<b>Name:</b> <i>(printed)</i>	
<b>Signature:</b>	<b>Date:</b>

The ethical aspects of the project have been approved by the Human Research Ethics Committee (HREC) of the Greater Western Area Health Service.

If you have any concerns or complaints please contact: The Executive Officer, PO Box 143 Bathurst NSW 2795 or telephone (02) 6339 5601.





**INFORMED CONSENT FORM:** Consumer, managerial and colleague participants

PRINCIPAL INVESTIGATOR	<b>Robyn Adams</b>
SUPERVISOR	<b>Professor Lorraine Sheppard</b>
PROJECT TITLE:	<b>Factors influencing Australian rural, regional and remote physiotherapy organisational decision making</b>
SCHOOL	<b>Public Health, Tropical Medicine and Rehabilitation Sciences -Discipline of Physiotherapy</b>

I understand the aim of this research is to identify factors influencing the provision of physiotherapy services in rural, regional and remote areas and how decisions are made about which services to provide. I consent to participate in this research, the details of which have been explained to me, and I have been provided with a written information sheet to keep.

I understand that my participation will involve completion of a **questionnaire**, and I agree that the researcher may use the data and results as described in the information sheet.

I acknowledge that:



- any risks and possible effects of participating in this research through the completion of the **questionnaire** have been explained to my satisfaction;
- taking part in this research is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
- that any information I give will be kept strictly confidential and that no names will be used to identify me with this research without my approval;

*(Please tick to indicate consent)*

I consent to complete a questionnaire	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
I consent for that the researcher may use the data and results as described in the information sheet.	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

<b>Name:</b> <i>(printed)</i>	
<b>Signature:</b>	<b>Date:</b>

The ethical aspects of the project have been approved by the Human Research Ethics Committee (HREC) of the Greater Western Area Health Service.

If you have any concerns or complaints please contact: The Executive Officer, PO Box 143 Bathurst NSW 2795 or telephone (02) 6339 5601.





## INFORMED CONSENT FORM: Physiotherapy participants

PRINCIPAL INVESTIGATOR	<b>Robyn Adams</b>
SUPERVISOR	<b>Professor Lorraine Sheppard</b>
PROJECT TITLE:	<b>Factors influencing Australian rural, regional and remote physiotherapy organisational decision making</b>
SCHOOL	<b>Public Health, Tropical Medicine and Rehabilitation Sciences -Discipline of Physiotherapy</b>

I understand the aim of this research is to identify factors influencing the provision of physiotherapy services in rural, regional and remote areas and how decisions are made about which services to provide. I consent to participate in this research, the details of which have been explained to me, and I have been provided with a written information sheet to keep.

I understand that my participation will involve completion of a **survey**, after which I may be asked to participate in an **interview**. The selection process for participation in interviews will be informed by the survey results and be guided by geographical setting and number of physiotherapists working with you. I understand if I participate in the interviews I will be asked to **distribute** a short questionnaire to managers and interdisciplinary colleagues, to place consumer research packages in reception and waiting areas, and to **suggest** key decision making

stakeholders who could be invited to participate in a 60 minute interview. I agree that the researcher may use the data and results as described in the information sheet.

I acknowledge that:

- any risks and possible effects of participating in the **survey, interview, distribution of questionnaires and stakeholder suggestions** have been explained to my satisfaction;
- taking part in this research is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
- that any information I give will be kept strictly confidential and that no names will be used to identify me within this research without my approval;

<b>I consent to complete a survey</b>		Yes	No
<b>I consent to be considered for participation in follow up interviews</b>		Yes	No
<b>I consent to be interviewed, should I form part of the follow up selection</b>		Yes	No
<b>I consent for the interview to be audio taped, should I form part of the follow up selection. (Consent will be confirmed at the interview).</b>		Yes	No
<b>I consent to distribute the survey, should I form part of the follow up selection</b>		Yes	No
<b>I consent to provide suggestions of key decision-makers, should I form part of the follow up selection</b>		Yes	No

<b>Name:</b> <i>(printed)</i>	
<b>Signature:</b>	<b>Date:</b>

The ethical aspects of the project have been approved by the Human Research Ethics Committee (HREC) of the Greater Western Area Health Service.

If you have any concerns or complaints please contact: The Executive Officer, PO Box 143 Bathurst NSW 2795 or telephone (02) 6339 5601.

## 17. Appendix C: Interview Guides

### Key decision maker Interview themes

*The themes for this interview will be amended to reflect the feedback obtained from the surveys and questionnaires of physiotherapists and key stakeholders.*

Themes explored	Interview questions
Your role	<p>Please tell me what you do?</p> <p>How long have you worked in this role?</p> <p>How does your role relate to the physiotherapists/ physiotherapy service</p>
Number of Physiotherapists	<p>Do you know the number of physiotherapists working here?</p> <p>Do you know if there are assistants working with physiotherapists?</p>
Range and type of Physiotherapy Services	<p>Please tell me what physiotherapy services your facility/ service provides?</p> <p>Are there other physiotherapy services that you are asked to provide?</p> <p>Or this facility/service would like to provide?</p>
Factors influencing physiotherapy service provision	<p>Are there other physiotherapy services/service providers available within this community?</p> <p>How does this influence the services provide here?</p> <p>Please tell me what you think are the factors that influence physiotherapy services provision here. ( range /type)</p>

Rurality	<p>Do you describe this physiotherapy service setting as a rural, regional or remote? ( other)</p> <p>In your opinion are there differences in providing services in rural, regional or remote settings?</p> <p>What is different about providing physiotherapy services in this setting?</p> <p>Is this different to other non metropolitan settings?</p> <p>How might this be different to physiotherapy services in provided in a metropolitan setting?</p>
Decision making	<p>Can you tell what factors you think influence the decisions that are made about which services are provided here? What else?</p> <p>Who contributes to decisions about which services are provided here? Who else?</p> <p>Can you tell me how decisions are made about which services are provided here? How else</p>
Values and beliefs	<p>What values and beliefs do you think may influence physiotherapy provision or the decisions about which services to provide?</p>
Reflections on stakeholder responses	<p>Can you please offer your opinion as to why the following were seen as important issues , and whether your think they are valid or not:</p> <p>- <i>to be added following collation and analysis of survey and questionnaire</i></p> <p>-</p>

## Physiotherapist Interview themes

*The themes for this interview will be amended to reflect the feedback obtained from the surveys and questionnaires of physiotherapists and key stakeholders.*

Themes explored	Interview questions
Physiotherapy role	<p>Please tell me what you do?</p> <p>How long have you worked in this role?</p>
Number of Physiotherapy colleagues	<p>Do you work on your own, or with other physiotherapists?</p> <p>If you do not work on your own, how many colleagues work with you?</p>
Range and type of Physiotherapy Services	<p>How does working on your own/with x colleagues impact the services you provide?</p> <p>Please tell me what physiotherapy services your facility/ service provides?</p> <p>Are there other physiotherapy services you are asked to provide? Or would like to provide?</p>
Factors influencing physiotherapy service provision	<p>Are there other physiotherapy services/service providers available within this community?</p> <p>How does this influence the services you provide?</p> <p>Please tell me what you think are the factors that influence physiotherapy services provision here. ( range /type)</p>
Rurality	<p>Do you describe this physiotherapy service setting as a rural, regional or remote? ( other)</p>



	<p>Are there differences in providing services in rural, regional or remote settings?</p> <p>What is different about providing physiotherapy services in this setting?</p> <p>Is this different to other non metropolitan settings?</p> <p>How might this be different to physiotherapy services in provided in a metropolitan setting?</p>
Decision making	<p>Can you tell what factors you think influence the decisions that are made about which services are provided here? <i>What else?</i></p> <p>Who contributes to decisions about which services are provided here? <i>Who else?</i></p> <p>Can you tell me how decisions are made about which services are provided here? <i>How else</i></p>
Values and beliefs	<p>What values and beliefs do you think may influence physiotherapy provision or the decisions about which services to provide?</p>
Reflections on stakeholder responses	<p>Can you please offer your opinion as to why the following were seen as important issues , and whether your think they are valid or not:</p> <p><i>- to be added following collation and analysis of survey and questionnaire</i></p> <p>-</p>

## 18. Appendix D: Surveys and Questionnaires



### Physiotherapist Survey

#### Instructions

*Thank you* for completing this survey which is a contributing part of a Doctor of Philosophy (Physiotherapy) conducted by Robyn Adams of James Cook University, Townsville.

The survey should take approximately 20 minutes to complete, and is designed for physiotherapists working in rural, regional or remote areas to complete. Please document your response in the space provided with each question. If you require more space, please attach a separate piece of paper and write the corresponding question number next to your response.

Please send your completed **survey** and **consent form** to Robyn Adams in the reply-paid envelope provided.

Please write out your response in full and provide as much detail as possible in open ended questions.

#### About you

1. How long have you worked as a physiotherapist? \_\_\_\_\_ (months or years)

2. How long have you worked in rural, regional or remote physiotherapy practice?

a)Current position \_\_\_\_\_ (months or years)

b)Total previous positions \_\_\_\_\_ (months or years)

3. Gender: Male  Female

**About the service**

4. Please indicate which **geographic setting** you identify for the location of the physiotherapy services you provide (*if more than one setting, please indicate the setting of your primary area of work*)

Regional Rural Remote Other

Please describe \_\_\_\_\_

5. What is the **post code** of the location of the facility/service/s where you work?

a)Primary area of work  b)Outreach/other area

6. Please list **other physiotherapy providers** within this community, if they are available.

<input type="checkbox"/>	<input type="checkbox"/> Private	<input type="checkbox"/> Visiting	<input type="checkbox"/> Aged Care	<input type="checkbox"/> Other -Please describe
Private Practice	Hospital	Physiotherapy service	Physiotherapy service	_____
				_____

7. Do you work in more than one geographic  Yes  No setting?

a) Could you please describe how you work in more than one geographic setting? (eg outreach, dual employment, supervise/ mentor new graduates,)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Please indicate the **sector** in which you practice.

<input type="checkbox"/>	Public sector- state health department facility/service <i>eg hospital, or community health service</i>
<input type="checkbox"/>	Public sector -government funded <i>eg Regional Health Service, HACC</i>
<input type="checkbox"/>	Private practice
<input type="checkbox"/>	Non -government organisation
<input type="checkbox"/>	Other
<input type="checkbox"/>	Please describe _____

9. Do you work in more than one sector? Yes  No

10. Could you please describe *how* you work in more than one sector? (eg dual appointment, rights to private practice)

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11. Do you work full or part time?

Full time                       Part time

12. How many **hours per week** are you **employed to work**?

>38                      38                      30-                      20-                      10-                      <10

37                      29                      19

Yes                       No

13. Do you work **more than the hours** you were employed to work?

14. **If yes**, please provide comments on the frequency, the number of hours and common reasons for working more than to the hours you were employed to work.

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15. **How many other physiotherapists** work with you in the same facility/service?

one       1       2-4       5 or more

16. Do your physiotherapy colleagues **work full-time or part-time?**

a) Number full-time \_\_\_\_\_ b) Number part-time \_\_\_\_\_

17. Do you have **physiotherapy assistant/s** working with you?       Yes       No

a) Number full-time \_\_\_\_\_ b) Number part time \_\_\_\_\_

18. Do you have **access to clerical/administration support?**       Yes       No

a) Number full-time \_\_\_\_\_ b) Number part-time \_\_\_\_\_

19. What **physiotherapy services** does your facility/service provide?

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20. Are you asked to, or do you plan, to offer **more or different** services to those already described?

If yes, please describe.

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21. What factors influence [physiotherapy service provision](#) in your facility/service?

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22. How do these factors influence [physiotherapy service provision](#) within your facility/service?









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28. Do you think that personal/organisational **values or beliefs** impact [physiotherapy service provision](#) and/or [organisational decision-making](#) about physiotherapy in your facility/service?

Yes    No    Unsure

29. **If yes**, please provide your thoughts on how personal/organisational values and/or beliefs impact

- a) Physiotherapy service provision and/or
- b) Organisational decision-making

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30. Do you have **any further comments** about [factors influencing physiotherapy service provision](#) or [organisational decision-making](#) about which physiotherapy services are provided in your facility/service or rural, regional and remote areas more generally?

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eg RURAL-1 or  
REGIONAL -4

As indicated in the information sheet, the interview, with your consent, will be audio-taped, and should take approximately 60-90 minutes of your time. The interview will be conducted at a venue of your choice.

## Colleague and Manager Questionnaire

### Instructions

Thank you for completing this questionnaire as part of a Doctor of Philosophy (in Physiotherapy) conducted by Robyn Adams of James Cook University, Townsville. This questionnaire should take approximately 15-20 minutes to complete. Please provide your response in the space provided with each question. If you require more space, please attach a separate piece of paper and write the corresponding question number next to your response.

Please send your completed [questionnaire](#) and [consent form](#) to Robyn Adams in the reply-paid envelope provided.

Please write out your response in full and provide as much detail as possible in open ended questions.

### About you

1. Please indicate your role in the facility/service where you work with physiotherapists.

Allied Health     Nurse     Doctor     Assistant     Administration

Professional

Other    *Please describe* \_\_\_\_\_

2. Which of the following describes how you work with physiotherapists in your facility/service?

Clinical colleague

Line Manager

Manager, Other... *Please describe* \_\_\_\_\_

Therapy assistance

Administration support

Other..... *Please describe* \_\_\_\_\_

3. Gender: Male  Female

4. How long have you worked in your profession/role?

\_\_\_\_\_ (months or years)

5. How long have you worked in the facility/service where you work with physiotherapists?

\_\_\_\_\_ (months or years)

6. How long have you worked in rural, regional or remote health facilities/services in total?

\_\_\_\_\_ (months or years)

**About the physiotherapy service**

7. What is the post code of the location of the facility/service where you work with physiotherapists?

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8. Which of the following *best describes* the **geographic setting** where you work with physiotherapists?

- Regional       Rural       Remote       Other

Please describe \_\_\_\_\_

9. Which of the following describes the **type of facility/service** where you work with physiotherapists?

- Public sector- state health department facility/service *eg hospital or community*
- Public sector -government funded *eg Aged Care Assessment Team (ACAT)*
- Private practice
- Non –government organisation (NGO)
- Other Please describe \_\_\_\_\_

10. Please list **other physiotherapy providers** within this community, if they are available.

- Private Practice       Private Hospital       Visiting Physiotherapy service       Aged Care Physiotherapy service       Other -Please describe \_\_\_\_\_

11. Do you know **how many physiotherapists** work in the facility/service where you work with physiotherapists? *If so, please indicate.*



1

2

3-5

6 or more

12. Are you able to describe/list the **physiotherapy services provided** in the facility/service where work with physiotherapists?

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13. Are there other physiotherapy services that you think should be provided here? If so, please list.

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14. In your opinion, **what is the role** of physiotherapists generally? What jobs or tasks do they do?

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15. What **factors do you think influences** physiotherapy service provision in the facility/service *where you work* with physiotherapists or *in rural, regional and remote areas more generally*?

a) Locally

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b) Rural, regional and remote areas generally

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16. *How* do you think these factors **influence physiotherapy service provision** where you work with physiotherapists or *in rural, regional and remote areas more generally*?

a) Locally

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**b) Rural, regional and remote areas generally**

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17. *In your opinion*, how could the physiotherapy services be improved?

**a) Locally**

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**b) Rural, regional and remote areas generally**

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**18. How are decisions made** about which physiotherapy service provision within the facility/service where you work with physiotherapists?

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**19. Who contributes to or influences the decisions** about which physiotherapy services are provided within the facility/service where you work with physiotherapists?

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**20. Are there broader influences** impacting physiotherapy service provision in this facility/service?

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## Consumer Questionnaire

### Instructions

Thank you for completing this questionnaire as part of a Doctor of Philosophy (in Physiotherapy) conducted by Robyn Adams of James Cook University, Townsville. This questionnaire should take approximately 10 minutes to complete. Please provide your response in the space provided with each question. If you require more space, please attach a separate piece of paper and write the corresponding question number next to your response.

Please send your completed **questionnaire** and **consent form** to Robyn Adams in the reply-paid envelope provided.

Please write out your response in full and provide as much detail as possible in open ended questions.

### About you

1. Are you currently receiving physiotherapy?  Yes  No
2. Have you received physiotherapy before?  Yes  No
3. If yes, how many referrals to physiotherapy in the past 5 years? \_\_\_\_\_
4. Gender: Male  Female
5. Why did you have to seek physiotherapy?

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6. Who referred you to this physiotherapy service?

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7. What type of physiotherapy service/treatment do you receive?

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**About the physiotherapy service**

8. Which of the following would you say best describes the setting where you receive physiotherapy?

Regional

Rural

Remote

Other

Please describe \_\_\_\_\_

9. What is the post code of the location of the facility/service where attend physiotherapy?

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10. Do you know how many physiotherapists work in the physiotherapy service you attend?

No or unsure

1

2

3-5

6 or more

11. Which of the following describes the type of physiotherapy service you attend?



- Public sector- state health department facility/service *eg hospital or community*
- Public sector -government funded *eg Aged Care Assessment Team (ACAT)*
- Private practice
- Non –government organisation
- Other Please describe \_\_\_\_\_

12. Are you able to list **other types of physiotherapy services** provided where you attend physiotherapy?

i \_\_\_\_\_

ii \_\_\_\_\_

\_\_\_\_\_

iii \_\_\_\_\_

iv \_\_\_\_\_

\_\_\_\_\_

13. Please list **other physiotherapy providers** within community, if they are available?

<input type="checkbox"/> Private Practice	<input type="checkbox"/> Private Hospital	<input type="checkbox"/> Visiting Physiotherapy service	<input type="checkbox"/> Aged Care Physiotherapy service	<input type="checkbox"/> Other -Please describe _____
				_____
				_____

14. In your opinion, *what* is the **role of the physiotherapist** generally? What jobs or tasks do they do?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**15. What factors *do you think* influences physiotherapy service provision where you receive physiotherapy or in rural, regional and remote areas more generally?**

a) Locally \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b) Rural, regional and remote areas generally  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**16. How do you think these factors influence physiotherapy service provision where you receive physiotherapy?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**17. In your opinion, how could the physiotherapy service be improved?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

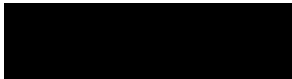

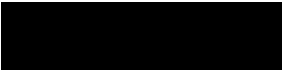
**18. Do you have any *further comments* about the **physiotherapy service provision** or organisational **decision-making about which physiotherapy services** are provided in *this service* or in rural, regional and remote areas more generally?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

THANK YOU FOR YOUR TIME AND COMMENTS

## 19. Appendix E: Permission of Co-authors

Co-Author consent for inclusion of paper in thesis and confirmation of candidate contribution

Thesis Title:	Rural physiotherapy service provision and service level decision making: An exploration of rural physiotherapy stakeholders' perceptions	
Name of Candidate: Robyn Adams		
Details of publication(s) on which chapter is based		Nature and extent of the intellectual input of each author, including the candidate
Chapter 4	Adams, R., Sheppard, L., Jones, A., & Lefmann, S. (2014). What factors influence physiotherapy service provision in rural communities? A pilot study. <i>Australian Journal of Rural Health, 22</i> (3), 133-138.	Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.
	I confirm the candidate's contribution to this paper and consent to the inclusion of the paper in this thesis	Name: Lorraine Sheppard Signature:  Name: Anne Jones Signature:  Name: Sophie Lefmann Signature: 
Chapter 5	Adams, R., Jones, A., Lefmann, S., & Sheppard, L. (2014). Utilising a collective case study system theory mixed method approach: a rural health example. <i>BMC Medical Research Methodology, 14</i> .	Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated

	doi:10.1186/1471-2288-14-94.	in the study design, data analysis and preparation of the manuscript
	I confirm the candidate's contribution to this paper and consent to the inclusion of the paper in this thesis	Name: Lorraine Sheppard Signature: [REDACTED] Name: Anne Jones Signature: [REDACTED] Name: Sophie Lefmann Signature: [REDACTED]
Chapter 6	Adams, R., Jones, A., Lefmann, S., & Sheppard, L. Factors influencing rural physiotherapy service provision: a mixed methods study.  Submitted for publication September 2014	Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.
	I confirm the candidate's contribution to this paper and consent to the inclusion of the paper in this thesis	Name: Lorraine Sheppard Signature: [REDACTED] Name: Anne Jones Signature: [REDACTED] Name: Sophie Lefmann Signature: [REDACTED]
Chapter 7	Adams, R., Jones, A., Lefmann, S., & Sheppard, L. Towards understanding	Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and

	<p>availability and accessibility of physiotherapy services in rural Australia</p> <p>Submitted for publication September 2014</p>	<p>preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.</p>
	<p>I confirm the candidate's contribution to this paper and consent to the inclusion of the paper in this thesis</p>	<p>Name: Lorraine Sheppard Signature: [REDACTED] Name: Anne Jones Signature: [REDACTED] Name: Sophie Lefmann Signature: [REDACTED]</p>
Chapter 8	<p>Adams, R., Jones, A., Lefmann, S., &amp; Sheppard, L. Decision-making about rural physiotherapy service provision varies with sector, size and rurality</p> <p>Submitted to Submitted for publication June 2014</p>	<p>Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.</p>
	<p>I confirm the candidate's contribution to this paper and consent to the inclusion of the paper in this thesis</p>	<p>Name: Lorraine Sheppard Signature: [REDACTED] Name: Anne Jones Signature: [REDACTED] Name: Sophie Lefmann Signature: [REDACTED]</p>

Chapter 9	<p><i>Adams, R., Jones, A., Lefmann, S., &amp; Sheppard, L. Rationing is a reality in rural physiotherapy: A qualitative exploration of service level decision-making</i></p> <p>Submitted for publication April 2014</p>	<p>Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.</p>
	<p>I confirm the candidate's contribution to this paper and consent to the inclusion of the paper in this thesis</p>	<p>Name: Lorraine Sheppard Signature: [REDACTED] Name: Anne Jones Signature: [REDACTED] Name: Sophie Lefmann Signature: [REDACTED]</p>
Chapter 10	<p>Adams, R., Jones, A., Lefmann, S., &amp; Sheppard, L. Service level decision making in rural physiotherapy: development of conceptual models</p> <p>Submitted for publication April 2014</p>	<p>Author contributions: RA participated in the study concept and design, data collection and analysis, reviewing the literature and preparation of the manuscript. LS participated in the study design, data analysis and preparation of the manuscript. AJ participated in the study design, data analysis and preparation of the manuscript. SL participated in the study design, data analysis and preparation of the manuscript.</p>
	<p>I confirm the candidate's contribution to this paper and consent to the inclusion of the paper in this thesis</p>	<p>Name: Lorraine Sheppard Signature: [REDACTED] Name: Anne Jones Signature: [REDACTED] Name: Sophie Lefmann Signature: [REDACTED]</p>

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## 20. Appendix F: PDFs of published articles

RESEARCH ARTICLE

Open Access

# Utilising a collective case study system theory mixed methods approach: a rural health example

Robyn Adams<sup>1\*</sup>, Anne Jones<sup>1</sup>, Sophie Lefmann<sup>2</sup> and Lorraine Sheppard<sup>1</sup>

## Abstract

**Background:** Insight into local health service provision in rural communities is limited in the literature. The dominant workforce focus in the rural health literature, while revealing issues of shortage of maldistribution, does not describe service provision in rural towns. Similarly aggregation of data tends to render local health service provision virtually invisible. This paper describes a methodology to explore specific aspects of rural health service provision with an initial focus on understanding rurality as it pertains to rural physiotherapy service provision.

**Method:** A system theory-case study heuristic combined with a sequential mixed methods approach to provide a framework for both quantitative and qualitative exploration across sites. Stakeholder perspectives were obtained through surveys and in depth interviews. The investigation site was a large area of one Australian state with a mix of rural, regional and remote communities.

**Results:** 39 surveys were received from 11 locations within the investigation site and 19 in depth interviews were conducted. Stakeholder perspectives of rurality and workforce numbers informed the development of six case types relevant to the exploration of rural physiotherapy service provision. Participant perspective of rurality often differed with the geographical classification of their location. The numbers of onsite colleagues and local access to health services contributed to participant perceptions of rurality.

**Conclusions:** The complexity of understanding the concept of rurality was revealed by interview participants when providing their perspectives about rural physiotherapy service provision. Dual measures, such as rurality and workforce numbers, provide more relevant differentiation of sites to explore specific services, such as rural physiotherapy service provision, than single measure of rurality as defined by geographic classification. The system theory-case study heuristic supports both qualitative and quantitative exploration in rural health services research.

**Keywords:** Case study, Health service, Rural, Systems theory

## Background

Aggregation of health service and workforce data can render local rural health service issues virtually invisible. As data is collated from local, regional, state and national data sets, visibility of local service availability and accessibility diminish with each level of data collation. Obtaining insight into local health service provision beyond the data requires a different approach: a framework that can provide insight into service delivery and variability in a way existing statistical data does not. The aim of this paper is to describe a methodology to explore specific aspects of rural health service provision with an

initial focus on understanding rurality as it pertains to rural physiotherapy service provision. There is little identified literature which describes decision making in rural physiotherapy service provision. No known study has identified influencing factors and what processes are involved in understanding what physiotherapy services to provide in rural locations. Thus there was a need to identify what methodology to use to investigate this topic.

## Defining place

The concept of *relational place* has been suggested as useful for exploration of the specifics of rural communities and the impact of context [1]. This concept of place is informed by the relational understanding of space and place advocated by Cummins et al. [2] and 'the event of

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place' referred to by Massey [3]. The relational view of place includes elements such as nodes of networks, separated by social relational distance with populations of individuals who are mobile both daily and over their life course [2]. Definitions of the area of the 'place' are relatively fluid, recognising dynamic characteristics of place such as 'declining' or 'advancing' in contrast to conventional characteristics such as 'deprived' or 'affluent', which are fixed at points in time [2].

Distinguishing attributes of cultural divisions, services and infrastructure is important in understanding health service provision. The conventional view of place is one of 'culturally neutral territorial division, infrastructure and services' where services are described 'in terms of fixed locations often providing for territorial jurisdiction and distance decay models' [2], p. 1827. This contrasts with the relational view of place which sees 'territorial divisions, services and infrastructure imbued with social power relations and cultural meaning' [2], p. 1827. The conventional view of place as spaces with fixed geographical boundaries and services described in terms of fixed locations [2] is different to the relational view of 'nodes of networks'; 'constellations of connections' [3] and complex circuitry with a multiplicity of linkages and feedback loops [4]. Conceptual representation of conventional and relational space is provided Figure 1. Thus when exploring rural health service provision an understanding of place and the definition used to identify place will impact on the results of the study. Although a health region has defined boundaries seen in the conventional view of place, it is the relational view of place which shows the interactions between and across boundaries which really matches rural health service provision. The multiple linkages and complex nature of health services influences the methodological approach to researching rural health service provision and decision making.

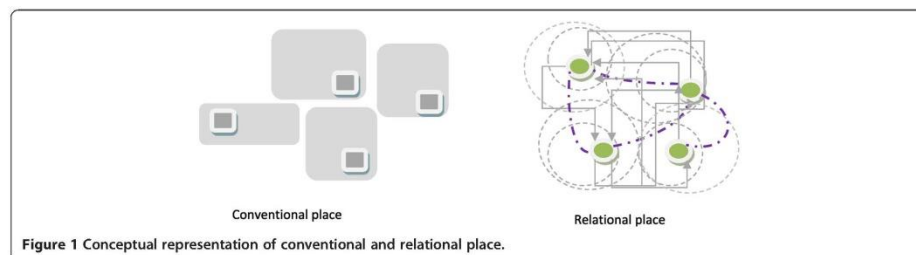
## Methods

### Mixed methods

Combining qualitative and quantitative methods provides possibilities for health researchers to grapple with

the complexity of health [5], and the factors that influence both health care and health service provision. A mixed methods approach allows quantitative data obtained from surveys and health service data to be combined with qualitative data to better inform decisions about health service delivery. A qualitative paradigm supports exploration of issues and factors at local, state and national levels that influence local of health service provision. Obtaining stakeholder perspectives on specific aspects of a health service provides insight into local health service provision beyond the quantitative data. Approaches used within qualitative research enable participants to reveal their thoughts and perceptions within their context [6]. This is highly relevant to health service research because it supports exploration of the perspectives of multiple stakeholders across different geographical settings and different sized and types of services. Variability and diversity are characteristic of rural Australia [7], and combine with the unique demography of rural and remote Australia as key determinants of health problems and health service needs [8]. Thus, a robust methodological approach should consider variability and diversity of different sites, to be consistent with the dynamic characteristics of place.

Adopting a sequential mixed method approach provides a framework for health researchers to investigate an issue of interest in complex organisations by providing structure for obtaining data from multiple sources. A preliminary quantitative component, such as a survey, can precede and guide the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration [9]. Use of an initial survey, for example, allows the researcher to obtain the perspectives of a broader range of stakeholders than may be feasible if only a qualitative approach is adopted. By analysing the data from the quantitative component groups of interest can be identified. Use of stratified purposive sampling then permits the exploration of ideas by these groups [10] in the qualitative component. These groups may include service providers, their colleagues, managers, key decision-makers or consumers. This supports a key intent of sampling within qualitative research,



which is the selection of information rich cases [11]. The perspectives of individuals enables the researcher to look for complexity of views and also to address processes of interaction among individuals [12]. Researchers can focus on the specific context in which people live and work [12] which is important when seeking to understand the setting in which health services are delivered.

#### Case study

Case study design supports the use of multiple data sources. It is appropriate where the research aim is to explore contextual or complex multivariate conditions and not just isolated variables [13]. An instrumental case study approach the issue or factor is the focus of the study rather than the case [14]. Organisational complexity and contextual factors such rurality and service settings are important factors in health service delivery. Adopting an instrumental case study approach is suitable therefore as it allows a focus on the issue of interest across sites. Stake refers to the study of more than one case as collective case studies, each of which is an instrumental study linked by coordination between individual studies [14]. Collective case study design [14] provides a structure to gain insight into the issue of interest across settings as it allows comparison within and between cases [15]. Thus the use of instrumental collective case studies is useful for identifying and studying factors that affect service level decision making in rural health.

#### Systems theory

A systems-focused approach is recommended to articulate interdependent components that contribute to or compromise the effectiveness of health care interventions or programs. It provides insight into the questions of 'why', 'how' and the 'what' of contexts [16]. 'The parts do not have to be working well, the purpose may be irrational, but it is a system none the less' [14], p. 2. The boundary of a system need not correspond with recognised departmental, institutional or other physical boundaries [11]. The exchange of inputs and outputs across a boundary indicate boundary permeability. An interaction with the environment is characteristic of systems generally and more specifically of open systems [17,18]. Although boundaries may be clearly defined, they are subject to interaction and influences external to the system. Within an interpretive paradigm it is "acknowledged that a 'system' is not a concrete thing but an abstract concept that constitutes particular relationships that can be actualised in a number of ways" [18], p. 128. Perceiving one aspect or specific issue as a system within a more broadly conceived organisation can generate both a new representation of the issue and variety in the way the issue is thought about [11]. Choosing to think of a health care organisation as if it were a system is a useful construct

and one that is not new in its application to health and health care [19]. Studies of emergency department physiotherapy [20] and health promoting environments in a university [21] for example, have described sets of interrelated elements which, when viewed together, form a 'whole'. What is new is applying it to service level decision making in the context of rural health.

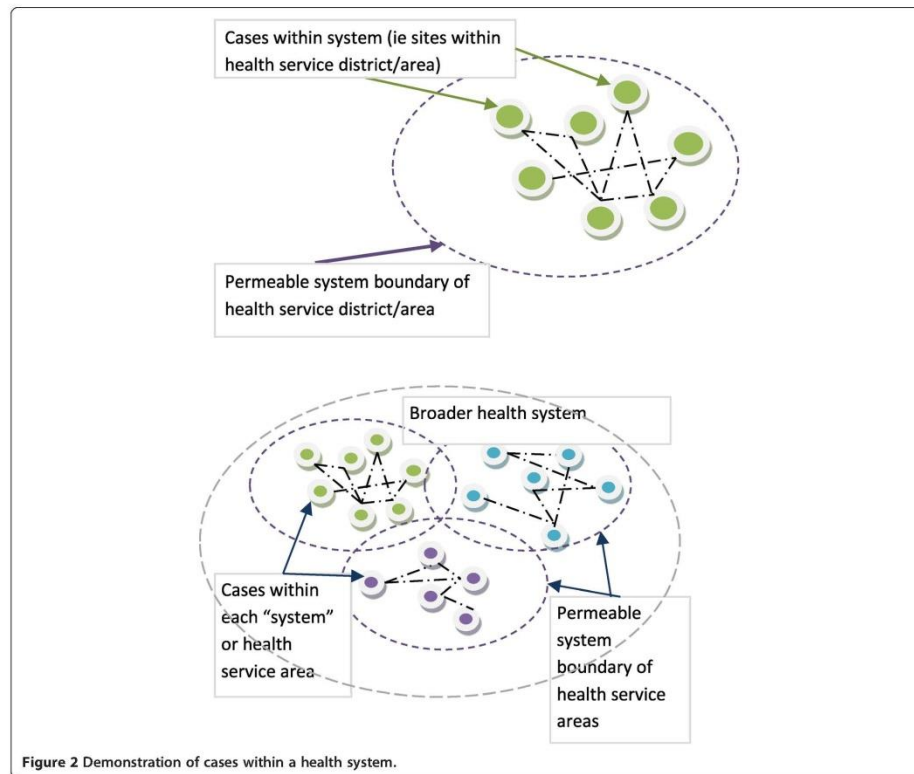
#### Combining case study and systems theory

The constructs within the relational view of place suggest the relevance of both case study and systems theory. Both methodologies have been used in health and health care research [21-24]. Combining systems theory and case study methodology offers the opportunity for in-depth exploration as well as comparative analysis between cases in the context of the system [20]. The combination provides a way of conceptualising complex issues for exploration, and as such has been considered an heuristic model [25]. This model provides a structure to explore local health service provision whilst recognising the flows and linkages that occur within a relational concept of place. The systems theory-case study heuristic, as part of a framework for this study, acknowledges that a case is also a 'bounded system' [14], p. 2. This notion assists by drawing attention to it as an object rather than a process.

Organisational issues, including how and why health care services are provided, requires recognition of a range of influencing factors. Also important is an understanding of the impact of external factors, such as national and state health policies, on health services provided by an organisation.

Adoption of both a collective instrumental case study design and a systems approach supports the focus on the issue of interest and holistic exploration [24]. In this study of rural physiotherapy service provision the defined system may include tangible and intangible elements within a broader organisation that are connected to form a system. The application of both case study and a system theory approach supports consideration of a single issue across multiple sites and contextual variations of place. Each of these individual cases exists within larger systems with interactions between cases and is influenced beyond both the boundaries of the single case and the network boundaries (Figure 2).

The systems theory-case study heuristic supports the use of both qualitative and quantitative approaches and a priori-sequence model [5] guides the practical integration of both approaches. As part of a larger study seeking to understand how decisions are made about rural physiotherapy service provision, important first steps were to understand participant's perspectives of rurality and to develop cases for exploration of decision making about physiotherapy service provision.



#### Context of rurality

Due to the expressed limitations of the application of geographic classifications to health care [26], the researchers focussed on Participant Perspectives of Rurality (PPR) which were compared with geographical classifications. Many definitions and classifications are used to describe or differentiate rural, regional and remote settings [27,28]. The Australian Standard Geographical Classification Remoteness Areas [ASGC- RA] is recommended by the Australian Institute of Health and Welfare (AIHW) [29]. Other Australian classifications include Access/Remoteness Index for Australia [ARIA] and Rural, Remote & Metropolitan Areas Classification [RRMA]. As classifications are based on factors such as distance to service centres, population size or density, they may not take into account other contextual factors or accessibility of specific health services such as physiotherapy. Different definitions can lead to different classifications and, in terms of program funding for instance, may alter a community or

individual's entitlement eligibility. The notion of developing a suite of measures [26,30] is important in the exploration of specific issues of health and health service provision in rural settings. The index of access to primary care is one recently described measure [30]. The development of case sites using PPR combined with key aspects of the research question highlights how utilisation of the described methodological approach may assist in exploring local health service provision in rural communities. The research aims can then be explored within and between identified cases relevant to the research. This is believed to be the first study to utilise this methodical approach to define rurality or relational place.

#### Research method

The investigation site was a large area of one Australian state with a mix of rural, regional and remote communities with a range of health services of varying sizes. The scope of the study was bounded by the defined geographic



area of a rural health service network. This area offered the opportunity to explore rural physiotherapy services across many health service settings. Identification of multiple sites enabled development of rural physiotherapy cases for exploring rural physiotherapy service provision. Ethics approval was obtained from the Human Research Ethics Committee of both James Cook University (approval number H3799) and the health service of the study. Data collection occurred from January to September 2012. Site specific approval was obtained for 25 health facilities employing physiotherapists within the investigation site.

Public sector physiotherapy service provision formed the primary focus of this research. The researchers' experience as rural physiotherapists and reports of a greater reliance on the public sector for the provision of allied health services, including physiotherapy, in rural and remote regions of Australia [31] informed this focus. Private physiotherapy services, while limited in some communities, deliver significant services and formed a second focus of this investigation.

A preliminary quantitative component, a survey of public sector physiotherapists in the selected investigation area, preceded and guided the main qualitative data collection by informing purposive sampling and establishing preliminary results for further in-depth exploration [9]. Public physiotherapists were invited to participate in the initial phase of the research through local professional networks. Senior physiotherapists in the investigation site provided key physiotherapy contacts in the public sector physiotherapy departments. Surveys were mailed to the key physiotherapy contacts for distribution to colleagues in their facility. Participant information and consent forms were included with the survey for distribution. Physiotherapists were invited to complete a survey describing their setting, service and factors influencing their practice.

Results from the survey assisted in identifying a range of stakeholders willing to participate in the second stage of the study. Stakeholders included physiotherapists, their colleagues, managers, key decision-makers and consumers. The second stage of data collection consisted of stakeholder specific surveys. To obtain input from stakeholders, case site physiotherapists who had agreed to participate in follow up interviews, were asked to distribute questionnaires to the stakeholders at their site, including managers, consumers and team members [32]. The physiotherapists were able to guide or direct this data collection phase to stakeholders they identified as relevant to the decision-making process. Where present, the private physiotherapists were identified from listings in the Yellow Pages phone book of each case site. As the physiotherapy workforce has become increasingly privatised [33] it was important to consider the contributions to rural physiotherapy service provision made by private physiotherapists. To allow for possible intersectoral comparison of responses from consumer surveys,

outpatient services were prioritised in the public health services. Both public and private physiotherapists were asked to place consumer surveys on relevant reception desks with an information sheet describing the study to allow consumers to elect to participate or not. Written consent was obtained from all participants. All surveys were anonymous unless participants agreed to provide their details for subsequent interviews.

In the final stage of data collection the principal researcher conducted face to face semi-structured interviews with a purposive sample of physiotherapists and key decision-makers. The interview questions reflected both the questions and responses of the survey as the researchers sought to obtain greater insight into the issues raised. The interviews occurred in each case site at a location and time convenient to each participant. Written informed consent was gained prior to the interview. All interview participants were informed that they would not be identifiable and that confidentiality would be maintained. This staged approach to data collection is consistent with the funnel analogy described by Bogdan and Biklen [34]. Interviews were ceased when data saturation occurred.

#### Data analysis

Initial data analysis of the survey data was undertaken using Microsoft Excel spread sheets. Responses to open ended questions informed the development of initial themes and areas for further exploration in interviews. Manual and electronic recording of data through the use of NVivo version 10 were used to organise the qualitative data. Each interview was recorded and transcribed verbatim and entered into NVivo. Full interview transcripts and a summary developed by the researcher were provided to interview participants for their review and comment. An iterative approach was used to guide the qualitative data analysis [35]. The principal researcher completed the initial analysis with co-researchers double coding one third of the interviews to add to the depth of analysis. Thematic analysis was undertaken to develop tentative themes and concepts to develop codes, which were then used to frame and account for the remaining data [35].

#### Research rigour

The research design included data collection from multiple sources to enable triangulation of data and constant comparison. Interviews were audio taped and transcribed verbatim with full transcripts and summaries provided to each interview participant for verification and additional comments. One third of the interviews (7/19) were coded by a second coder to verify themes. An auditable trail of evidence was maintained throughout the conduct of the research to further add to the credibility of the findings [15,35,36].

**Results**

Physiotherapy surveys were received from 11 of the 25 (44%) public sector facilities identified as providing physiotherapy services in the investigation area. The sixteen completed surveys received from the 11 sites represented a 29.4% response rate as 54 physiotherapy surveys were distributed. From the surveys a matrix was developed to identify cases for purposeful sampling [35]. The surveys identified two key factors relevant to rural physiotherapy service provision: rurality and the number of physiotherapists. In view of the expressed limitations of geographic classification systems [30] participant perspectives of rurality (rural, regional or remote) were used to inform cases. The number of co-located colleagues was the second factor identified as a potential differentiating factor of rural physiotherapy service provision. This is consistent with the literature in which workforce and position shortages are recognised as characteristics of rural physiotherapy [37].

An example of an stratified purposive sampling [6], the proposed matrix had a potential total of 12 cells although many may not be applicable (Table 1). A regional setting with only a part time physiotherapist (less than one Full Time Equivalent (FTE)) is one such example. In addition to informing case site selection, participant perspectives of rurality were compared to current rural classification systems to identify commonalities and differences. Interview responses of participants at identified case sites then further contributed to concepts of rurality relevant to rural physiotherapy service provision.

The initial matrix was revised to reflect stakeholder responses including the larger referral centres and mixed stakeholder responses about the rurality of one location (Table 2). Six case types emerging from the physiotherapy responses. A further 23 surveys (five private practitioner, 13 colleague/manager and five consumer) were received from stakeholders at identified case sites. Nineteen interviews were conducted across the sites of the study.

Participant responses highlight the conceptual challenges when describing rurality and defining regional, rural and remote. For example participants who worked in a location with more than ten FTE physiotherapists stated:

*"I suppose regional, yes. I don't really consider myself to be rural. For me it is, I don't consider this to be rural just because I can live here and have a city*

**Table 1 An initial matrix**

	≤1 Physio	1-2 Physios	3-5 Physios	>5 physios
Remote				
Rural				
Regional				

**Table 2 Revised matrix**

Physio FTE	≤1	2-3	4-10	>10
Remote				
Rural- remote			7	
Rural	3, 6*, 5, 9^, 11*	1, 10^	4	
Regional			8	2

^services provided by the same physiotherapist.

*lifestyle without the stress and the traffic and the pollution. I don't believe I'm living the rural lifestyle. If I had a rural lifestyle I'd have a farm". [A3]*

*"I suppose we'd be regional, I think of myself as rural but I think it's probably regional". [D1]*

One participant who worked in an area with between four to ten FTE physiotherapists stated that their perception of rurality was to some degree based on patient location.

*"And that was the big thing from city versus country physio or rural physio, a lot of my patients travel six hours to see me". [B4]*

Participants also felt that access to services also assisted in defining the rurality of a location. For example a participant from a large country centre noted: *"the capacity to access high level services is limited [here]...and so the capacity to access the higher level service I think is one of the things that defines this as remote". [D4]*. This was also reflected in smaller rural locations, adding to the notion of access to services and support as an important consideration in understanding rurality.

*"The differences are like in metropolitan – in provincial ... we've now got some specialists in most places. Whereas here you're expected to know hands and everything else so at least you've got a context. So it's a video conference with the people for hands in [the capital city] but getting into the video conferences is an issue because that's in the hold and treat rooms [for mental health patients]". [A8]*

**Discussion**

The rurality of the case types reflected the way in which physiotherapists identified the setting in which they practice. Physiotherapy participants described eight of the eleven sites as rural, two as regional and one as remote-rural (Table 2). Fulltime equivalent (FTE) physiotherapist numbers ranged from 0.4 FTE (i.e. one physiotherapist working two days per week) to 14 FTE across the sites of this study. Six case types emerged from the responses from the public sector physiotherapists. Physiotherapist

perception of rurality (PPR) in sites with four to ten physiotherapists was an important factor in making distinctions between sites, whereas the number of FTE physiotherapists was a greater differentiator in rural and regional sites. Full-time equivalent categories could be further differentiated, but for the purpose of this study four categories were used.

Fewer case types would have emerged if a single measure of rurality was the only differentiating factor. Three case types would emerge if PPR, RRMA or ARIA were used as a single measure and only two case types if ASGC was to be used as the only differentiating factor. Comparison of rurality for each site using remoteness classifications revealed a variable picture (Table 3). The differentiated case types that emerged from the dual measures of PPR and FTE informed the selection of cases for this study.

The complexity of understanding the concept of rurality was revealed by interview participants when discussing perceptions of rurality relevant to their setting. Issues around the concept of rurality include the following:

- Is it the practitioner or the setting that defines rural health;
- is it about distance from a centre or a service provider;
- is it service size including the number of providers or a sole part time worker;
- is it about workforce availability;
- is it about the type of work undertaken such as specialist or generalist skills;
- is it about support available to the health professional;
- is it being visible and accountable to the community;
- is it about local knowledge or
- is it about distance from decision-makers?

Questions such as these reveal the convolutions of rurality and the variability often reported in the literature around rural health service provision [31,38,39]. Such variation further reinforces the need for the development of measures that can reflect this complexity and variation. Use of only a geographical classification of

rurality is not sufficient to be able to distinguish between sites and thus cases when undertaking rural health service research. Dual measures, such as rurality and workforce numbers, provide more relevant differentiation than a single measure of rurality as defined by geographic classification. Similarly the continued use of catch-all term such as 'rural health' can limit the understanding of the similarities and differences found across locations [40]. Without understanding the associations between the specifics and context of each place, the attributes within the population and individual health services being delivered there is a large gap regarding the understanding of the specifics of health services in local rural communities.

This study adds to the literature describing limitations in the application of geographical classifications for differentiating rural health services. This study revealed that participant perspective of rurality often differed with the geographical classification of their location. For example, one participant expressed a sense of isolation more consistent with remote areas than that of a rural location.

*"in Katherine and things like that, in what's considered remote area and yet [here] I'm the only Allied Health therapist...so I'm actually probably... professionally more isolated than a lot of these people ...at least have teams in more remote areas". [A8]*

Not only does the health professional feel isolated but access to services would be likely to be a key issue for residents in this location. This is consistent with the work of McGrail and Humphreys [30] which suggests that access to health services is a function of several factors including availability, proximity, health needs and mobility. The effect of distance on the accessibility to health care services has been identified as a key factor differentiating rural and remote from metropolitan health care [38]. Population size and geographical location then influence the mode and form of service delivery with socio-economic and geographic inequities influencing access to health care [38]. Implications for provision of health care, particularly primary health care have been

**Table 3 Comparison of cases using different rurality classification systems**

Sites	1	2	3	4	5	6	7	8	9	10	11
ASGC-RA	3	2	3	2	3	2	3	2	3	2	3
RRMA	5	3	5	3	5	5	4	4	5	3	5
ARIA	A	HA	MA	A	MA	A	A	HA	A	A	A
PPR	Rural	Regional	Rural	Rural	Rural	Rural	Remote-Rural	Regional	Rural	Rural	Rural
Population (,000)	10-20	35-45	1-5	35-45	1-5	1-5	15-25	30-40	<1	5-10	<1
Public HHS beds	<50	200-500	<50	100-200	<50	<50	50-100	50-100	<50	<50	0

Australian Standard Geographical Classification Remoteness Areas [ASGC- RA]. Access/Remoteness Index for Australia [ARIA]. Rural, Remote & Metropolitan Areas Classification [RRMA]. Participant Perception of Rurality [PPR]. HA: highly accessible, A: Accessible, MA: moderately accessible.



discussed in the literature [38] however implications for provision of specific health services such as physiotherapy in rural settings are less evident.

Variability and diversity are characteristic of rural Australia [7], and combine with the unique demography of rural and remote Australia as key determinants of health problems and health service needs [8]. Adopting an approach that enables insight into variability and diversity of different sites is consistent with the dynamic characteristics of place. Health service provision in rural areas is increasingly influenced by networks, connections and linkages that may occur within defined boundaries of a local health system, but are increasingly Examples that emerged in this study include the impact on smaller rural physiotherapy service providers when new regional services are established and how a national decision such as activity based funding influences the health system and service delivery at all levels.

*"recently I have told by [the regional centre] that I need to do all these lymphoedema patients and this is the pre assessment in terms of the all the whole population of anyone having breast cancer... to see them all - measure them all up before surgery... I said "I can't do that" but that's what I would be expected to do so, that is a direction coming from [the regional centre who are] saying we can't do all of these". [A5]*

*"they just send them anywhere they can to get them out of [the regional hospital]...they have to get them out of there... you know within four days...[because of] funding, pressure, bed block ... pressure to get them out, get them going, send them home". [A8]*

*"[Length of stay]...it's a huge measure and that, with activity based funding, they are going to be huge drivers.... Bed block, length of stay, money, will always stick up in their head and that is the thing that they will see as important ... [the national health reform], it sort of sets the big agenda that will trickle down to us in other ways as in if they've got a project that they want that has a bucket of money, that will influence some decisions about what services are provided with that bucket of money and it just depends whether we're in the mix or up in their face or not. Yes, it sets that whole funding agenda that's going to have a major influence". [A1]*

These influences affect health service provision and can be lost when investigating service level decision making in rural health. The combination of missed methods utilising a survey followed by a collective case study and systems theory approach has demonstrated an appropriate framework to identify the issues surrounding

rurality. Without further understanding of rurality, investigation into rural health will be lacking. Utilisation of this mixed methods approach could be applied to other rural health issues and may help to add to the research around health service delivery.

#### Limitations

The research framework described was applied to an investigation of physiotherapy service provision in one area within Australia which had a mixture of remote, rural and regional centres. The framework and results may not be applicable across professions or to other areas with a different mixture of services or locations. Participant perception of rurality and public sector staffing numbers, while relevant to this study to define cases, may not be applicable to other studies.

#### Conclusion

The framework described provides a structure to gain insight into local health service provision in a way existing statistical data does not. The combination of the systems theory-case study heuristic and a sequential mixed methods approach supported a qualitative exploration of issues identified through initial surveys. Obtaining participant perspectives of issues of interest, such as rurality and physiotherapy service provision, provides local detail often not available or visible. The concept of relational place aligns well to both systems theory and case study to aid exploration of the specifics of rural communities and the impact of context [1]. Concepts such as rurality and place then inform exploration of a health care issue of interest within and between rural communities. Defining key aspects of the research, such as participant perspectives of rurality and physiotherapy Full Time Equivalent, assist to define cases in which to explore the issue of interest. Adopting a systems approach then allows description of interrelated elements in each individual case while recognising interaction between cases and within the larger health systems.

#### Abbreviations

ARIA: Access/remoteness index for Australia; AIHW: Australian institute of health and welfare; ASGC- RA: Australian standard geographical classification remoteness areas; FTE: Full time equivalent; PPR: Participant perception of rurality; RRMA: Rural, remote & metropolitan areas classification.

#### Competing interests

The authors declare that they have no competing interests.

#### Authors' contributions

RA: was involved in concept development, study design, data collection, data analysis and interpretation and drafting of the manuscript. AJ: was involved in study design, data analysis and interpretation and drafting the manuscript. SL: was involved in study design, data analysis and interpretation and drafting the manuscript. LS: was involved in study design, data analysis and interpretation and drafting the manuscript. All authors read and approved the final manuscript.

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## Original Research

## What factors influence physiotherapy service provision in rural communities? A pilot study

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## Abstract

**Objective:** To obtain stakeholder perspectives on factors influencing rural physiotherapy service provision and insights into decision making about service provision.

**Design:** Purposive sampling, open-ended survey questions and semi-structured interviews were used in this exploratory, qualitative study.

**Setting:** A rural centre and its regional referral centre formed the pilot sites.

**Participants:** Nine participant perspectives were obtained on rural physiotherapy services.

**Main outcome measures:** Stakeholder perspectives on factors influencing rural physiotherapy service provision and service level decision making.

**Results:** Workforce capacity and capability, decision maker's knowledge of the role and scope of physiotherapy, consideration of physiotherapy within resource allocation decisions and proof of practice emerged as key issues. The latter three were particularly reflected in public sector participant comments. Business models and market size were identified factors in influencing private practice.

**Conclusion:** Influencing factors described by participants both align and extend our understanding of issues described in the rural physiotherapy literature. Participant insights add depth and meaning to quantitative data by revealing impacts on local service provision. Available funding and facility priorities were key determinants of public sector physiotherapy service provision, with market size and business model appearing more influential in private practice. The level of self direction or choice about which services to provide,

emerged as a point of difference between public and private providers. Decisions by public sector physiotherapists about service provision appear constrained by existing capacity and workload. Further research into service level decision making might provide valuable insights into rural health service delivery.

**KEY WORDS:** allied health, health service access, research, rural health service delivery, rurality.

## Introduction

Diversity is a feature of the people and the environment in rural and remote Australia, and this is reflected in the health services provided.<sup>1</sup> Deciding what health services are provided is a key consideration in delivering appropriate and accessible health care for rural and remote populations.<sup>2</sup> Obtaining insight into factors influencing the provision of services, such as physiotherapy, might inform such decisions.

Rural physiotherapy literature identifies workforce challenges including: shortages and maldistribution,<sup>3</sup> workload stress,<sup>4,5</sup> tensions between specialists and generalists career options<sup>6,7</sup> and a lack of positions.<sup>8</sup> Also described in the literature are areas of work of rural physiotherapists,<sup>1,3</sup> access, prioritisation<sup>9,10</sup> and developing service models.<sup>11</sup> How decisions are made about which physiotherapy services are provided is not evident in the literature.

Rural physiotherapists require competency across clinical, administrative and professional domains.<sup>7</sup> Service location, resource constraints and a broad scope of practice form the complex environment of rural physiotherapy. The Australian Standards for Physiotherapy require physiotherapists to identify the needs of people in different settings and adjust services to match those needs.<sup>12</sup> While true for all contexts, the relative resource scarcity in rural areas<sup>13</sup> provides numerous service provision challenges for rural physiotherapists.

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**What is already known on this subject:**

- The literature identifies rural physiotherapy workforce challenges and describes areas of practice, developing service models and issues of access, workload and prioritisation.
- How decisions are made about the range and type of physiotherapy services provided for a community is not readily evident in the literature.

This study explored stakeholder perspectives on factors influencing rural physiotherapy service provision and insights into related service level decision making. A range of stakeholders, both local and across the broader health system, are likely to influence decisions about service provision. In health service organisations, decision making occurs at many levels,<sup>14</sup> including decisions at micro (clinical), meso (service or organisation) or macro (state or national) levels. Reflecting this notion, an a priori model was constructed to map stakeholder perceptions.

**Method**

This exploratory study was conducted in one rural site and its related regional referral service (Table 1). The rural site was nominated by the regional senior physiotherapist as a rural town with both public and private physiotherapy services. Open-ended survey questions and semi-structure interviews suited the qualitative exploration of this relatively unexamined aspect of physiotherapy. Purposive sampling was used as the study was exploratory rather than definitive in nature. Participants with knowledge of rural physiotherapy were invited to provide their perspectives on factors affecting service provision and related decision making.

An iterative data collection process commenced with surveys of physiotherapists. Public sector physiotherapists were invited to complete a survey and assist in identifying stakeholders who could provide perspectives on physiotherapy service provision. The physiotherapists were able to guide this data collection phase to stakeholders they identified as relevant to their service and setting. Consenting physiotherapists then distributed surveys to team colleagues, managers and consumers relevant to their service. All surveys were mailed directly to the investigator to maintain participant confidentiality. Physiotherapists were invited to participate in a semi-structured interview and provide suggestions of relevant decision makers to receive interview invitations. Data collection occurred from July to December

**What this study adds:**

- Participant insights reveal how workforce challenges, funding decisions and decision-maker knowledge of physiotherapy place limits on physiotherapy service provision.
- Money, workforce and available skill appeared stronger drivers of service provision in this context than community or consumer need.
- The results point to decision-making occurring within health system constraints, potentially limiting service responsiveness and innovation.
- Further investigation of service drivers and system constraints is warranted to better understand the challenges of delivering appropriate and accessible health services, such as physiotherapy, in rural communities.

2011. Ethics approval was obtained from the Human Research Ethics Committee of both James Cook University (approval number H3799) and the health service of the study.

Six completed surveys (three physiotherapists, one team colleague, one allied health manager and one consumer) were received, and three in-depth interviews were conducted. Interview participants included one private practitioner physiotherapist, one physiotherapy manager and one allied health manager. Analysis of survey data was undertaken by the principal researcher. Stakeholder survey responses were collated thematically to inform probing questions within the interview. Interviews were recorded and transcribed verbatim. All transcripts were analysed and coded by both the principal researcher and a second researcher. Key concepts from the questionnaires and interviews were then grouped together under overarching themes (Fig. 1).

**Results**

Factors influencing physiotherapy service provision included workforce capacity and capability, decision-maker knowledge of the role and scope of physiotherapy, consideration of physiotherapy within resource allocation decisions and proof of practice. The latter three were particularly reflected in comments by public sector participants. Business models and market size were identified factors influencing private practice.

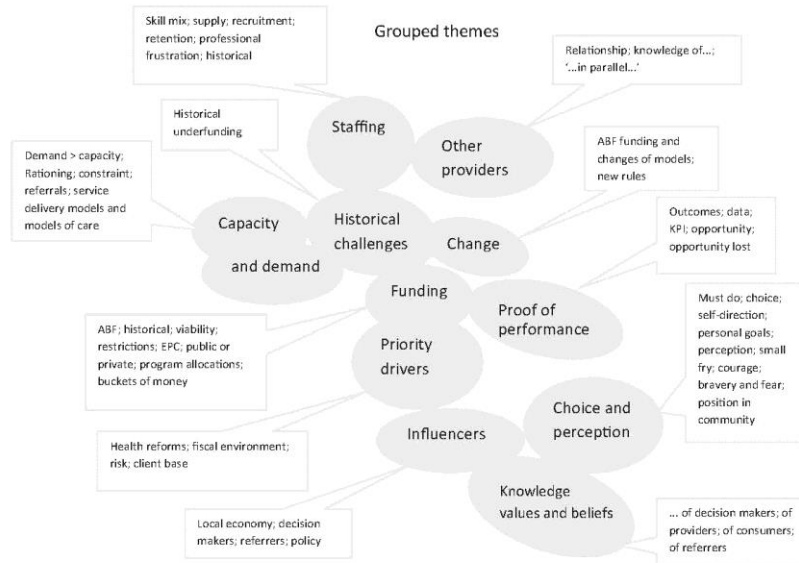
Workforce capacity and capability emerged as issues in surveys and interviews responses. Similar to existing literature, issues of skill mix, workforce supply, lack of



TABLE 1: *Investigation sites*

	Rural site	Regional site
Population	~7000	>80 000
ASG Classification	RA3 outer regional	RA3 outer regional
RRMA classification	RRMA 5 other rural centre	RRMA 3 large rural centre
Physiotherapists – public	1 FTE	>15 fte
Private practices	1 (1 FTE)	>5 (sole and multiple FTE)

ASCG, Australian standard geographical classification; FTE, full-time equivalent; RA, remoteness area; RRMA, rural, remote and metropolitan areas.

FIGURE 1: *Grouped themes.*

positions, workload and access to professional development were identified as factors influencing service provision. Discussing variable workforce supply, one participant reported that past inability to recruit physiotherapists influenced facility level decision makers in funding new physiotherapy positions. Flexible approaches to recruitment, including opportunistic appointment of available staff and managing short-term risks of exceeding staffing establishment were strategies adopted.

... your recruitment pull is different. It means you've got to be a bit more flexible, like putting

on relief positions when they are available. (Interviewee 2)

The regional setting required a mix of specialised and generalist skills. Examples include generalist skills for junior staff rotating through acute care services and specialised skills for advanced roles such as emergency department physiotherapy. However, as one participant noted, as 'you move more remotely, you need more of a generalist' (Interviewee 2). Recruitment in both case sites remained an issue particularly for attracting experienced physiotherapists. Early career physiotherapist recruitment had however improved as graduates from a

recently established regional physiotherapy program entered the workforce.

Decision-maker knowledge of the role and scope of physiotherapy and variable consideration of physiotherapy within resource allocation decisions were identified as factors influencing physiotherapy service provision. In rural areas, where physiotherapists were frequently not managed by a physiotherapy manager, one participant suggested service provision to be 'strongly affected by limited knowledge, scope and efficacy of PT services' (Physiotherapist 3). Resource allocation decisions relating to capital and service expansion in the regional setting were key influencing factors, particularly where no additional physiotherapy resources were allocated.

...you can't just open it [a new service] and not provide a resource, we can't stretch what we have got right now to cover a new service, so don't forget us. (Interviewee 2)

Dependence on inclusion in new funding allocations is further constrained by the absence of accepted physiotherapy workload benchmarks to inform allocations.<sup>15</sup> Physiotherapy staffing to bed ratios in the regional facility were discussed in the context of workload and service capacity. One participant noted that the surgical ward staffing was 'one to 70 which is ridiculous' (Interviewee 2) and followed up with 'one to too many' when revealing a similar ratio for medical beds. 'Using risk to decide service provision' (Interviewee 3) was one approach to managing workload, with prioritisation another: 'if we were to prioritise our services it would be on clinical needs, and patient flow and then activity based funding' (Interviewee 3). Increasing demand and constrained capacity were noted as important influencers on public service provision. 'Caseload to income, skills of practitioners and timetabling' [Physiotherapist 1] were considerations in private practice service provision.

Additions to physiotherapy services occurred primarily by the provision of new funding, reflecting a macro level influence on decision making. New funding, described by one participant as 'defined buckets of money with defined criteria...' [Interviewee 3] was noted to create both opportunities and challenges. Inequity and maldistribution of services and workforce were reported, as new funding often targeted specific programs or facilities.

It's disproportionate across the district because the buckets of money tend to land at the acute hospital. . . , and nothing anywhere else. . . that's why some services are so understaffed, they've stayed the same and haven't attracted any buckets of money. (Interviewee 3)

Access to new funding emerged as a significant difference between rural and regional sites, providing insight into the comment

I feel that rural and remote physios are often forgotten about. (Physiotherapist 2)

In contrast to dependence on new funding in the public sector, targeted funding in the private sector was almost viewed as optional, depending on the business model and client base.

For example, when Medicare EPCs (Enhanced Primary Care) came in we had to have a conversation about how much we wanted to chase this program in terms of clients. (Physiotherapist 1)

More relevant to a private provider was the community's capacity to sustain a viable private practice.

...it's the community size and how it brings the market into play . . . (Interviewee 1)

The impact of market size in rural communities from a consumer perspective suggested issues of access:

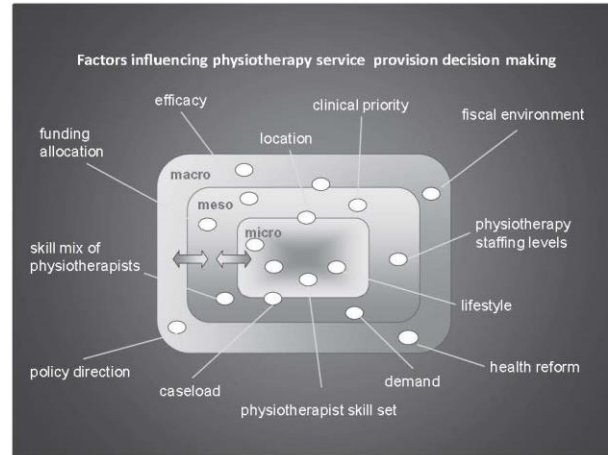
Less choice of practitioners, practices tend to be very busy which limits availability of appointments and frequency of treatment. (Consumer 1)

Health reforms and fiscal restraint were identified as significant influencing factors within the public sector where participants reported an increasing need to provide 'proof'. Alignment of services to key health service performance indicators such as access and waitlists were strategies adopted.

If you can tie them to all of those things the district is focussed on you've got a much better chance. . . there's a lot of value that we know we can add that isn't necessarily obvious unless we make the case for it. (Interviewee 2)

Private practitioner comments reflected a degree of choice or self-direction in deciding which services to provide. 'In our situation it starts off virtually with a business agreement between the two partners. This is what I want to do, this is what I want to do, OK so we're not going to do those things' (Physiotherapist 1). This contrasted with comments of public sector respondents where decision-making control was variable. 'The decision making process is meant to be devolved . . . although right now it's not because it's really tight and executive is keep a grip on everything' (Interviewee 2).

The a priori model is populated by the influencing factors described by participants in Figure 2.

FIGURE 2: *Influencing factors.*

## Discussion

Important insights emerged from this exploratory study about how decisions are made about service provision. Decision making about public physiotherapy services was framed within broader health system issues. This contrasted with the self-determined service provision in the private sector. Three main health system considerations were: the dominance of acute services in public hospitals; physiotherapy workforce and service capacity; and facility level decision-makers' prior experience and knowledge of physiotherapy. While recognising the small number of participants, the findings are likely to resonate and should be relevant to other allied health professions and health service decision makers in rural areas.

Public sector physiotherapy service provision was constrained by available funding, organisational priorities, workforce capacity and workload. In contrast, physiotherapist preference and market size appeared more influential in private practice. Physiotherapy services funded within public hospitals are required to align their services to business of the organisation. Length of stay and national targets such as the National Emergency Access Target (NEAT) and the National Elective Surgery Target (NEST) prioritize organisational activity and service priorities of health professionals, including physiotherapists. Organisational priorities, funding and available workforce and expertise therefore emerged as key drivers of decision making rather than community need. Within this context, physiotherapy and allied health decision makers had little scope for service development beyond services currently provided unless new funding was received.

The multi-level factors influencing service provision identified reveal the challenges faced by rural health services. Mapping influencing factors within organisational levels reveals the requirement for multiple solutions and also suggests the limitations of single-solution approaches. Solutions to address structural drivers, including national and state health reforms, policy and funding, often lay beyond the control of local physiotherapists and managers, further constraining responsiveness to local health needs.

At a local level, study participants revealed decision makers' perception and knowledge of physiotherapy influenced service provision. Decisions might vary within and between services depending on decisions or assumptions based on this knowledge. For example, health service managers should not assume that private physiotherapists will automatically cover public sector service gaps. While private physiotherapists add capacity in rural communities, the range of services is driven by practitioner choice and financial viability. The private physiotherapy business model is not amenable to providing lengthy treatments over extended time periods often precluding rehabilitation and paediatric services.

Exploration of this relatively unexamined aspect of physiotherapy, service-level decision making, identified issues relevant to broader health service provision in rural and regional areas. The small number of participants and sites provided a limited range of perspectives that might be descriptive of localised issues. Further research into service-level decision making would provide valuable insights into rural health service delivery.

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