EVALUATING THE IMPACT OF VISITING SERVICES IN RURAL AND REMOTE REGIONS

A Thesis submitted by

Laura J Healy

BA(Hons)

For the award of

Master of Psychology and Doctor of Philosophy

(Clinical Psychology)

2022

ABSTRACT

There are significant health disadvantages for residents of rural and remote locations, both in Australia and throughout the world. Rural and remote populations of geographically large, high-income countries, such as Australia, experience major inequalities in service provision and resource distribution. The outcome of which can be seen in the subsequent inequitable health and well-being of these populations when compared to those living closer to major cities. Despite reforms in Australia, the current health system continues to be focused on specialised acute care in major metropolitan centres as opposed to redirecting resources to provide preventative care, population health initiatives and high-quality primary care across the country. Evidence suggests that Australia's most significant health workforce issues is not one of total supply but of distribution including inadequate service provision to residents of rural and remote areas. Visiting primary care services operate to reduce disparities in access and outcome for residents of rural and remote areas. The published literature pertaining to visiting primary care services is sparse and inconsistent, particularly that describing the assessment of impact, and evaluation of service types. The current research aims to progress the limited literature available through three studies. The first study was a systematic quantitative literature review to assess and consolidate the published literature concerning visiting services and to quantify the gaps in evidence requiring further investigation. The output of the first study was a quantitative database with categorised information extracted from each study that can be added to with future publications. The second study was a Delphi method, used to assess the credibility and confirmability of a proposed conceptual framework: the seven principles for effective visiting services. A heterogenous panel of 13 experts in rural and remote health care participated in three iterative, online survey rounds critiquing the model. The output of the second study was a revised model of seven principles for effective visiting services, reflecting four changes compared to the original, which received unanimous endorsement from panel members. The third study used the case study method to assess the clinical utility of the revised model. Outback Futures, a visiting allied health service operating from Brisbane, Australia, was selected as the case and executives from the organisation participated in four group interviews. The results of the case study were evidence for the clinical utility of the revised model as well as a protocol self-assessment framework to guide organisation's evaluation of practice. Further, three themes were identified from the interviews, *relationship is fundamental, importance of co-design,* and, *being effective as a visiting service is challenging.* The three studies reported in this thesis collectively represent a significant contribution to the literature and have implications for health policy, funding, visiting service organisations, and the residents of rural and remote areas themselves.

CERTIFICATION OF THESIS

I, Laura Jane Healy, declare that the PhD Thesis entitled *Evaluating the Impact of Visiting Services in Rural and Remote Regions* is not more than 100,000 words in length including quotes and excluding tables, figures, appendices, bibliography, references, and footnotes.

This Thesis is the work of Laura Jane Healy except where otherwise acknowledged, with the majority of the contribution to the papers presented as a Thesis by Publication undertaken by the student. The work is original and has not previously been submitted for any other award, except where acknowledged.

Signed: Date: 22/02/2022

Endorsed by:

Principal Supervisor: Gavin Beccaria

Associate Supervisor: Peter McIlveen

Student and supervisors' signatures of endorsement are held at the University.

STATEMENT OF CONTRIBUTION

Study 1

Healy, L.J., Beccaria, G., Daken, K., & McIlveen P. (2022). *Visiting primary care services: A Systematic Quantitative Literature Review* [Manuscript submitted for publication]. School of Psychology and Counselling, University of Southern Queensland.

Laura Healy contributed 60% to this study. Collectively Beccaria, Daken, and McIlveen contributed the remainder.

Study 2

Healy, L. J., Beccaria, G., & McIlveen, P. (2021). Revised model for evaluating visiting health care services in rural and remote settings. *Australian Journal of Rural Health, 29*(5), 779-788. https://doi.org/10.1111/ajr.12774

Laura Healy contributed 70% to this publication. Collectively Beccaria and McIlveen contributed the remainder.

Study 3

Healy, L.J., Beccaria, G., & McIlveen, P. (2022). *Indicators for effective visiting primary care services: A case study.* [Manuscript submitted for publication]. School of Psychology and Counselling, University of Southern Queensland.

Laura Healy contributed 70% to this study. Collectively Beccaria and McIlveen contributed the remainder.

ACKNOWLEDGEMENTS

It is an immense privilege to undertake doctoral research, an opportunity that would never have been possible without the wisdom, encouragement, and support of many. Particularly, I need to acknowledge the generous financial support from the Australian Government Research Training Program Scholarship facilitated through the endorsement of Outback Futures, the Tim Fairfax Family Foundation, and the University of Southern Queensland.

To my supervisors, Associate Professor Gavin Beccaria and Professor Peter McIlveen, your belief in my abilities and commitment to this project has been immense. Together you make a superb team, Gav with the big ideas and enthusiasm, and Peter with the immaculate attention to detail. It has been a delight to meet with you both each week and a great honour to experience your mentorship. My most sincere thanks.

Thank you to the third author of Chapter 2, Kirstie Daken and for her many, many hours reviewing articles and contribution to the SQLR study.

Thank you to the research librarian team at USQ, specifically to Dr Tricia Kelly, Rowena McGregor and Dr Douglas Eacersall. Your knowledge has been immensely valuable throughout the completion of this project. I am so thankful for your patience and generosity with your time.

The timely production of this thesis is a credit to my cohort of PhD candidates from near and far. Thank you specifically to Anna, Beth and Emma. Your commitment to our zoom study sessions kept me accountable. I am in awe of each of you, your determination, competence and compassion.

Thank you to the ACCELL (Australian Collaboratory for Career Employability & Learning for Living) Research Team.

A hearty thankyou to friends and family for your practical and prayerful support over this time.

Very importantly, thank you to Outback Futures for years of mentorship and for exposure to the nature of health care in remote and very remote areas. I hope this research can be of use to your organisation as you continue to Renew Hope, Build Resilience, and Strengthen Community across our great state.

Finally, to God, who is able to do immeasurably more than we can ask or imagine, to Him be the glory.

DEDICATION

This thesis is dedicated to my parents, Helen and Ian, and to my loving partner, Will.
I am immensely grateful for each of you, your support throughout this project and investment in my education. Thank you just isn't enough.

TABLE OF CONTENTS

LIST OF FIGURES

Note. Figure 4 is repeated as Figure 6 in separate chapters. Similarly, Figure 7 is repeated as Figure 8 and 11.

LIST OF TABLES

CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

1.1 Evaluating the Impact of Visiting Services in Rural and Remote Regions

Healthcare systems vary greatly between countries. The most prominent influence on the structure of a health system is its funding model. In Australia, health is a high priority with the Federal Government investing approximately 10% gross domestic product (i.e., $1 in every $10 is spent on health). The funding model in Australia is multilayered to sustain universal access. The Federal Government is responsible for the public health insurance program called Medicare (Australian Government, 2021a). Medicare was established in 1984 and provides Australian's access to low-cost or free public healthcare including public hospital services, GPs, medical specialists, and community services including physiotherapy, nursing and basic dental care for children. Medicare is operated by the Federal Government and funded by taxpayers. In addition, the State and Territory Governments are responsible for funding and operating public hospital and healthcare systems, with some financial support through the Medicare scheme.

In combination with the freely available public services, many Australians also choose to pay for private health insurance which can include hospital cover in private settings or extras cover for non-medical health services not covered by Medicare including dental and optical services. Private health cover allows patients greater choice in their health care including choice of practitioner or hospital and, in some cases, choice around the scheduling of the medical or surgical procedure (Australian Government, 2021b). Private health insurance can also have ambulance and emergency cover which in most states (all except Queensland and Tasmania) requires out of pocket costs to the patients, an expense up to $1200 and beyond in some cases (Ambulance Victoria, 2022).

Additional health services also provide community care including medical centres, allied health practices, nursing homes, and pathology laboratories. These services typically operate under a mixed-model of funding with federal government support through Medicare rebates, potential state investment, donations, and direct payments made by individual clients. The delivery of universal healthcare is a great privilege for Australians however, in practice there remains inequalities.

Geographically large countries, like the United States of America (USA), Canada and Australia, have challenges related to the distribution of public services. Unlike the USA, the populations of Canada and Australia are distributed with the majority of people living in Major Cities and much smaller populations in rural, remote and very remote areas. As a

result, the economic population growth is concentrated to major cities and urban areas where most of the population resides (Australian Bureau of Statistics, 2018; Canada FAQ, 2015).

The viability of health services to rural and remote populations is a concern for funders with fewer people making use of the service and greater distances to travel to access them. Different service delivery models operate with varying priorities, to contribute to universal service delivery or to make a profit. In Australia specifically, major health centres including tertiary hospitals are situated in Major Cities and rural and remote areas are served by a primary care, generalist workforce with the highest rates of general practitioners and nurses per 100 000 of the population (152.8 and 1191.3 per 100 000 respectively) (Australian Institute of Health and Welfare, 2020). For example, the town of Weipa in Far North Queensland has a population of 3905 and is located approximately 800km by road to the nearest Major City, Cairns. For obstetric services, expecting mothers are encouraged to relocate to Cairns at 36weeks which can mean up to five weeks away from home, family including other children, social supports, and work. Similarly, definitive treatment for heart attacks, stroke and major surgeries are all in Cairns. Prior to COVID-19, Weipa had a monthly visiting specialist however this has become less frequent. For transport, air travel is recommended particularly during the wet season when road access to and from Weipa is very limited. Air travel, however, is also subject to viability as flights can be cancelled with short notice. Weipa is one example of the complexity of accessing quality health care from a very remote region in Australia. The landscape and challenges faced by rural, remote and very remote residents are unique to their region however, the literature is conclusive, residents of these areas are at a significant disadvantage.

1.2 Health Disadvantage in Rural and Remote Areas

There is a significant health disadvantage for residents of rural and remote locations, both in Australia and throughout the world (Australian Institute of Health and Welfare, 2019; De Roodenbeke et al., 2011; World Health Organization, 2006). Rural and remote populations of geographically large, high-income countries experience major inequalities in service provision and resource distribution. The outcome of which can be seen in the subsequent inequitable health and well-being of these populations when compared to those living closer to major cities (Humphreys & Solarsh, 2008). In 2015, the rate for burden of disease and injury in remote and very remote areas was recorded to be 1.4 times as high as that in major cities (Australian Institute of Health and Welfare, 2020). In relation to mental health, statistics indicate that rates of self-harm and suicide increase with remoteness in Australia (National Rural Health Alliance Inc., 2017). The Australian Bureau of Statistics (ABS)

(2012) reported that very remote regions had a significantly higher rate of suicide and self-inflicted injures when compared to major cities (23.00 per 100 000 and 10.10 per 100 000 respectively). These statistics could reflect conclusions made by Smith and colleagues (2008) who reported that the health disadvantage in rural and remote areas operates as an exacerbation of the effects of more hazardous environmental, occupational and transportation conditions as well as through the complications of service availability, socio-economic disadvantage and even ethnicity (Smith, Humphreys, et al., 2008).

1.2.1 Mental Health Disadvantage

In relation to mental health specifically, the Orange Declaration (2019) was published after a group of mental health researchers, service providers, managers and commissioners met in Orange (New South Wales, AUS) to address the consistently poor mental health outcomes experienced by rural and remote communities in Australia. The output is a list of ten problems for rural and remote mental health research in Australia, and ten proposed solutions (Table 1).

The list produced in the Orange Declaration (2019), outlined in Table 1, projects current clinical experience from rural and remote areas into the scientific literature. This is valuable for researchers because it represents the beginning of a bridge to cross the significant divide between research and practice in rural and remote health service delivery. Further testing and evaluation of the proposed list of Ten Problems and Ten Solutions is required (Perkins et al., 2019).

Despite reforms in Australia, the current health system more broadly, continues to be focused on specialised acute care in major metropolitan centres as opposed to redirecting resources to provide preventative care, population health initiatives and high-quality primary care across the country. Evidence suggests that Australia's most significant health workforce issue is not total supply but distribution, including inadequate service provision to populations of extreme disadvantage, i.e., residents of rural and remote areas (Mason, 2013).

Table 1

Ten Problems and Ten Solutions Published in the Orange Declaration (2019)

	Problems	Solutions
1.	Rural communities are different from cities and are not homogenous	Whole-of-community, place-based approaches are promising
2.	The rural mental health system is not working	New service models tailored to context must be considered
3.	Top-down service models are based on urban assumptions	Co-designed bottom-up processes should be pursued
4.	Services are not based on needs	Holistic and integrated care models need testing
5.	Funding models are misaligned	New better-aligned funding models are needed
6.	Fragmentation and competition hinder service provision, decreases robustness	Whole of community approaches are needed
7.	Structural inequity in mental health service provision is amplified in rural areas	Prevention and early intervention must be considered
8.	The rural mental health workforce is stretched beyond capacity and capability	New rural workforce models are needed
9.	Telehealth alone is not the answer	Digital technology contributes now and can do more as part of new systems
10.	Data sets are incomplete, disjointed and limited	Enhance data collection, monitoring, linkage, analysis and planning

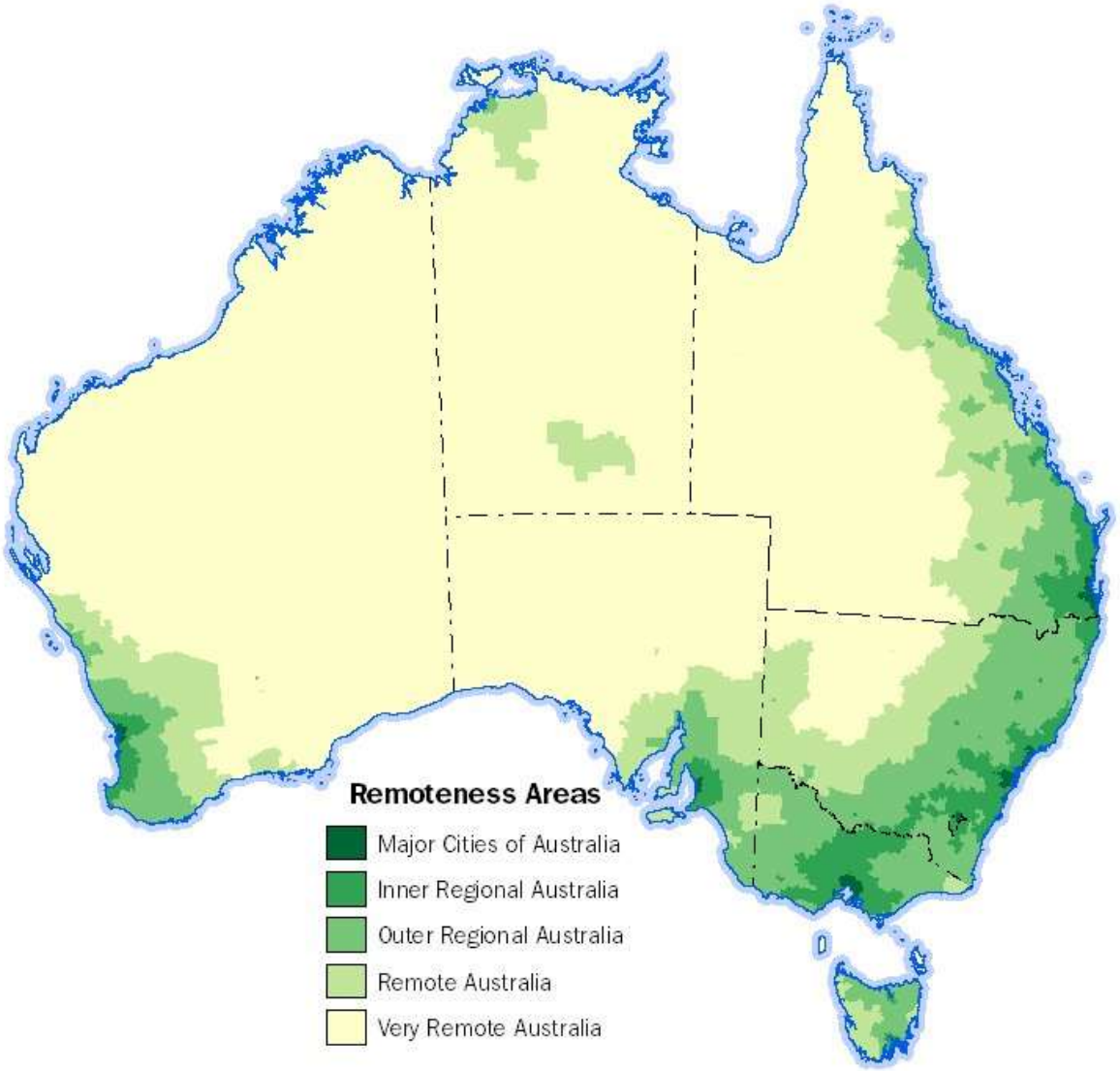
1.3 Definitions and Classification

In Australia, the distribution of the health workforce often reflects population trends with densely inhabited metropolitan areas contrasting that of sparsely populated remote areas, with vast distances between services and communities (Versace et al., 2021). A hierarchy of statistical areas exists for the analysis and publication of data, the Australian Statistical Geography Standard (ASGS). The ASGS incorporates a Remoteness Area Structure (ASGS-

RA) that classifies data into five broad geographical categories called Remoteness Areas: RA1: Major Cities, RA2: Inner Regional, RA3: Outer Regional, RA4: Remote, and RA5: Very Remote (See map in Figure 1) (Australian Bureau of Statistics, 2016).

Figure 1

Map of the 2016 Remoteness Areas for Australia



Source: (Australian Bureau of Statistics, 2016)

The ASGS-RA is used by the Australian Bureau of Statistics and other organisations to publish comparable and geospatially integrated statistics. The ASGS was first implemented in 2011 as a replacement for the previous system titled the Australian Standard Geographical Classification (ASGC) which had been in use since 1984 (Australian Bureau of Statistics, 2021a). The ASGS is updated every five years accounting for change in Australia's population (Australian Bureau of Statistics, 2021a). One prominent limitation to the effectiveness of the ASGS-RA is that it depicts the population as a continuum with the largest

population in the most accessible areas, and the smallest population residing in the most remote area classification. More recent investigation has identified that the distribution of Australian residents does not fall neatly on a continuum (Versace et al., 2021).

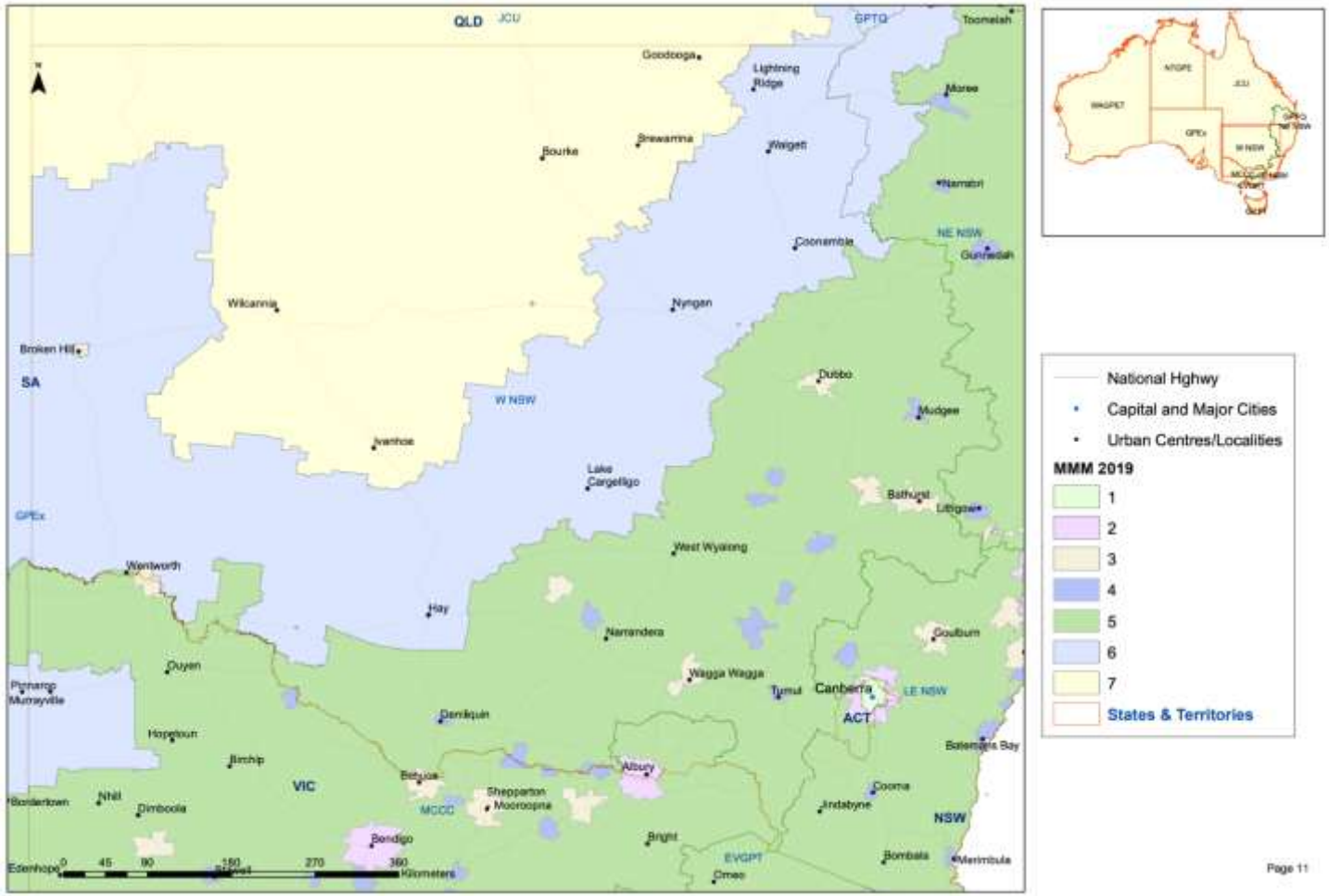
Another classification system is the Modified Monash Model (MMM) which is calculated according to both population size and geographical remoteness (Australian Government, 2021c). The MMM builds upon the geographical structure of the ASGS-RA and incorporates town population size to better characterise different area types in recognition of the challenges associated with recruiting health workers to smaller, and more remote communities. The MMM was adopted by the Australian Government, Department of Health in 2015 and used to direct health workforce programs to attract health professionals more effectively to smaller and more remote communities through the assessment of eligibility for incentive programs (e.g., rural bulk billing incentives).

In 2022, the Australian Government Department of Health is shifting comprehensively from the ASGS-RA to adopt the MMM geographical classification for all workforce programs. This model extends the existing five classifications of the ASGS-RA into seven through the incorporation of population data and distance travelled via roads. The seven classifications are: MM1: Metropolitan areas, MM2: Regional centres, MM3: Large rural towns, MM4: Medium rural towns, MM5: Small rural towns, MM6: Remote communities, MM7: Very remote communities. An example of the more nuanced approach of the MMM classification system, compared to the ASGS-RA, is depicted in Figure 2.

Use of the MMM in combination with a measure of socio-economic status (Index of Relative Socio-Economic Advantage and Disadvantage- IRSAD) has produced a nuanced perspective of the distribution of Australia's population that will be of great value to national policy (Versace et al., 2021). The use of classification tools in geographically large countries, particularly the MMM, is important for the current research and more generally, health care workers operating, and publishing research, outside of metropolitan areas. For the purposes of the current research, where the terms "rural" and "remote" are used, they correspond with MM3-7 (Australian Government, 2021c).

Figure 2

Example of Spatial Distribution of the Modified Monash Model: ACT and Western NSW



Note. MM1 and MM2 areas present continuously in comparison to the distinct boundaries of MM3 and MM4. MM5, MM6 and MM7 encompass vast areas with few focal points of service and population. ACT = Australian Capital Territory. NSW = New South Wales.

1.4 Potential Explanations for the Health Disadvantage

1.4.1 Availability of Consistent Services

One prominent contributing factor to the health disadvantage experienced by Australians residing in rural and remote areas is the inequitable distribution of the health workforces (Carey, Sirett, Wakerman, et al., 2018). Matters of distribution are not unique to Australia but are experienced all over the world, in both low- and high-income countries (Farmer et al., 2012; World Health Organization, 2010). The reduced access experienced by these rural and remote communities is, "one of the primary root causes of health inequity" (World Health Organization, 2010). The most recent data published by the Australian Institute of Health and Welfare used the ASGS-RA and indicates that the number of full-time equivalent (FTE) health professionals per 100 000 population was greatest for major cities (1927 clinical FTE per 100 000), poorest for outer regional areas (1550 clinical FTE per 100 000) followed by very remote areas (1668 clinical FTE per 100 000). The pattern of unequal distribution by remoteness, with greater rates of FTE per 100 000 population in major cities compared to outer regional, remote and very remote areas is present for dentists, optometrists, occupational therapists, pharmacists, physiotherapists, podiatrists, and most prominently, psychologists with 74.6 psychologists per 100 000 in major cities and 18.5 psychologists per 100 000 in very remote areas (Australian Institute of Health and Welfare, 2020). This is particularly alarming with evidence that the prevalence of mental health and behavioural conditions is comparable between major cities and outer regional and remote areas (very remote areas not included in statistic) leaving rural and remote populations with roughly half the resources to respond (Australian Institute of Health and Welfare, 2020). Further, the incidence of suicide in remote and very remote areas is 1.70 times higher than that recorded in major cities (Australian Institute of Health and Welfare, 2018). The inequitable access to primary health care is reinforced through a lack of evidence-based frameworks directing the allocation of resources and service planning (Wakerman & Humphreys, 2019).

To improve this inequitable distribution, evidence indicates that spatial dimensions (availability and accessibility) must first be addressed prior to additional considerations of the service's affordability, and how effectively it is both communicated to, and accepted by the community, also known as aspatial dimensions (Versace et al., 2021). The unavailability of consistent services is negatively impacting the residents of rural and remote communities across the world as they continue to wear the effects of their country's poorly distributed health workforce (Hartley, 2004; Thomas et al., 2015).

1.4.2 Workforce Recruitment and Retention

Recruitment is the process of attracting and selecting staff to work for an organisation (Humphreys, Wakerman, Kuipers, et al., 2009). Recruitment is a prerequisite for retention, which is the duration between commencing and terminating employment with an organisation (Humphreys, Wakerman, Pashen, et al., 2009). While recruitment and retention differ in that recruitment decisions are often made outside of the rural context, and retention from within, factors influencing recruitment and retention largely overlap (Cosgrave et al., 2018). A model of six factors related to recruitment and retention was published by The World Health Organisation in 2010 (Figure 3). The report illustrates that recruitment and retention is much more than work role and career related factors, evidence suggests applicants are also influenced by personal factors including one's background, origin and values, family and community considerations, financial aspects, working and living conditions, and any requirements for mandatory service (World Health Organization, 2010).

Figure 3

Factors Related to Recruitment and Retention Produced by the World Health Organisation (2010)

Workforce retention has been found to be associated with increased skills and experience of staff, greater continuity of care for patients and, as a result, the provision of high-quality health care (Buykx et al., 2010). With the nation's growing burden of chronic disease, the aging population and an increased emphasis on multidisciplinary care, allied health

professionals are a vital component of the rural health workforce (Chisholm et al., 2011; Schofield, 2009). Despite this demand, statistics reflect evident difficulties in recruiting and retaining allied health professionals to rural and remote areas. This has been found to result in limited access to much needed services and related poorer health status of people residing in rural areas (Chisholm et al., 2011; Mills & Millsteed, 2002). Within allied health, workforce shortages are most acute in remote and very-remote areas with the ratio of practitioners to population falling from 2.66 per 10 000 in major cities, to 1.17 in remote regions and 0.60 in very remote regions (Chisholm et al., 2011; Smith, Cooper, et al., 2008).

One current example of a workforce retention challenge is the movement of rural and remote health staff to COVID-19 clinics offering more competitive conditions than previously held roles. As a result, existing local workplaces are left with significant staffing shortages and in some cases have had to close the service all together (Jones et al., 2021).

1.4.2.1 Evidence-Based Recommendations. In response to the prominent challenge of attracting, recruiting and retaining health workers to remote and rural areas, the World Health Organisation published evidence-based recommendations in 2010. The recommendations were grouped into four categories Education, including aspects of health training programs and degrees (i.e., the background of the students recruited, location, curriculum and professional development); Regulatory interventions (i.e., creating conditions for rural health workers to do more and train faster to meet demand, draw upon compulsory service and mandatory placements and scholarships); Financial incentives (i.e., benefits paid or provided to clinicians to entice them to accept employment in a particular area); and Personal and professional support (i.e., including factors to reduce isolation both professionally and personally) (World Health Organization, 2010).

Since the publication of WHO's recommendations, the literature indicates a continued sparsity of evidence assessing the effectiveness of recruitment and retention interventions. Further, what is available is often of low quality and inconsistent in the conceptualisation and use of strategies assessed (Kroezen et al., 2015). In a review assessing strategies to recruit and retain primary care doctors, the authors concluded the evidence available is low in quality but supportive of selective recruitment of medical students and program placements in underserved areas (Verma et al., 2016).

Comprehensive research into the rural medical workforce confirms the effectiveness of the 'Rural Pipeline' which involves recruitment of students from a rural background, exposure in training through rural curriculum and placements, regional training opportunities, and

building opportunities through regional postgraduate training (i.e., Education as outlined in the WHO recommendations) (Battye et al., 2019; Wakerman & Humphreys, 2019). Other factors found to influence the development and retention of rural doctors include generalist training appropriate to the community needs, and professional and family support including appropriate professional development, remuneration, social support, locum relief and other incentives (i.e., financial incentives and personal and professional support) (Wakerman & Humphreys, 2019).

In allied health, the strongest evidence influencing the effective recruitment of allied health professionals to rural and remote practice describe three components: rural background, a curriculum that reflects rural health issues and quality rural placements during training (Battye et al., 2019). The evidence for financial incentives is inconclusive (Buykx et al., 2010; Mbemba et al., 2013). Data indicates that financial incentives are often not the most important factor for health workers deciding to remain with or leave an organisation. Overall, findings indicate that financial incentives may influence recruitment and short-term retention (i.e., length of the contact funded) however are not often a high priority for decisions relating to long-term retention (Buykx et al., 2010).

More recently, investigations into social determinants and psychosocial factors of recruitment and retention to rural and remote areas have highlighted the impact of sense of belonging and place attachment on employment decisions (Cosgrave et al., 2019). Evidence indicates that relational and community influences (both professionally and personally) are an integral influence in the attraction and retention of a rural health workforce (Beccaria et al., 2021; Cosgrave et al., 2019). Social inclusion, including a strong sense of trust, social cohesion and community contributes greatly to clinician's career decisions. Evidence indicates that attending to health workers' appraisal of relational and community context factors should become a priority over financial incentives (Beccaria et al., 2021).

Findings from a European review illustrate that collective recruitment and retention interventions are more effective than those implemented individually. These findings align with conclusions of a recent rapid review from Australia (Beccaria et al., 2021) indicating that strategies aimed at recruiting and retaining staff in rural and remote areas should be varied in recognition of the multifactorial nature of rural health workforce retention. For example, above factors related to the work role, the genuineness of the community's welcome and inclusion of the practitioner will indirectly affect their appraisal of their rural experience. Strategies such as enhancing welcoming and inclusivity come at relatively low

cost yet can influence the practitioner's decision to remain in the community for lifestyle and work (Beccaria et al., 2021). Further, the European review also concluded that interventions with executive commitment and political endorsement benefit from both the involvement of their stakeholders and related firm support system (Kroezen et al., 2015). While the literature related to recommendations is growing, workforce recruitment and retention remain a continuing challenge for the rural health workforce and likely impact health outcomes of rural and remote residents.

1.4.3 Workforce Turnover

Literature suggests that services built on communication and trust are most effective (Battye & McTaggart, 2003; Birks et al., 2010; Carey, Sirett, Wakerman, et al., 2018). While currently there exists only anecdotal evidence, clinical staff in remote areas report constant staff turnover contributes to a breakdown in trust and communication between consumers and health care providers, leading to decreased service effectiveness (Carey, Sirett, Wakerman, et al., 2018). Where rates of staff turnover are high, there are often several negative outcomes. First, short-term contracts or locums can place additional pressure on long-term and resident staff who are required to orient new staff. In addition, these new short-term staff are often paid higher rates than the long term employees training them which may add to job dissatisfaction (Carey, Sirett, Wakerman, et al., 2018; Guerin & Guerin, 2009; Wakerman et al., 2012). Second, increases in staff turnover and short-term contracts bring concern for the cultural competence of staff and decreases in general service effectiveness (Carey, Sirett, Wakerman, et al., 2018). The final negative outcome of high rates of staff turnover is reduced continuity of care, a key dimension of primary care (Carey, Sirett, Wakerman, et al., 2018; Kringos et al., 2010). Continuity of care has been defined as the degree of coherence and connection in a series of healthcare events in relation to an individual's personal context and medical needs (Haggerty et al., 2003). Carey and colleagues (2018) reported that regardless of the model adopted, when services are set up to have short-term or visiting staff return to the same location, the negative outcomes of turnover identified here may be minimised through greater continuity of care, retention of trust and appropriate orientation of staff to individual areas.

1.4.4 Stigma and Help-Seeking

Stigma has long been acknowledged as a barrier to seeking treatment for mental health problems. Further, this relationship is known to be greater in rural and remote settings (Hoyt et al., 1997). Stigmatized attitudes towards accessing mental health care services have been

found to be strongly predictive of willingness to seek support (Hoyt et al., 1997). Boyd and colleagues (2007) conducted a study assessing the experiences of adolescents seeking psychological help in rural areas. The study identified barriers to seeking psychological support including: a fear for lack of anonymity, social stigma of mental illness, a culture of self-reliance, and social visibility (Boyd et al., 2007). More recently, the first systematic review to examine the relationship between mental health help seeking and stigma confirmed that stigma must remain a consideration for practicing health services. However, the impact of stigma on help seeking was found to have a small-to-moderate effect, indicating that while stigma must be considered, it is only one component to the complex system of constraints and beliefs negatively influencing help-seeking behaviours (Clement et al., 2015). Thus, multiple factors, including availability of consistent services, rates of staff turnover, and the impacts of stigma on help seeking, must be acknowledged when evaluating the impact and effectiveness of health services in the context of rural and remote areas.

1.5 Impact of COVID-19

More recently, evidence is also beginning to describe the impact of COVID-19 on the rural health workforce (Jones et al., 2021). The COVID-19 pandemic contributed to an unforeseen demographic shift of Australians moving from capital cities to regional areas. This flow of residents is contrary to the prevailing trend of rural people migrating to metropolitan areas and was observed at a rate greater than has been recorded since population movement data collection began in 2001 (Australian Bureau of Statistics, 2021b; Jones et al., 2021). This population level re-location is important for the distribution of the health workforce and funding for services, reenforcing the utility of the MMM to monitor remoteness classifications and inform policy accordingly (Jones et al., 2021; Versace et al., 2021).

Investigations into the impact of COVID-19 on the mental health of the rural workforce indicate high levels of anxiety and depression amongst community nursing staff, police, rural paramedics and child protection staff. Roberts et al. (2021) reported the cause of stress for these frontline workers was not the virus directly, but instead the organisational response of the workplace which resulted in a broader scope of practice, increased workload, limited practical support, and poor communication processes impacting each staff member. Roberts et al. (2021) reported a foreseeable rural health workforce crisis with high levels of burnout and intention to quit indicated by participants (Roberts et al., 2021). In light of the existing health access challenges in rural and remote communities, these COVID-19 related findings

provide further evidence to prioritise appropriately and effectively resourced health services (Jones et al., 2021).

1.6 Visiting Services

In response to the challenges described including difficulty supporting comprehensive teams of health professionals in low populated locations, the workforce deficit in rural and remote areas, and related disparity of access between regions, visiting services have been established as one solution. The development of drive-in-drive-out (DIDO) and fly-in-fly-out (FIFO) visiting services has provided greater access to a comprehensive health workforce and improved retention of staff to rural and remote areas (Carey, Sirett, Wakerman, et al., 2018; De Roodenbeke et al., 2011). Visiting services is a broad category describing a variety of mobile-health teams, as such there is great variation in practitioner-type, service delivery model and client populations serviced.

1.6.1 Example of a Visiting Service

One example of a visiting service is The Royal Flying Doctor Service (RFDS) who have been in operation across Australia for over 90 years. Well-known as an aeromedical retrieval service, the RFDS also operates visiting primary care clinics including general practice, mental and allied health, and oral health. The first of its kind was established in 1928 to Cloncurry, Queensland, titled the Australian Inland Mission Arial Medical Service (Royal Flying Doctor Service, 2022). Most often, practitioners of the RFDS fly-in and fly-out from larger bases to rural, remote, and very remote communities. Other visiting services travel by road or fly on commercial aircraft. While visiting services have been in operation for near a centaury across Australia, the literature is not all favourable.

1.6.2 Impact on Existing Community

Concern has been raised by the House of Representatives Standing Committee of Regional Australia (HRSCRA) for the use of DIDO and FIFO services within communities that are large enough to support resident-based health professionals (Carey, Sirett, Wakerman, et al., 2018; Commonwealth of Australia, 2013). More recently, a study by Thomas and colleagues (2015) sought to identify “what core services should be locally available?” The authors concluded with a list of primary health care related services they believe to be best provided by health workers residing in communities with small populations, this list included: mental health, social and emotional well-being, care of the sick and injured, aged care, disability services, sexual and reproductive health and public illness prevention (Thomas et al., 2015). Effective primary care services, however, is far more than just having these identified

practitioners on the ground. The degree of fit between the health system and health consumers must be carefully considered to align these services with community preferences and culture, enabling a process of self-determination (Penchansky & Thomas, 1981; Thomas et al., 2015). Further, challenges recruiting and retaining a primary care workforce to rural and remote areas remain (Battye et al., 2019; Wakerman & Humphreys, 2019). As well, the education of community members is pivotal as they may not be aware of the range of services available in metropolitan areas and how such services can be used to support them (Thomas et al., 2015). Careful consideration must be taken to assess the impact of visiting services, both positive and negative, on the resident workforce and communities themselves.

1.6.3 Most Recent Review of Visiting Services

A review of visiting service delivery models in high income countries was conducted by Carey and colleagues in 2018. The authors compared data from 20 papers published between 1990 and 2013. Their results identified that beyond variation in service or practitioner type, a range of different terminology was used to describe the approach of visiting services including: hub and spoke models, mobile clinics, mobile branch surgeries, mobile outreach clinics, mobile health and wellness services, mobile vans, mobile treatment centres and check-up information services. The review found considerable heterogeneity in both the description of services and the salient issues identified in each publication. Variability is a prominent feature in all aspects of the literature relating to visiting services which makes comparing and grouping studies and data collected difficult, negatively impacting the development of theory and its effective application in practice.

Despite this variation, the authors were able to group the service models into two broad groups of service type. The first type was termed ‘mobile services’ and involves an individual or team of clinicians travelling on a continuous circuit between different, remote locations. The second, describes organizations that operate from a central hub, sending teams to remote communities on a periodic basis, known to be a ‘hub-and-spoke’ approach. No significant differences were identified between the outcomes established from organisations operating with the two different approaches (Carey, Sirett, Wakerman, et al., 2018).

The authors also observed that while many articles identified key features of service design, they did not incorporate these features into service evaluations. One prominent example of this was staff continuity, despite it being identified as a key feature of visiting services, there remains no published evidence of an evaluation assessing the appropriateness of continuity for the community serviced. In response to these large discrepancies between

articles reviewed, the data collected was used to develop a model of seven principles underpinning effective visiting primary health care service delivery (Figure 4) through consensus-building discussions within the research team (Carey, Sirett, Wakerman, et al., 2018).

Figure 4

Seven Principles for Effective Visiting Services of Rural and Remote Regions, Produced by Carey, Sirett, Wakerman, Russell & Humphreys (2018)

The discussions of the research team were informed by their expertise and experience in remote health research, and practice of individual team members, including their familiarity with other relevant research (Carey, Sirett, Wakerman, et al., 2018). The principles established provide a conceptual framework upon which to systematically and consistently assess the provision of visiting services in remote areas (Carey, Sirett, Wakerman, et al., 2018).

The model produced by Carey and colleagues (2018) represents an innovative and much needed foundation to direct both research and practice. Further research is required however, to assess the model, specifically its confirmability and credibility, prior to use. Confirmability describes the degree to which the findings of a research study can be agreed upon by other researchers, managers and practitioners (Korstjens & Moser, 2018). Credibility assesses the plausibility and accuracy of interpretations made in synthesising original data collected into research findings, describing the level of confidence that can be placed in the truth of the research outcomes (Korstjens & Moser, 2018). The goal of further assessment is to confirm the model as a robust framework that can be used to facilitate evidence-based practice for visiting services.

1.6.4 Measurement and Evaluation of Visiting Services

In a second review by the same authors, the model of seven principles was applied to existing publications describing visiting services (Carey, Sirett, Russell, et al., 2018). The conclusions of the second review included recommendations for future research to focus on identifying a suite of measures that assess effectiveness in relation to each identified key principle (Carey, Sirett, Russell, et al., 2018).

Carey and colleagues (2018) explored the impact of visiting health services on the effectiveness of primary health care in rural and remote settings. The authors reported that there was a paucity of reliable and comprehensive data on this topic which must be well-understood to inform decisions of policymakers and health service managers (Carey, Sirett, Russell, et al., 2018). As a result of the sparse literature available, the authors' concluded that a more rigorous evaluation of visiting services, their effectiveness, impact and cost is required. In particular, the authors reported that the 'visiting' component and the individual models that are operating need assessment, given the inconsistencies identified between service delivery models (Carey, Sirett, Russell, et al., 2018). Despite years of visiting services operating in isolated communities of geographically large countries, there exists no guideline or industry recommendation for how to effectively evaluate the quality of services delivered. The absence of industry guidelines for the evaluation of visiting services has implications for multiple parties including the funders investing in visiting services including Government, visiting service organisations themselves, and arguably the most important: residents of rural and remote areas.

1.7 Summary

Geographically large countries, like Australia, face challenges with the effective distribution of health care services, to the detriment of individuals living in rural and remote areas. The combination of relatively small populations, the cost of service delivery to rural and remote areas, and the mixed funding model of healthcare in Australia means that clinical needs of these populations may slip through the cracks or be categorised as not viable. Visiting services operate to reduce the unequal distribution of health services and provide high quality healthcare to residents of rural and remote regions. Visiting services have been in operation for near a century, yet there remains limited published literature available. The amount of studies published is few, the quality is variable and the terminology and methods used are inconsistent. There is comprehensive evidence outlining the health disadvantage for residents of rural and remote areas and visiting services are in operation in response.

Research is required to adequately assess the impact of visiting services on the health and well-being of rural and remote residents.

1.8 The Current Research

The current research project was established in response to the health disadvantage experienced by Australian's living in rural and remote areas and paucity of reliable evidence related to visiting primary health care services.

1.9 Research Objectives

- To conduct an updated review of the literature pertaining to visiting services
- To assess the confirmability and credibility of the conceptualised framework developed by Carey and Colleagues (2018)
- To develop a framework based on Carey and colleagues' (2018) model used for the evaluation of visiting services.

1.10 Introduction to Case Study Organisation

This applied research project emanated from the needs of a health service provider in the field. Outback Futures is an example of a visiting service that is based in South-East Queensland and sends teams of allied health professionals to Central-West, and North-West Queensland. As such, Outback Futures falls under the category of "hub and spoke" services, using Brisbane as the hub for central operations, and sending teams to remote communities as the spokes, on a periodic basis (Carey, Sirett, Wakerman, et al., 2018). This model of service delivery is directed to remote and very remote communities (MM6 and MM7) and is built upon a 'bush informed' agenda, beginning with relationships and empowering community members to select what parts of the service they require. The team of psychologists, counsellors, occupational therapists, speech pathologists, social workers, and learning and literacy specialists travel to these rural communities four to six times each year to see clients face-to-face. Between visits, the team remain connected to clients and the community through telehealth sessions, where appropriate. The unique workforce model, with extended FIFO and teams recruited to specific regions, allows for the long-term retention of staff and improved continuity of care for their clients (De Roodenbeke et al., 2011). Three key components of Outback Futures' model of service delivery are: entry without referral restriction, relationship-based facilitation and for the organization to be directed by the community's identified needs. Built upon these foundations is a vision for community mobilization, supporting community members to value themselves and to invest in their own well-being to ensure growth and a positive future.

1.10.1 Outback Futures' Long-term Vision

As the organisation currently operates in communities with resident and other visiting services, the long-term goal of Outback Futures is to not be required by these communities. In the short-term, the organisation is operating to reduce barriers to community members seeking allied health support. Prominent barriers identified by the organisation during their time in Western Queensland include: community members' limited knowledge of different roles of allied health practitioners; how professions can be used to support individuals and family systems; awareness of stigma to be seen seeking help; expected costs of treatment; and a remarkably stoic culture that reinforces the sentiment that it is weak to need support (Thomas et al., 2015).

1.10.2 Context of Central-West and North-West Queensland

The remote locations of Central-West and North-West Queensland, specifically, have been facing the crippling effects of drought since 2015. The seven shires currently serviced by Outback Futures have been "full drought declared" since the beginning of 2014 and remain so as of August 1, 2021(Queensland Government, 2022). In a review investigating links between drought and mental health outcomes, Vins and colleagues (2015) found economic effects to be most prominent with impacts on both individual and community economic activities, particularly within the agricultural sector and those with livelihoods influenced by weather conditions and water access (Berry et al., 2011; Carnie et al., 2011; Hart et al., 2011; Vins et al., 2015). Since that research, the drought has continued in Western Queensland and Outback Futures has, anecdotally, observed many community members experience negative economic impacts; from gardeners to general store owners, and graziers themselves.

1.11 Researcher Rational

I have been connected to Outback Futures since 2013, initially as a volunteer, then clinic coordinator, psychology post-graduate practicum student and now, with the current research. Through my involvement with the organisation, I have met terrific people who do not deserve the poor health outcomes that their postcode prescribes. As a life-long resident of metropolitan areas, it came as a great surprise to me that people living in the same state had such different living circumstances and opportunities. The current research was developed in response to the prominent discrepancy in healthcare availability and health outcomes for residents of rural and remote areas. While the gold standard is a consistent and reliable local health workforce, visiting services offer a valuable alternative, if able to operate effectively

for the individual communities serviced. This research was undertaken to support Outback Futures determine an effective and evidence-based approach to evaluate their model of service and delivery in Western Queensland. The current research aims to extend the literature relating to visiting services through the individual example of Outback Futures.

1.12 Summary of Review

There is a well-documented health disadvantage for residents of rural and remote areas (Australian Institute of Health and Welfare, 2020). Attempts to explain the disparity include differences in availability of services, challenges with workforce recruitment, retention and turnover, as well as stigma for help seeking in rural and remote areas. Visiting primary health care services were established to increase access to high quality healthcare in underserved locations. There is limited evidence directing the evaluation of visiting services in rural and remote regions (Carey, Sirett, Wakerman, et al., 2018). The aim of this project is to further investigate the current literature pertaining to visiting services, to assess the recently developed conceptual framework (model of seven principles for effective visiting services)(Carey, Sirett, Wakerman, et al., 2018), and to conceptualise the same model into a framework used for the evaluation of visiting services.

STRUCTURE OF THESIS

The current thesis document is structured in five chapters. Brief outlines of the remaining four are provided.

Chapter 2: Study One, SQLR

The second chapter outlines the first study conducted, the Systematic Quantitative Literature Review (SQLR). In response to the sparsity of, and variation in the literature available, it was determined a comprehensive and credible review was required. The first study utilised the explicit and replicable method established by Pickering and Byrne (2013) to review the available literature pertaining to visiting services and construct a quantitative database with categorised information extracted from each study. The SQLR method was effective at consolidating “what we know” from the literature, and indicating gaps in the literature that require attention. The key outcome of the SQLR was clarification of the terminology used to describe visiting services and the production of related definitions. These definitions provide a firm foundation from which to further investigate visiting services as a group.

Chapter 3: Study Two, Delphi Method

Following the review that produced clarity in defining what visiting services are and what is known about them, the third chapter describes the Delphi method which was conducted as the second study. The aims of the second study were to assess the confirmability and credibility of the conceptual framework proposed by Carey and colleagues (2018), the seven principles for effective visiting services. The Delphi method involved recruitment of a heterogeneous panel of experts in rural and remote healthcare used to appraise the proposed model. The outcome signifies progression for the evidence base, in the production of a credible revised model of seven principles for effective visiting services. Further research is required to build upon this progression to assess the application of the model and usability with a visiting service organisation.

Chapter 4: Study Three, Case Study

Chapter four describes the use of the case study method to assess the clinical utility of the revised model. This study builds directly on from the Delphi method by assessing the model from the perspective of a single case. Outback Futures was used as the case organisation and three of their executives participated in four group interviews. The outcome of the case study was evidence for the clinical utility of the revised model as well as the development of a self-assessment protocol to be used by visiting service organisations. The protocol developed is the first of its type, known by the authors, to provide direction to visiting service organisations for the evaluation of their practice. The tool is adequately broad in response to the great variation with the group of visiting services. It has been crafted to allow each organisation to provide specific examples as evidence, related to their individual circumstance.

Chapter 5: General Discussion

The fifth and final chapter provides a comprehensive discussion of findings for the three studies reported with reference to the existing literature. As well, the chapter outlines limitations to the current research and provides recommendations for future research.

CHAPTER 2: STUDY 1

Study 1 describes a comprehensive review of the literature pertaining to visiting services through the use of the Systematic Quantitative Literature Review method. This study has been submitted for publication however the formatting, including the location of tables and figures, has been changed to align with the presentation style of the Thesis.

Authors: **Healy, L.J**., Beccaria, G., Daken, K., McIlveen, P.

ABSTRACT

Background. Visiting primary healthcare services were established to improve access to a comprehensive health workforce and increase retention of staff to rural and remote areas. The literature relating to visiting primary healthcare services is inconsistent in the workforce models described, the terminology used, and the quality of empirical research conducted. The objective of the present study was to comprehensively review the published literature available relating to visiting healthcare services in high income countries. Specifically, to investigate what service delivery models are in operation, where they are operating, and what methods of evaluation are being used to assess both the quality of the service, and the appropriateness of service-fit to each community.

Methods. The Systematic Quantitative Literature Review method was used to search published journal articles, apply inclusion and exclusion criteria, and compile information about studies selected into a database. This reliable method was selected to create a comprehensive database of literature organised by a quantitative coding system. This coding system can be used to identify gaps in the literature, and direct recommendations for future research.

Results. Twenty-one studies met inclusion criteria and the requirements of the risk of bias appraisal tool. Synthesis of the studies found continued variation in the literature. Under half of the studies used outcome measures or estimates of impact (48%). Eighty-six percent of studies did not reference a geographical classification system to substantiate their use of the terms “rural” or “remote”, and only 52% of studies described their selected research design. Further, critical appraisal and risk of bias assessment revealed variability in the quality of research.

Conclusions. The findings emphasise the need for greater clarity in the terminology and definition used to discuss visiting primary healthcare services. The authors of the current review propose the revised term “visiting primary care services” and provide a definition.

Researchers are encouraged to increase the quality and transparency of research produced. The database established in this study can be built upon with further reviews and used to inform future research, clinical practice, sponsorship, and health policy.

Protocol Registration. The protocol for this review has been published on PROSPERO and can be retrieved via the following URL: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=197847.

Keywords. Rural, Remote, Systematic Review, Outreach, Health.

VISITING PRIMARY CARE SERVICES: A SYSTEMATIC QUANTITATIVE LITERATURE REVIEW

Access to a highly skilled and educated health workforce is crucial for effective health outcomes. Geographical factors are known to influence the accessibility of the health workforce including availability of services to residents of rural and remote regions. Distribution and accessibility is a longstanding challenge for all countries, regardless of income level (Dussault & Franceschini, 2006). In Australia, the health workforce is unevenly distributed across the country with high proportions of clinicians practicing in metropolitan areas (Carey, Sirett, Wakerman, et al., 2018). This maldistribution has been identified as a contributing factor to the disparity in health and well-being outcomes between residents of metropolitan areas and those living in rural and remote locations (Perkins et al., 2019). The delivery of quality health services to all Australians, regardless of location, has been identified as a priority by the Australian Government in the 2021-22 budget with a proposed additional 36-billion-dollar investment (Australian Government, 2021). One prominent factor contributing to the cost of health services in rural and remote regions is the problem of rural health workforce retention (Chisholm et al., 2011; Cosgrave, 2020; Wakerman et al., 2019). Effective workforce retention is typically associated with increased skills and experience among staff and contributes to the provision of high-quality health care with an added benefit of greater cost-effectiveness (Buykx et al., 2010).

The term “visiting services” encompasses a broad range of healthcare models including specialist outreach clinics, hub-and-spoke arrangements, fly-in-fly-out or drive-in-drive-out clinics, short-term locum or agency staff and orbiting staff who spend lengthy periods (12 months or more) in a few communities (Carey, Sirett, Wakerman, et al., 2018). Visiting services offer a solution to reduce the maldistribution of the health workforce by connecting rural and remote regions to consistent and reliable health care services (Carey, Sirett, Wakerman, et al., 2018; De Roodenbeke et al., 2011). Furthermore, visiting services have the

potential to provide continuity of care to underserved areas through more effective recruitment and retention of staff and reduced workforce turnover (Carey, Sirett, Wakerman, et al., 2018).

Visiting services are represented infrequently in the literature, with few examples of journal articles describing visiting service models worldwide, and even fewer studies describing evaluations conducted on visiting services (Carey, Sirett, Wakerman, et al., 2018). Specifically, the most recent review (Carey, Sirett, Wakerman, et al., 2018) found great variation in the literature including inconsistent terminology used to describe visiting services, the study type, and quality of evidence available. The time period of articles selected for the previous review was 1990–2013. Despite being published relatively recently in 2018, the review's conclusions were based on literature that is, by now, at least eight years old. An updated review is required to assess the current state of the literature.

2.1 Systematic Quantitative Literature Review Methodology

The present study used the systematic quantitative literature review (SQLR) (Pickering & Byrne, 2013) method which is an alternative to the traditional narrative literature review. SQLR was established to comprehensively survey existing literature and highlight the boundaries of current knowledge in a particular field. The SQLR method is explicit and replicable, ensuring credibility of findings regardless of researcher credential or level of experience. Developed for use in the natural sciences, the method has been effectively applied in social sciences and has been particularly beneficial when applied to new fields or when used in the initial stages of assessing the literature in a particular field (Pickering & Byrne, 2013).

2.2 Rationale

The objective of the current research was to comprehensively review published literature available relating to visiting primary healthcare services in high income countries. Specifically, the study sought to investigate what service delivery models are in operation, where they are operating, and what methods of evaluation are being used to assess both the quality of the service, and the appropriateness of service-fit to each community. The application of the SQLR to visiting health service research literature would efficiently determine what is available and where further research is required. An anticipated outcome is a comprehensive map of literature about visiting services which can be used to inform further research, funding allocations, and the clinical application and evaluation of services. Further, systematic reviews should be conducted regularly and recorded in a format that allows

authors to continually add to previous knowledge (Pickering & Byrne, 2013). Thus, the present study serves as a contemporary update to the literature.

METHOD

2.3 Systematic Quantitative Literature Review Methodology

The robust methodology of the SQLR involves 15 stages from conception to submission for publication. The process begins by defining the topic (Step 1), formulating research questions (Step 2), and identifying key words (Step 3). From there, researchers are to identify and search databases (Step 4), read and assess publications (Step 5) and structure the database (Step 6). Step 7 involves entering data from 10% of papers to test and revise the database categories (Step 8). Step 8 may be repeated throughout data entry while entering the bulk of papers (Step 9) prior to producing and reviewing summary tables (Step 10). The final six steps of the SQLR method relate to the write up of findings including draft methods (Step 11), evaluate key results and conclusions (Step 12), draft results and discussion (Step 13), draft introduction, abstract and references (Step 14), and revise paper in preparation for submission (Step 15) (Pickering & Byrne, 2013).

2.3 Eligibility Criteria

The inclusion and exclusion criteria used for the current review are detailed in Table 2. The current study was designed to build upon the previous review (Carey, Sirett, Wakerman, et al., 2018); therefore, the inclusion and exclusion criteria were similar to those used by Carey et al. (2018). Included studies, were written in English and described visiting services operating in high income countries, as per the World Bank definition (2021). Included studies also discussed primary health care services and were peer reviewed, published research. The previous review reported on publications from 1990–2013. As such, the current inclusion time period was set to 2013–2020. The 20 articles used in the previous review (Carey, Sirett, Wakerman, et al., 2018) were retrieved and included in the review process as representative of available research prior to 2014. These inclusion criteria shaped the research question: What is the current published research about visiting primary healthcare services and what methods were used to evaluate their impacts and effectiveness?

Table 2

Inclusion and Exclusion Criteria Used for Current Review

Criteria	Inclusion	Exclusion
Time Period	2013–2020	Before 2013
Language	English	Other Languages
Geographical delimitation	High income economy as per the World Bank definition, Gross National Income per capita of $12,375 or more (The World Bank, 2021).	Low- and middle-income countries
Level of health care	Primary healthcare as per the WHO definition, healthcare at all ages including prevention, health promotion, treatment, rehabilitation and palliation (World Health Organization, 2021).	Secondary and tertiary health services
Publication Type	Published, peer reviewed articles	Grey literature including Government Reports
Aim: to investigate what types of visiting service models are in operation in rural and remote communities and how they are being evaluated	Journal article must describe a type of visiting service or model of service delivery used in rural or remote area	Publications presenting challenges of the rural context alone, without mention of a visiting service

2.4 Information Sources

The searches were conducted by two reviewers on 2 June 2020. Six databases were searched including: EBSCO CINAHL, EBSCO APA PsycInfo, EBSCO Medline, EBSCO Psychology and Behavioural Sciences Collection, Cochrane Library, and Informit RURAL.

2.5 Search Strategy

The same search strategy was used for all six databases as outlined in Table 3. Filters used include date (2013–2020) and language (only articles written in English).

Table 3

Search Strategy Used for All Six Databases

Date of Search	Strategy Used	Database Searched	Filters/ Comments
2/06/2020	(visiting OR outreach OR mobile OR "fly in fly out" OR FIFO OR "drive in drive out" OR locum* OR "hub and spoke") AND (primary health care OR "primary care") AND (rural OR remote) AND (evaluat* OR efficien* OR impact OR effective*)	EBSCO CINAHL EBSCO APA PsycInfo EBSCO Medline EBSCO Psychology and Behavioural Sciences Collection Cochrane Library Informit RURAL	Date: 2013-2020 English articles only

2.6 Selection Process

Two reviewers independently assessed all records against the inclusion and exclusion criteria by the title, abstract, and full text of the articles. The reviewers subsequently met to appraise their respective decisions. Cohen's Kappa was calculated as a measure of inter-rater reliability and found *slight agreement* between reviewers following the title review (k = 0.14), and *substantial agreement* between reviewers following the abstract review (k = 0.76). Where disagreements were identified, the reviewers re-read the related information, discussed justification for decisions made, and agreed upon a single outcome.

Following this, the risk of bias assessment tool was applied, as described in detail below. The 20 studies from the existing review were similarly assessed against inclusion and exclusion criteria and a risk of bias assessment.

2.7 Study Risk of Bias Assessment

The Standard Quality Assessment Criteria (SQAC) for evaluating primary research articles was recommended by the research librarian and selected as the most appropriate fit with separate forms for quantitative and qualitative reports (Kmet et al., 2004). Two reviewers (LH and KD) independently assessed each article, selecting a rating from zero to two (0 = does not meet criterion, 1 = partial, or 2 = the report meets criterion) on 10 items for qualitative studies and 14 items for quantitative studies. Scores from all items were added and divided by the total sum to produce a critical appraisal value between 0 and 1 for each report, with higher scores indicating greater quality and reduced risk of bias. Any discrepancies between ratings were resolved by consensus. If reports used mixed methods, both tools were applied and results discussed to determine most accurate score based on the suitability of the tool for each report and similarity of results between reviewers. As the literature indicates a sparsity of evidence relating to visiting primary health care services, a very low minimum

appraisal cut-point was set (equal to or less than 0.25) in order to comprehensively review the services described in the literature.

2.8 Data Collection Process

The SQLR method was used to guide the extraction of data from reports. The lead author produced a database of categories to capture the breadth, depth and type of journal articles published relating to visiting primary healthcare services (Pickering & Byrne, 2013). This process involved constructing provisional categories and assessing their suitability with 10% of the dataset. This allowed adjustments to be made to the categories to more accurately reflect the nature of the studies, prior to entering data from the remaining reports (Pickering & Byrne, 2013).

2.8.1 Data Items

Eight categories were used to collect data items, displayed in Table 4. Where reports had unclear or missing information on a variable, it was coded as 0 if quantitative data were reported, or as "unspecified" if qualitative data were reported.

2.9 Synthesis Methods

The SQLR method was used to synthesise knowledge generated from quantitative, qualitative, and mixed method studies, and to construct a unique database (Pickering & Byrne, 2013). The information from categories described in Table 4 were extracted from each study and recorded in the database. The data synthesis process involved allocating codes of zeros (0) and ones (1) to record aspects of each study. For example, studies acknowledging indigenous populations were coded with a one, and studies that did not received zero for that category. The quantitative data generated by this process was transformed into summary tables, where percentages were calculated to indicate the proportion of studies in each category (Pickering & Byrne, 2013).

Table 4

Categories Extracted from Data Set

Categories Identified	
Coded	**Other**
Type of practitioner described	Year published
Research design	Journal published in
Mention of indigenous populations	Service location: Country, State/ Province, City/ Town
Presence of outcome indicators	Remoteness classification system used and level of remoteness reported

RESULTS

2.10 Study Selection

The study selection process is outlined in the Prisma 2020 flow diagram, Figure 5.

2.11 Study Characteristics

The systematic quantitative database contains 21 studies. Whilst this number of studies is similar to the previous review (Carey, Sirett, Wakerman, et al., 2018), efforts were made to enhance the quality of studies included in the present review by restricting entries to peer reviewed, published articles and those exceeding identified cut point from the risk of bias assessment. The key characteristics of each study are outlined in Table 5.

2.12 Risk of Bias in Studies

The SQAC measure facilitated a review of the quality of evidence available (Kmet et al., 2004). At the time of the review, 52% of studies scored .80 or above thus indicating a high quality of evidence and low risk of bias. There appeared to be no association between year published or location and quality of evidence. As depicted in the Prisma flow diagram in Figure 5, five studies were excluded at the stage of critical appraisal due to low SQAC scores equal to or less than .25. This number of low-quality articles is, in itself, a finding of the review to be used as motivation to adopt more consistent and credible methods in future publications describing and evaluating visiting primary healthcare services.

Figure 5

PRISMA 2020 Flow Diagram

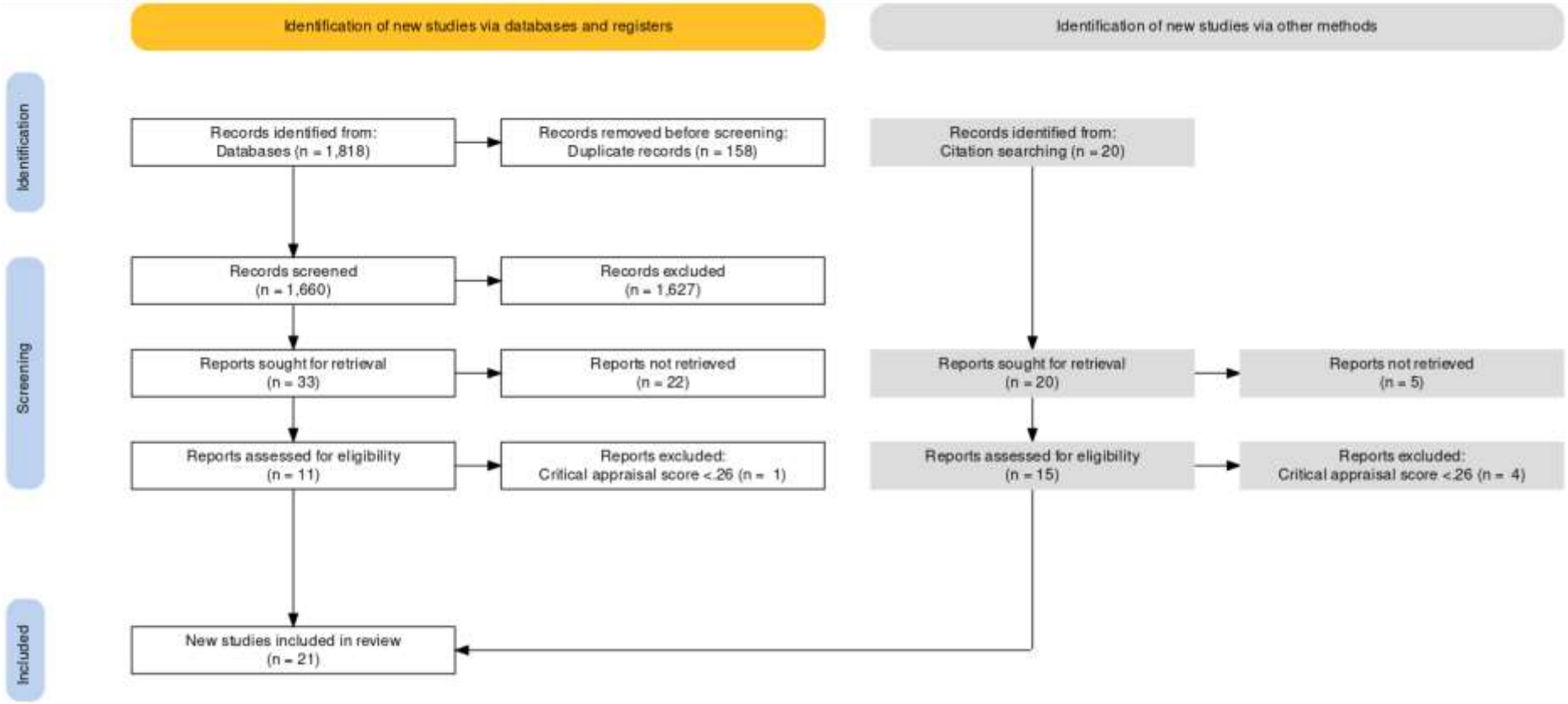


Table 5

Key Characteristics of the Final Set of Studies Assessed for the Review

Author/s and year	Journal	Service Location	Remoteness Level	Health Practitioners	Research Design
1. Agostino (2012)	Australian Family Physician	Cape York Peninsula, QLD Australia	Remote	General Practitioners and child health nurses	Unspecified
2. Aljasir and Alghamdi (2010)	Eastern Mediterranean Health Journal	Al-Laith Governorate, Tihamah, Saudi Arabia	Remote rural area	Doctors and nurses	Descriptive cross-sectional
3. Allen (1996)	The Australian Journal of Rural Health	Croydon and Ethridge Shires, QLD, Australia	Remote areas	Allied Health (specifically discussing physiotherapy)	Unspecified
4. Barnett, Hoang, Stuart, & Crocombe (2017)	BMC Health Services Research	TAS, SA and QLD, Australia	ASGS-RA- Levels 2–5- Inner regional, outer regional, remote, & very remote	Oral health dental care providers	Case study

Author/s and year	Journal	Service Location	Remoteness Level	Health Practitioners	Research Design
5. Battye and McTaggart (2003)	Rural and Remote Health	QLD, Australia	Rural and remote	Allied Health	Unspecified
6. Bentham and Haynes (1992)	Social Science and Medicine	Norfolk, United Kingdom	Rural	General practitioners	Program evaluation
7. Clancy (2015)	The Australian Journal of Rural Health	Northern NSW Local Health District, Australia	A large rural and coastal area	Multi-disciplinary dementia outreach service	Participatory action research
8. Dawkins, Michimi, Ellis-Griffith, Peterson, Carter, and English (2013)	BMC Oral Health	Kentucky, USA	Urban, and remote rural areas using the Office of Management and Budget classification system.	Dentist and dental hygienist	Cross-sectional
9. Dyson, Kruger and Tennant (2014)	Australian Dental Journal	WA, Australia	ASGS-RA level 3-5: outer regional, remote and very remote areas	Dental professionals and students	Descriptive

Author/s and year	Journal	Service Location	Remoteness Level	Health Practitioners	Research Design
10. Evans, Lerch, Boyce, Myers, Kocher, Cook and Sood (2016)	Journal of Health Care for the Poor and Underserved	New Mexico, USA	Remote locations	Nurse practitioner or physical assistant	Unspecified
11. Jackson Pulver, Fitzpatrick, Ritchie and Norrie (2010)	Aboriginal & Islander Health Worker Journal	Atherton Tablelands QLD, Australia	Remote	Dentists	Program evaluation
12. Kirby, Moore, McCarron, Perkins, Lyle (2015)	Canadian Journal of Rural Medicine	NSW, Australia	Remote townships	Nurse-led diabetes care under General Practitioner supervision	Unspecified
13. LaPlante Stein (1993)	Journal of the American Academy of Nurse Practitioners	Arizona, USA	Not specified	Physician, family nurse practitioners and nurses	Unspecified
14. McDermott, Schmidt, Preece, Owens, Taylor, Li, & Esterman (2015)	BMC Health Services Research	12 communities in Far North QLD, Australia	Remote	Indigenous health workers with diabetes focus	Cluster RCT

Author/s and year	Journal	Service Location	Remoteness Level	Health Practitioners	Research Design
15. Peritogiannis, Manthopoulou, Gogou and Mavreas (2019)	Journal of Neurosciences in Rural Practice	Ioannina and Thesprotia, Epirus, Greece	Rural and mountainous	Mental health services including pharmacotherapy and psychotherapeutic interventions	Unspecified
16. Peters and Self (2005)	Canadian Nurse	British Columbia, Canada	Rural	Nurses	Unspecified
17. Scarce and Margolis (2009)	Rural and Remote Health	QLD, Australia	Remote	Primary care doctors	Longitudinal retrospective audit
18. Schwartze, Wolf, Schulz, Rochon, Wagner, Bannenberg, … and Haux (2015)	Studies in Health Technology and Informatics	Germany	Rural	General practitioners	Unspecified
19. Snyder & Thatcher (2014)	Family and Community Health	Appalachia, Southwest Virginia, USA	Isolated mountain regions, remote, rural	Medical missionary sister and additional medical staff	Historical

Author/s and year	Journal	Service Location	Remoteness Level	Health Practitioners	Research Design
20. Stratton, Williams and Meine (2005)	Journal of the American Pharmacists Association	Montana, USA	Rural	Pharmacists and student pharmacists	Descriptive
21. Therien (2000)	The Nursing Clinics of North America	Virginia, USA	Rural and mountainous	Nurses	Unspecified

Note. QLD = Queensland. TAS = Tasmania. SA = South Australia. ASGS-RA = Australian Statistical Geography Standard- Remoteness Area. NSW = New South Wales. USA = United States of America. WA = Western Australia. RCT = Randomised Controlled Trial.

2.13 Results of Individual Studies

The results of the current review indicate that the published literature relating to visiting primary healthcare services is progressing slowly with as few as nine articles published over the seven-year period since the search was conducted for the previous review (Carey, Sirett, Wakerman, et al., 2018). There remains variation in the terminology used, research design, and quality of evidence available. This variability within the literature meant the search terms for the current study needed to be broad, to capture studies describing visiting services with a range of terminology (i.e., outreach, mobile health etc). As a result, a significant proportion of studies reviewed were found to be not relevant to the research question. The low interrater reliability score of title reviews ($k = 0.14$) is likely a reflection on the inconsistency of terminology used rather than inappropriateness of search terms and inclusion and exclusion criteria.

Further, the purpose of each research study differed greatly with some studies describing examples of visiting health care services in operation, others outlining the clinical needs in rural and remote areas and how a particular service has responded, others conducting program evaluations attempting to quantify the impact of visiting health care organisations and justify their continuation. Only 48% of studies used outcome measures or estimates of impact. Of the outcome measures used, there was variability in the specificity of approach with some studies using measures of reduction in particular symptoms of concern (i.e., glycaemic control for diabetes) and others more broadly assessing the perceptions, impact and effectiveness of the service for communities serviced. The data collected indicate that there is no one consistent, credible, or reliable outcome measure to apply to visiting services. The outcome measures reported are listed in Table 6.

Table 6

Outcome Variables Used

Authors	Aim	Outcome variable
Aljasir and Alghamdi (2010)	Review of mobile primary health care service in Saudi Arabia.	Patient satisfaction
Battye and McTaggart (2003)	Description of a model of visiting allied health services.	Recruitment and retention, integration, community impact, economic analysis and cost-effective analysis

Bentham and Haynes (1992)	Evaluation of visiting GP service.	Consultation rates, client attitudes towards service, pre and post access
Jackson Pulver, Fitzpatrick, Ritchie and Norrie (2010)	Program evaluation of dental program in FNQ with an indigenous population.	Perceptions of stakeholders and level of volunteer involvement
Kirby, Moore, McCarron, Perkins, Lyle (2015)	Review of a year-long, nurse-led diabetes service, supervised by GPs.	Client health outcomes including a mean decrease of HbAic levels
McDermott, Schmidt, Preece, Owens, Taylor, Li, & Esterman (2015)	RCT assessing impact of community health worker-led diabetes care model for high risk and disadvantaged populations.	Glycaemic control
Peritogiannis, Manthopoulou, Gogou and Mavreas (2019)	Historical review of a mobile mental health unit in Greece.	Referral status, reduced hospitalisations, number of regularly attending patients compared to partially engaged
Scarce and Margolis (2009)	Retrospective longitudinal report assessing visiting skin cancer service.	Number of patients seen, rate of skin cancer detection, number of lesions removed, proportions of lesions that were melanomas + comparison to metropolitan clinics
Stratton, Williams and Meine (2005)	Review of pharmacist-conducted visiting disease screening service.	Distance travelled, clinics conducted, number of counties reached, number of people seen and screening tests conducted
Therien (2000)	Description of a mobile health and wellness prevention focussed program.	Number of communities visited, number of veterans serviced, increasing access to care, revenues generated per visit

Note. GP = general practitioner. FNQ = Far North Queensland. RCT = Randomised Controlled Trial.

2.14 Results of Syntheses

2.14.1 Location

Australia is the largest producer of journal articles relating to visiting primary healthcare services (48%), with the United States of America second (28%). Other contributing

countries include Canada, Germany, Greece, Saudi Arabia, and the United Kingdom. Studies were most commonly published in either the Australian Journal of Rural Health, BMC Health Services Research, or Rural and Remote Health.

2.14.2 Classification of Remoteness

Geographical classification systems have been developed to divide countries on the basis of remoteness and inform research and policy development (Australian Bureau of Statistics, 2018). The current review identified 86% of studies did not reference or report to use a remoteness classification system. Further, 94% of that sub-group of studies used the terms "rural" or "remote" in their description of communities discussed. Two Australian studies used the Australian Standard Geographical Classification of remoteness Area (ASGC-RA) which divides the country into five levels: Major Cities, Inner Regional, Outer Regional, Remote, and Very Remote (Australian Bureau of Statistics, 2018). The method was developed in 2001 and has been identified as a nationally consistent tool to determine geographical remoteness (Australian Bureau of Statistics, 2018).

2.14.3 Level of Health Care

The level of health care described in each study became a complicating factor for the current review. The search criteria were set to include studies describing primary healthcare services, as outlined in the WHO definition, and to exclude secondary and tertiary services. The current study followed the procedure of the previous review (Carey, Sirett, Wakerman, et al., 2018). When reviewing the literature, however, it was difficult to determine the level of health care by which each service may be defined. All 21 studies of the database were classified by the reviewing team as describing primary healthcare services, as evidenced by presenting problems targeted, the absence of a referral, and the types of treating clinician (e.g., GPs, nurses, allied health etc.).

Also identified in the search, but not included, were two prominent groups of studies. The first group was about visiting services delivered by specialist doctors including surgeons and physicians. The second group was about studies describing services that have a combination of primary care and specialist clinicians, for example a retinopathy screening service involving both ophthalmologists and optometrists (Glasson et al., 2016), or a rural breast cancer screening service run by primary care providers, radiologists and surgeons (Inrig et al., 2017; Lee et al., 2017). In an attempt to respond to the research question, and continue on from the previous review, these articles were not incorporated into the current database of visiting primary healthcare services.

2.14.4 Health Care Type

Of the 21 reports in total, 38% described multidisciplinary teams, defined as teams of more than one discipline working collaboratively to deliver comprehensive care (Mitchell et al., 2008). Table 7 outlines the practitioner types and how often they were discussed.

Table 7

Types of Healthcare Services Described in Included Studies

Practitioner Type	Examples	Frequency	Percentage
Allied Health	Physiotherapists, podiatrists, psychologists, pharmacists, indigenous health workers and other multi-disciplinary teams treating diabetes, mental health and dementia.	5	24%
Doctors	GPs, primary care skin cancer doctors, doctors, and a medical missionary sister	4	19%
Oral Care	Dentists, dental hygienists, dental students	4	19%
Nurses	Nurse, physician assistant, and nurse practitioner	3	14%
Combined	Nurse-led diabetes care under GP supervision; GPs and child health nurses; Physician + family nurse practitioner and RNs; Doctor and nurse	5	24%

Note. GP = General Practitioner. RN = Registered Nurse.

2.14.5 Design and Method

The research designs used and reported in the database were inconsistent. These inconsistencies predominately stem from differences in research question and reasons for conducting research. Most commonly, authors did not specify what method or design was used to justify or explain their conclusions (48%). Program evaluation and descriptive studies were the second most commonly used study designs (10% each). Notably, one cluster randomised controlled trial (RCT) was conducted to evaluate the effectiveness of a community-based health-worker led model of care for indigenous adults with poorly controlled type 2 diabetes (McDermott et al., 2015). Other designs are reported in Table 5.

DISCUSSION

This literature review builds upon that conducted by Carey and colleagues (2018) who concluded that there is insufficient evidence investigating the impact and effectiveness of visiting services and how they are (or are not) contributing to the reduction of health disparity, both access and outcomes, across different regions of Australia. The SQLR method (Pickering & Byrne, 2013) was used for the present study to produce a quantitative database of knowledge available in the field, to be added to with future publications and reviews. The findings illustrate support for conclusions made in the previous review. During the seven years between the previous and the current search, only ten new peer reviewed articles were published describing visiting services. The literature available relating to visiting primary healthcare services remains variable, inconsistent, and limited. This is not reflective of the quantity of visiting services operating, nor the amount of funding invested over this period (CheckUp, 2020).

There were two points of difference between the method of the current review and the previous (Carey, Sirett, Wakerman, et al., 2018). The first was the decision to only include studies from the published, peer reviewed literature. It is expected that many visiting primary healthcare services conduct quality assessments and produce in-house reports describing how their service is justified to operate. The current review aimed at assessing how many organisations have the resources or connections to have this work published in research literature. The results indicate few. The second variation on the previous review methodology was the application of a critical appraisal tool. The tool enabled credible exclusion of studies with markedly low quality, and identified a large proportion of studies to be of high quality. The variation in study quality was not found to be associated with the year published or location, illustrating the need for current researchers to continue to refine their methods used when describing or evaluating visiting primary healthcare services.

The process of screening studies for the current review, revealed flaws in the current definition of visiting services, particularly in the classification of primary health care services. Carey and colleagues (Carey, Sirett, Russell, et al., 2018; Carey, Sirett, Wakerman, et al., 2018) specifically identified visiting primary health care services in their reviews, separate to visiting specialist outreach services (i.e., travelling surgeons or physicians) which are part of a more developed literature base. Our review, however, identified a group of studies describing services that do not fit neatly into either category (n = 5). Instead, they describe integrated teams spanning the boundaries of levels of health care with combinations

of specialist (secondary care) and primary care staff, in screening and intervention roles, in isolation or connected to tertiary systems. A prominent typology of services falling into this category are breast cancer screening services (Drake et al., 2015; Inrig et al., 2017). These services are often an outreach component of a hospital service, however do not require patients to come with a referral. These clinics provide screening and diagnostic mammography services only, or also deliver diagnostic imaging, breast biopsy, and referrals for cancer treatment and are operated by primary care providers, radiologists and surgeons (Lee et al., 2017). Another example of an integrated health care team was a diabetes service delivered to three remote Australian communities (Hotu et al., 2018). The authors reported that a diabetes nurse educator visited three-to-four times yearly, supplemented by twice yearly visits from an endocrinologist. Interestingly, the literature describing services within this combined or integrated category were all published since 2015. Further investigation is required to determine if this pattern could be representative of a shift in the types of services being delivered to rural and remote locations.

Although there are similarities among the different services, there is merit in keeping visiting primary healthcare services separate from visiting specialists as they serve different functions. Rural and remote communities often do not have a sufficient population to create the demand required to justify having a comprehensive range of specialist doctors based in their towns. Visiting specialist services facilitate the feasible provision of services that would not otherwise be available in rural and remote locations. Alternatively, visiting primary healthcare services operate to supplement local services on the ground in these communities. Evidence suggests local services are either limited, over run, or challenged by difficulties attracting and retaining a consistent health workforce. As such, the approach to evaluating these two different types of service should be very different. Patient outcome measures (e.g., reduction of pain or illness, improved mobility, or increased quality of life) would be appropriate to assess the effectiveness of visiting specialists, as it is in metropolitan areas. Visiting primary healthcare services, however, require a more comprehensive review of the organisation's fit with the community to determine both their effectiveness and impact (Healy et al., 2021). From this perspective, it is appropriate to keep the literature describing visiting primary healthcare services separate to that of visiting specialist services and allow each one to inform the other.

One comment must be made regarding the definition of visiting primary healthcare services to clarify and accurately outline the nature of the studies included. In the public

health literature, attention has been given to differences in definitions between the terms *primary care* and *primary healthcare*. Despite their similarities, the terms outline two distinct entities. As such, it is proposed that the title *visiting primary health care services*, used in the previous review (Carey, Sirett, Wakerman, et al., 2018) be modified to *visiting primary care services*. This revised term more accurately describes the types of services within the database, being health care services delivered directly to individuals.

In contrast, the term primary health care is widely acknowledged to be an approach to health policy and service provision that incorporates both primary care and population-level "public health-type" operations (Muldoon et al., 2006). These refinements in terminology and definition will enhance the convenience of future reviews by reducing the number of search terms required.

Synthesis of the included studies echoed that of the previous review (Carey, Sirett, Wakerman, et al., 2018) in finding great variation between the services described, their clinician type, service delivery model and target population, as well as in the research design, methodology, and outcome measures used. With great variation in service type and populations serviced, it is unreasonable to expect there will be a single research design or outcome measure most effectively applied to all visiting services. Without consistency, however, comes an inability to understand the nature of visiting services, their impact, and how to effectively evaluate them.

Despite using the terms "rural" or "remote", the majority of studies did not describe a classification system of geographical remoteness to define the qualities of the area studied. Caution must be taken when reviewing the literature as the similarities and differences underpinning so called "rural and remote" regions cannot be determined. The current review indicates that Australia is the most prominent producer of journal articles describing visiting primary care services, followed by the US. In the literature pertaining to visiting specialist services, the use of the Australian Standard Geographical Classification of Remoteness Areas (ASGC-RA) for Australian studies and Rural-Urban Commuting Areas (RUCA) for American studies are much more consistent (Australian Bureau of Statistics, 2018; Cromartie, 2005). It is recommended that future research published from these two countries increase the specificity of their area descriptions with Australian studies adopting the ASGC-RA classification system and American studies utilising the RUCA framework. This adoption will allow for greater accuracy comparing methods and findings from different services and locations.

Another area of concern for the studies selected was the inconsistency of reporting. In particular, the clinician types of each visiting service, and the research design used were often not communicated. Inclusion of this information is recommended as a vital step towards a more comprehensive and reliable evidence base describing visiting primary care services.

2.15 Limitations and Future Research

The current review successfully applied the SQLR method to visiting primary care services. The process, however, was limited by the terminology and current definition available for this group of services. Future research should adopt the updated term, "visiting primary care services", and use it in all research relating to organisations that travel to rural and remote areas to deliver health care services not requiring referral (e.g., from a GP). This definition does not preclude, however, a person's health practitioner recommending a visiting primary care service to which the prospective client would initiate contact in order to access the service. This definition also distinguishes visiting primary care services from other visiting services (e.g., medical specialists) that require a referral from a medical practitioner. Future reviews will be able to simplify the search terms used and reduce the number of irrelevant articles captured. Finally, it is expected that a body of valuable evidence is sitting within grey literature, held by visiting service organisations used to inform practice and meet requirements of funding contracts. Future research should investigate these resources with similar research questions and report on what visiting services are in operation in rural and remote areas and what methods they are using to assess the effectiveness of the service and fit to each community.

2.16 Conclusion

Visiting services are a complex and resource intensive approach to reduce health care access and outcome disparities between areas in geographically large countries, it is vital for the literature to continue evolving to ensure investments made can be appropriately justified.

ADDITIONAL INFORMATION

Competing Interests

LH has worked for a visiting service organisation, Outback Futures, since 2013. Regular supervision from GB and PM was maintained throughout the research to ensure any biases from LH were identified and eliminated. Authors GB, PM and KD declare that they have no competing interests.

Funding

This research has been supported by funding from Outback Futures and the University of Southern Queensland through the Postgraduate Research Scholarship. The funding bodies did not play a role in study design or collection, analysis, interpretation of data or writing of the manuscript.

Authors' contributions

LH liaised with senior research librarian at USQ, TK, to establish the study design, methodology and to determine a suitable critical appraisal tool. GB and PM provided supervision. LH and KD completed independent review of studies at title, abstract and full-text level, as well as applying a critical appraisal tool to included studies. LH completed analysis under supervision and produced draft manuscript. All authors reviewed manuscript and approved prior to submission.

Acknowledgements

We would like to thank Tricia Kelly, senior research librarian at USQ, for her wisdom, direction and commitment to this project.

Authors' Information

Corresponding author email address: u1106966@umail.usq.edu.au.

REFERENCES

Australian Bureau of Statistics. (2018). *Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2016 [1270.0.55.005]*. https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1270.0.55.005Main+Features1July%202016?OpenDocument

Australian Government. (2021). *Budget 2021-22: Overview how the 2021-22 budget is investing in the health of regional Australia*. https://www.health.gov.au/sites/default/files/documents/2021/05/overview-how-the-2021-22-budget-is-investing-in-the-health-of-regional-australia.pdf

Buykx, P., Humphreys, J., Wakerman, J., & Pashen, D. (2010). Systematic review of effective retention incentives for health workers in rural and remote areas: towards evidence-based policy. *Australian Journal of Rural Health, 18*(3), 102-109. https://doi.org/10.1111/j.1440-1584.2010.01139.x

Carey, T. A., Sirett, D., Russell, D., Humphreys, J. S., & Wakerman, J. (2018). What is the overall impact or effectiveness of visiting primary health care services in rural and remote communities in high-income countries? A systematic review. *BMC Health Services Research, 18*(1). https://doi.org/10.1186/s12913-018-3269-5

Carey, T. A., Sirett, D., Wakerman, J., Russell, D., & Humphreys, J. S. (2018). What principles should guide visiting primary health care services in rural and remote communities? Lessons from a systematic review. *Australian Journal of Rural Health, 26*(3), 146-156. https://doi.org/10.1111/ajr.12425

CheckUp. (2020). *Outreach Services: Creating healthier communities*. Retrieved 13 July, 2021 from https://www.checkup.org.au/page/Initiatives/Outreach_Services/About_the_Outreach_Programs/

Chisholm, M., Russell, D., & Humphreys, J. (2011). Measuring rural allied health workforce turnover and retention: what are the patterns, determinants and costs? *Australian Journal of Rural Health, 19*(2), 81-88. https://doi.org/10.1111/j.1440-1584.2011.01188.x

Cosgrave, C. (2020). The Whole-of-Person Retention Improvement Framework: A Guide for Addressing Health Workforce Challenges in the Rural Context. *International Journal*

of Environmental Research and Public Health, 17(8). https://doi.org/10.3390/ijerph17082698

Cromartie, J. (2005). *Rural-urban commuting area codes*. Econimic Research Service, U.S. Department of Agriculture. Retrieved 6 December, 2021 from https://agris.fao.org/agris-search/search.do?recordID=US2019X00125

De Roodenbeke, E., Lucas, S., Rouzaut, A., & Bana, F. (2011). *Outreach services as a strategy to increase access to health workers in rural and remote areas*. https://www.ncbi.nlm.nih.gov/books/NBK310729/

Drake, B. F., Abadin, S. S., Lyons, S., Chang, S. H., Steward, L. T., Kraenzle, S., & Goodman, M. S. (2015). Mammograms on-the-go-predictors of repeat visits to mobile mammography vans in St Louis, Missouri, USA: a case-control study. *BMJ Open, 5*(3). https://doi.org/10.1136/bmjopen-2014-006960

Dussault, G., & Franceschini, M. C. (2006). Not enough there, too many here: Understanding geographical imbalances in the distribution of the health workforce. . *Human Resources for Health, 4*(12). https://doi.org/10.1186/1478-4491-4-12

Glasson, N. M., Crossland, L. J., & Larkins, S. L. (2016). An Innovative Australian Outreach Model of Diabetic Retinopathy Screening in Remote Communities. *Journal of Diabetes Research, 2016*, 1267215. https://doi.org/10.1155/2016/1267215

Healy, L. J., Beccaria, G., & McIlveen, P. (2021). Revised model for evaluating visiting health care services in rural and remote settings. *Australian Journal of Rural Health, 29*, 779-788. https://doi.org/10.1111/ajr.12774

Hotu, C., Remond, M., Maguire, G., Ekinci, E., & Cohen, N. (2018). Impact of an integrated diabetes service involving specialist outreach and primary health care on risk factors for micro- and macrovascular diabetes complications in remote Indigenous communities in Australia. *Australian Journal of Rural Health, 26*(6), 394-399. https://doi.org/10.1111/ajr.12426

Inrig, S. J., Higashi, R. T., Tiro, J. A., Argenbright, K. E., & Lee, S. J. (2017). Assessing local capacity to expand rural breast cancer screening and patient navigation: An iterative mixed-method tool. *Evaluation and Program Planning, 61*, 113-124. https://doi.org/10.1016/j.evalprogplan.2016.11.006

Kmet, L. M., Lee, R. C., & Cook, L. S. (2004). *Standard quality assessment criteria for evaluating primary research papers from a variety of fields* (Vol. 13). Alberta Heritage Foundation for Medical Research. https://www.ihe.ca/download/standard_quality_assessment_criteria_for_evaluating_primary_research_papers_from_a_variety_of_fields.pdf

Lee, S. J. C., Higashi, R. T., Inrig, S. J., Sanders, J. M., Zhu, H., Argenbright, K. E., & Tiro, J. A. (2017). County-level outcomes of a rural breast cancer screening outreach strategy: a decentralized hub-and-spoke model (BSPAN2). *Translational Behavioral Medicine, 7*(2), 349-357. https://doi.org/10.1007/s13142-016-0427-3

McDermott, R. A., Schmidt, B., Preece, C., Owens, V., Taylor, S., Li, M., & Esterman, A. (2015). Community health workers improve diabetes care in remote Australian Indigenous communities: results of a pragmatic cluster randomized controlled trial. *BMC Health Services Research, 15*, 68. https://doi.org/10.1186/s12913-015-0695-5

Mitchell, G. K., Tieman, J. J., & Shelby-James, T. M. (2008). Multidisciplinary care planning and teamwork in primary care. *Medical Journal of Australia, 188*(8).

Muldoon, L. K., Hogg, W. E., & Levitt, M. (2006). Primary care (PC) and primary health care (PHC): What is the difference? *Canadian Journal of Public Health, 97*(5), 409-411.

Perkins, D., Farmer, J., Salvador-Carulla, L., Dalton, H., & Luscombe, G. (2019). The Orange Declaration on rural and remote mental health. *Australian Journal of Rural Health, 27*(5), 374-379. https://doi.org/10.1111/ajr.12560

Pickering, C., & Byrne, J. (2013). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers. *Higher Education Research & Development, 33*(3), 534-548. https://doi.org/10.1080/07294360.2013.841651

The World Bank. (2021). *World Bank country and lending groups*. Retrieved 14 May, 2021 from https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

Wakerman, J., Humphreys, J., Russell, D., Guthridge, S., Bourke, L., Dunbar, T., Zhao, Y., Ramjan, M., Murakami-Gold, L., & Jones, M. P. (2019). Remote health workforce

turnover and retention: what are the policy and practice priorities? *Human Resources for Health*, *17*(1), 99. https://doi.org/10.1186/s12960-019-0432-y

World Health Organization. (2021). *Primary health care*. Retrieved 6 December, 2021 from https://www.who.int/news-room/fact-sheets/detail/primary-health-care

CHAPTER 3: STUDY 2

Study 2 utilised a recently published conceptual framework for visiting services and assessed its confirmability and credibility through the Delphi method. This study has been published as a journal article and is reproduced in this chapter. The following text is the author's accepted manuscript. The formatting, including the location of tables and figures, has been changed to align with the presentation style of the Thesis document.

Healy, L. J., Beccaria, G., & McIlveen, P. (2021). Revised model for evaluating visiting health care services in rural and remote settings. *Australian Journal of Rural Health, 29*, 779-788. https://doi.org/10.1111/ajr.12774

Note: The following article was published prior to the conclusions of Study 1 being confirmed. Hence the terminology "visiting primary care services" had not yet been adopted. Where the term "visiting health care services" is used in this article, this refers to visiting primary care services as defined in Chapter Two.

ABSTRACT

Objective: Visiting health care services were developed to improve access to essential health care in rural and remote areas. Evaluating these services requires a robust framework. The objective of this study was to assess the confirmability and credibility of a model of seven principles for effective visiting health care services.

Setting: Three iterative online survey rounds administered between July and December 2020.

Participants: A heterogeneous panel of 13 experts in rural and remote health care participated, including managers of health care services, senior clinical staff in rural and remote regions and research academics specialising in rural infrastructure.

Design: The model was appraised using the Delphi method involving iterative online survey rounds to facilitate anonymous and structured discussion between panel members.

Results: Findings indicate consensus between panel members and support for a revised model. The revised model includes 4 modifications: (a) proposal of a new principle titled Feasibility, (b) restructure of two existing principles, (c) refined shape of the model to more accurately reflect the nature of service delivery and (d) detailed definitions of each principle.

Conclusion: This study presents a credible, revised version of the model of seven principles for effective visiting services. This will enhance the quality of the health workforce across

geographically large countries, like Australia, enabling organisations to more effectively and consistently evaluate the impact of their service on rural and remote communities.

Keywords: Delphi, evaluation, primary health care, rural and remote, visiting services

What is already known on this subject:

- Visiting services are in operation in geographically large countries to increase access to a comprehensive health workforce in rural and remote areas
- There is limited literature available describing different visiting service models and an inconsistent approach to assessing and reporting on these services
- A model of seven principles for effective visiting services was proposed and includes justification, scheduling, co-ordination, scope, continuity, support and review

What this study adds:

- The Delphi method conducted confirmed the utility of the proposed model with enhanced credibility in the form of a revised model of seven principles for effective visiting services
- The revised model can guide the development of a consistent and comprehensive body of literature discussing and evaluating evidence-informed visiting health care services
- The results have implications for the establishment and evaluation of visiting health care services, funding allocations, health policy and delivery of evidence-based health care to rural and remote populations

REVISED MODEL FOR EVALUATING VISITING HEALTH CARE SERVICES IN RURAL AND REMOTE SETTINGS

There are significant health disadvantages for residents of rural and remote locations, both in Australia and throughout the world (Australian Institute of Health and Welfare, 2019; Barclay et al., 2018; Carey, Sirett, Russell, et al., 2018; Carey, Sirett, Wakerman, et al., 2018; Dixon & Welch, 2000; Wakerman et al., 2008). The development of drive-in-drive-out (DIDO) and fly-in-fly-out (FIFO) visiting health care services has provided greater access to a comprehensive health workforce and improved continuity of care to rural and remote areas (Carey, Sirett, Wakerman, et al., 2018; De Roodenbeke et al., 2011). The present research used a Delphi method to assess a proposed model (Carey, Sirett, Wakerman, et al., 2018) for evaluating visiting health care services in rural and remote settings. The data collected from the panel of experts provide evidence for the credibility of a revised model.

The most recent review of visiting health care services investigated the differences and commonalities among visiting service models operating in rural and remote areas (Carey, Sirett, Wakerman, et al., 2018). The authors of the review, Carey et al., (2018) established clear and replicable inclusion and exclusion criteria for the review and systematically searched four databases for articles relating to visiting service models in a remote health context. Grey literature was also searched and incorporated. Multiple reviewers were used to assess papers against the research question (i.e., what are the different types of visiting models of primary health care being used in rural and remote communities?) and the inclusion and exclusion criteria. A brief quality assessment was applied; however, it was not the prime concern of the review. Twenty papers were identified and included for data extraction. Following the analysis, Carey et al., (2018) concluded that there is considerable heterogeneity with regard to the terminology used, salient issues identified, publication type and the service delivery models described in published literature pertaining to visiting service organisations (Carey, Sirett, Wakerman, et al., 2018).

As an outcome of their review, Carey et al., (2018) established seven principles underpinning effective visiting services (Figure 6).Their model was established through consensus-building discussions within the research team and informed by the team members' expertise in remote health research and practice (Carey, Sirett, Wakerman, et al., 2018). The model is consistent with existing literature relating to specialist outreach (Gruen et al., 2002; O'Sullivan et al., 2016). The seven proposed principles encapsulate the broader context within which visiting services operate and provide a clear framework upon which to

systematically and consistently assess the provision of visiting services in rural and remote areas (Carey, Sirett, Wakerman, et al., 2018).

Figure 6

Seven Principles for Effective Visiting Services of Rural and Remote Regions, Produced by Carey, Sirett, Wakerman, Russell & Humphreys (2018)

Each principle enables appraisal of a visiting service, and how well its operational model is aligned to the communities it serves. We now briefly describe the definitive features of the seven principles (Carey, Sirett, Wakerman, et al., 2018). *Justification*: the grounds upon which the visiting service is justified to administer a selected intervention in the particular community. *Scheduling*: the frequency, regularity, and duration of visits and how appropriate these are to the needs of the community. *Co-ordination:* the level of communication and collaboration between the visiting service and existing resident services, other visiting organisations and community members more generally. *Scope*: the organisation's ability to address the needs identified as a priority by each community. *Continuity*: how often the organisation is returning to each community and what staff are returning each time. *Support*: the two-way relationship between the visiting service and local resident staff who support visiting services by providing an introduction to the culture of the community and work environment. Visiting services can help to relieve and re-energise resident staff through training and dispersion of workload. *Review*: the plans and procedures in place to regularly review the service and assess the impact on community health needs.

The visiting health care services identified in the review (Carey, Sirett, Wakerman, et al., 2018) were in rural and remote areas in geographically large countries including Australia and Canada. Unfortunately, there are no agreed upon frameworks to evaluate and assess the

impact these services are having on communities visited. This lack of consistent framework limits policy-makers' and healthservice managers' capacity to select evidence-based services that adequately justify the funding required to operate each service (Carey, Sirett, Russell, et al., 2018). The Carey et al., model (2018) is the foundation of a systematic approach to assess the provision of visiting services. Additional research is required to enhance the model into a robust framework that may be used consistently by visiting service organisations to enhance their evidence base and provide credible justification to funding bodies. Evidence from individual organisations suggests that visiting services can effectively reduce health workforce inequalities and improve health outcomes of rural and remote residents; however, means of forming these conclusions are inconsistent in approach and rigour (Chen et al., 2015; McDermott et al., 2015; Scarce & Margolis, 2009). The aims of the current research are to use an expert panel to assess the confirmability of the Carey et al., model (2018) and to enhance its credibility. The findings will contribute to the development of an evidence-based framework to evaluate visiting health services operating in rural and remote communities.

STUDY DESIGN

3.1 Research Team

The first author works for a visiting service provider and is interested in improving access to evidence-based services in rural and remote areas. The second and third authors have extensive experience in rural service delivery having worked as FIFO practitioners and continue research and development in aspects of health and well-being in regional, rural and remote communities.

All members of the research team had a pre-existing relationship with at least one panel member. To manage those pre-existing relationships, a contact-free data collection process was facilitated through an online survey platform. No direct contact occurred during the data collection process in any of the rounds.

3.2 Orientation to the Delphi Method

The Delphi method was selected for its credibility in emerging areas of inquiry, where objective data are unattainable and where limited empirical evidence is available (Hallowwell & Gambatese, 2010; Hohmann et al., 2018; Norcross et al., 2013). This research method involves iterative rounds of dialogue with a panel of experts. It is intentionally set up to encourage honesty in responses and minimise the influence of group dynamics on outcomes by ensuring the experts remain anonymous to each other (de Meyrick, 2003; Iqbal & Pipon-Young, 2009; Liddell et al., 2017). The Delphi method is

well suited to assess both the confirmability and credibility of a model or framework. Confirmability describes the degree to which the findings of a research study can be agreed upon by other researchers, managers and practitioners (Korstjens & Moser, 2018). Such consensus, or at least extensive agreement, is important for the model (2018) in question as it has not yet been critiqued. The credibility of the model describes the level of confidence that can be placed in the truth of the research outcomes. Credibility assesses the plausibility and accuracy of interpretations made in synthesising original data collected into research findings (Korstjens & Moser, 2018). In the current research, credibility was assessed through four components of the Delphi process: prolonged engagement, persistent observation, data triangulation and member checking (Korstjens & Moser, 2018). We expected the iterative rounds of data collection to take six months to allow panel members sufficient time to become familiar with the proposed model and thoughtfully consider the questions posed (i.e., prolonged engagement). Throughout the iterative rounds, panel members engaged in commentary in regard to feedback from the previous round and were prompted to make recommendations (i.e., persistent observation). Data triangulation refers to the use of multiple data sources, time, space and person (Korstjens & Moser, 2018). Data triangulation was assured through the selection of a heterogeneous panel of experts and by collecting data at different time points. Finally, the strategy of member checking involved the process of feeding back data to the expert panel with each survey round (Korstjens & Moser, 2018).

3.3 Participant Selection

Purposive snowball sampling was used to establish a list of professional contacts that would be appropriate to participate as expert panel members. Selection criteria articulated that individuals must have at least five years of experience in an aspect of rural and remote health (i.e., research, practice or management). Recruitment was targeted to a heterogeneous population of experts in rural and remote health care. To recruit more experts with applied experience, additional searches were conducted to identify visiting service organisations in Australia with a suitable employee to participate. In most cases, these organisations were unable to contribute due to limited resources. Initial communication with participants was undertaken via phone and email. Rapport was established through the process of explaining the intention of the research, its method (i.e., Delphi), time commitment required and gaining consent to participate. Panel members were also asked to identify anyone else they think might be appropriate for the study.

Group decision-making literature indicates that a panel of ten experts is a manageable size, capable of producing findings that are both valid and reliable (Murphy et al., 1998). Recruitment was targeted to 15 expert panel members to allow for participant dropout. Thirteen experts agreed to participate including eight females and five males. At the time of data collection, the respondents held jobs in six different Australian states: Queensland, New South Wales, Victoria, South Australia, Western Australia and Tasmania. Recruitment for participants from the Northern Territory was unsuccessful. In addition to the variability in geography, the panel was selected for diversity in professional backgrounds, with research academics in rural and remote health and policy, senior clinicians with experience working in remote areas as well as management and coordinating staff of visiting services. Panel members' mean number of years working in rural and remote health care was 21.50 years (min = 5 years; max = 38 years). The heterogeneous panel of experts was intentionally selected to increase the credibility of the questionnaire and outcomes from the study (Baker et al., 2006).

3.4 Data Collection

3.4.1 Questionnaire Development and Iterative Revisions

All rounds of data collection were conducted online through university-endorsed program, Lime Survey. Participants were requested to complete the questionnaire from their own perspective rather than incorporate collaborators. The first-round questionnaire was constructed with open questions to facilitate dialogue about the model in question. Specifically, panel members' understanding of each principle was assessed by asking them, 'Describe what [*principle*] means to you and how it may apply in practice.' Next, they were asked to provide feedback on the model, 'Is there a component of visiting service delivery that you believe has been missed in this model?' and 'Is there any way that you would suggest simplifying the existing model or any of its components?' Finally, panel members were asked to quantitatively rate how important they believe each component of the model is to visiting services on a 7-point Likert scale where 1 = *Not at all important* and 7 = *Extremely Important*. This quantitative item was used to measure consensus in each round. Rounds two and three incorporated panel members' feedback about the model and new questions, reassessed their agreement with revisions and tracked consensus.

As a pilot test, the first-round package, including email content, introductory video and survey link, was sent to an expert in rural and remote health care service delivery. Feedback informed adjustments to terminology used throughout the briefing material. Specifically, the

participant identified inconsistency between terms used with ‘factors,’ ‘principles’ and ‘components’ all used to describe the seven pillars of the Carey et al., model (2018). Following this feedback, the questionnaire was edited to consistently use the term seven ‘principles’ as written by the original authors. Additional feedback confirmed the selection of questions for the first round and methodology.

3.4.2 Rounds of Data Collection

Three iterative rounds were conducted with a period of approximately one month between each to collect data, analyse and produce the following round. Median response times for each round were 65, 29 and 12 minutes, respectively. Brief videos were filmed and emailed with the survey link at the beginning of each round to enhance the expert panel's engagement in the process (Appendix A). This communication method was especially important for round one as it was an additional resource used to introduce the expert panel to the Carey et al., model (2018). The use of videos also ensured consistency of information presented to each panel member. In addition, these videos provided an update on the research progress, instructions required of the panel and a more personal opportunity to express thanks to the group of experts for their participation.

3.4.3 Definition of Consensus

An a priori criterion for consensus was developed in line with the Conducting and Reporting Delphi Studies (CREDES) guidelines (Junger et al., 2017). Consensus was defined as a percentage of agreement between panel members, calculated through median scores, with 80% determined to be the minimum threshold required (Junger et al., 2017). Specifically, this meant at least 80% of the expert panel members identified each principle to be *very* or *extremely important*.

3.5 Ethics Approval

The project was approved by the University of Southern Queensland Human Research Ethics Committee (H20REA024).

ANALYSIS AND FINDINGS

3.6 Response Rates

All participants completed the first round (first round: n = 13). One participant was not contactable following the first round and subsequently did not complete round two or three (second round: n = 12). Two further participants were unable to complete the final round due to an increase in workload (third round: n = 10).

3.7 Consensus

Consensus between the expert panel was strong from the first round with four out of the seven proposed principles meeting the defined threshold. Following additional discussion and the refinement of definitions, consensus was reached with all seven proposed principles in the second round. While this level of agreement between panel members could justify the completion of the Delphi method, qualitative data indicated that additional amendments could be made to further increase the rigour of the model. These suggestions formed the basis of a revised model which was presented in the third round and met with resounding support quantified through consensus being reached on all seven revised principles (Table 8).

3.8 Round 1

The objective of the first round was to encourage discussion and have experts express their thoughts on the Carey et al., model (2018). Panel members were first asked to describe their understanding of each principle and explain how it could apply in practice. This activity was included to assess the communication of the Carey et al., model (2018) to panel members with results indicating that each panel member interpreted the concepts similarly. The responses were used to establish more descriptive definitions for each principle. These definitions were presented in the second-round survey for critique and validation.

Panel members also provided feedback on the model as a whole, including if anything had been missed or if the model could be simplified in anyway. Data collected were summarised and presented in the second-round survey.

Finally, panel members were asked to explain how they would operationalise each principle in the case of both an existing and new visiting service. Responses were collected and stored but not built upon in proceeding rounds to reduce demand on panel members.

3.9 Round 2

The objective of the second round was to anonymously share suggestions made in round one among the panel members, to seek feedback on their respective suggestions, and collect additional comments on the model.

3.9.1 Definitions

The research team presented revised definitions of each principle and asked, ‘How strongly do you agree/disagree with this definition of [*principle*]? Please provide your perspective and opinion in the comment box below.’ The results indicated a high degree of

agreement with the definitions provided with 62% of responses *strongly agree*, 32% *somewhat agree* and 1% *somewhat disagree*. Where responses were not *strongly agree*, useful qualitative explanations were provided. The qualitative data collected were used to tailor the wording, refine examples given and reinforce support for the concept.

3.9.2 Suggestions

The feedback from round one, regarding the whole model, was presented in two questions in round two. The first question presented four suggestions of components believed to be missing from the model and the second presented four suggestions for how the model could be simplified further. In both cases, panel members were asked, 'What are your thoughts on the above suggestions?' Detailed qualitative data were collected and used to establish a revised model, presented in the third round.

The iterative process that involves sharing of panelists' feedback with one another was evidently informative and allowed the participants to effectively engage. For example, one of the suggestions presented in round two was, 'No further simplification has been recommended by a number of respondents.' Panel member #1 responded, 'I was one of those respondents! However, upon reading the comments of others I think that the model can be simplified and made more contemporary.'

3.9.3 Importance

Finally, panel members were asked, 'In light of the data presented, how important do you believe each component of the model to be to visiting services?' on a 7-point Likert scale where 1 = *Not at all important* and 7 = *Extremely Important.* Data collected were used to determine consensus (Table 8).

Table 8

Consensus Percentages by Round (%)

	Justification	Scheduling	Coordination	Scope	Continuity	Support	Review
Round 1	69	92	100	77	100	77	100
Round 2	100	83	100	83	100	92	92
	Feasibility	Justification	Partnership	Scope	Scheduling	Continuity	Review
Round 3	100	100	100	80	90	90	100

Note: Percentage of consensus was determined by the percentage of expert panel members who rated each principle as being *very* or *extremely important*.

3.10 Round 3

The third and final round began by presenting a revised model for panel members to review. This model was presented in both video and graphic format. Panel members were asked to report the perceived strengths and weaknesses of the revised model and quantitatively rate how important they believe each principle to be to visiting services, on the same 7-point Likert scale as previous rounds. Consensus was reached with 80% of panel members, or greater, reporting each of the revised principles was *very* or *extremely important* to visiting health services. 'This is promising to be a very valuable tool!' (Panel Member #2)

Four modifications were made to establish the revised model including the introduction of Feasibility, the transformation of two existing principles into Partnership, adjustments to the order and flow of the model, and construction of more detailed definitions for each principle.

3.10.1 Introduction of Feasibility

Feedback indicated that both the funding and sustainability of visiting services must be depicted more intentionally in the model. These two concepts have been woven together into the Feasibility principle of the revised model.

> I have seen so many services end up harmful in the longer term—enthusiastic and fresh ideas in the beginning and then disappearing without a trace at the end of a funding cycle—leaving local people bewildered, mistrustful, feeling rejected and annoyed- when in the beginning of the project they hadn't been cynical. (Panel Member #3)

The Feasibility of a visiting service is likely to influence the other principles. '…if a service is not sustainable, then the otherprinciples fall over' (Panel Member #4).

3.10.2 Introduction of Partnership

Data collected was found to emphasise the importance of visiting services partnering with local communities.This is particularly prominent in the principles Co-ordination and Support which describe the relationship and continued communication between the visiting service and the community where they are operating. There was notable support for both Co-ordination and Support as well as observed overlap in the language experts used to describe the two principles, the examples provided and direct comments suggesting that the two principles could be describing aspects of a similar construct. The feedback also included suggestions advocating for the importanceof needs assessments to investigate community-identified needs

and to more intentionally express community consultation in the model. Two suggestions made by panel members were combined into the independent principle of Partnership which represents the union of community consultation, Co-ordination and Support. This suggestion was met with resounding support from the expert panel. The decision to absorb the two existing principles has resulted in a more clear and comprehensive concept supported by the expert panel. The subcomponents of Co-ordination and Support will form part of an analysis of partnership and determine what procedures are in place to co-ordinate with existing services, and what structures can be established to build upon local knowledge and relieve often overwhelmed resident services. While community consultation can relate to a number of other principles, it was determined that Partnership ensures intentional assessment of both the community's needs and the organisation's ability to meet them.

> I love this. The research shows that rural people do not like to go to visiting professionals because they do not have "cultural competence." This is what you are getting at here to an extent. I really like this element of your model. (Panel Member #5)

This principle is about collaborating and integrating with communities to ensure services provided are complementing existing services available and remain dynamic in response to community-identified needs.

3.10.3 Order and Flow

Suggestions to enhance the flow of the revised model were supported within the expert panel. The revised model depicts a circular confluence, beginning with theoretical and logistical principles (i.e., Feasibility, Justification and Partnership) that are vital foundations for all visiting services. Principles then increase in practical application (i.e., Scope, Scheduling and Continuity) and finally, Review completes a cycle of the revised model. In doing so, the need for services to be dynamic and responsive to community-identified needs is reinforced. To further reflect the nature of visiting service delivery models in different communities, we propose the model be metaphorically thought of as a spiral, rather than a linear circle (Figure 7). This spiral metaphor means that the principles can occur or be evaluated in any order but each maintains connection as important principles for effective visiting services. Future research would see this model applied to a visiting service organisation to further critique its utility.

Figure 7

The Revised Model of Seven Principles for Effective Visiting Services

3.11 Definitions of Principles

Finally, the experience of the expert panel was used to clarify and extend the brief definitions provided in the original model. Each of the revised seven principles is now accompanied with a detailed, applied definition.

3.11.1 Feasibility

Feasibility refers to the funding and expected sustainability of each visiting service. This might include an acknowledgement of funding bodies, any restrictions on service delivery that are built into funding contracts, the financial capacity of the organisation to deliver the intended service, and any external influences to clinical practice or model structure. Feasibility of visiting services has been identified as influential in determining the scope of each organisation. It is essential to consider the impact of the service on the community. If funding is short term, it may be more effective to consider how to more effectively build local capacity to acknowledge and prepare for a time when the organisation is withdrawn from the community.

3.11.2 Justification

The justification of a visiting service describes the ‘why’ behind each organisation's practice. On what grounds is the organisation justified to deliver services in X location at Y time? Each service must be established with collaboration and consultation with community

members and organisations. A needs assessment of each community could be used to establish Justification for the service and could include anassessment of the health needs of the community, the community demographics, cultural context, rates of chronic disease, local service capacity, staff retention rates in resident services, distance from other health services and related access to transport.

3.11.3 Partnership

Partnership refers to how well a visiting service collaborates and integrates with the communities it services. The visiting service is responsible for creating an environment for collaboration, through trust, integrity and honesty. It is important to ensure visiting services are complementing rather than duplicating or overloading existing resident services and for Partnership to be an ongoing and dynamic process. A key component of Partnership is understanding the local cultural context. This principle also includes the two-way mutually beneficial relationship between visiting and existing service providers to deliver the best possible health care for consumers. The process of forming a healthy and robust partnership should occur prior to the organisation establishing itself in a new region with community consultation as a priority.

3.11.4 Scope

Scope refers to the capacity and specificity of services provided by the visiting service and their relation to the needs identified as a priority by and for the community. It also incorporates the flexibility of organisations to adapt to community needs when operating in a number of different locations. Communicating an organisation's scope of service is important to manage client and referrer expectations. The scope is likely to be influenced by the outcomes of Feasibility and contribute to the Justification of the service.

3.11.5 Scheduling

Scheduling refers to the frequency and duration of visits to a community and how well both of these factors are aligned to the community-identified needs. The schedule of visits will largely depend on the type of service offered (e.g., a visiting GP is likely to require at least monthly visits to review prescribed medications) and must consider the community calendar with existing events, seasonal periods likely to impact the availability of community members and local holidays. Scheduling could also be impacted by an organisation's ability to offer the service by another modality, for example— remote monitoring or telehealth.

3.11.6 Continuity

Continuity refers to the consistency and reliability of a visiting service, specifically the continuity of staff returning to communities, the frequency of the organisation's presence on the ground, consistency of the approach between different clinicians of a single service and reliability of supplementary systems to maintain service provision between visits (i.e., telehealth, phone or local affiliation services).

3.11.7 Review

The principle of review involves an iterative discussion of the effectiveness and appropriateness of clinical and non-clinical aspects of the client and community interaction. This process will involve the consideration of a wide range of parameters and draw upon qualitative experiences of staff, clients, resident services and relevant community stakeholders. Review is likely to combine two components: a needs analysis of the community and an evaluation of the service provided. Health needs of communities will change over time so this process must be frequent and feedback to the Justification for the service in each community.

DISCUSSION

The current research provides evidence of confirmability and credibility for the proposed seven principles for effective visiting health care services (Carey, Sirett, Wakerman, et al., 2018). The outcome of the Delphi method research is a revised model of seven principles for effective visiting services (Figure 7). The revised model depicts suggestions made and endorsed by expert panel members relating to the importance of funding and sustainability (Feasibility principle), community consultation (Partnership principle) and the order and flow of the model. In addition, the expert panel contributed to the development of more comprehensive definitions for each principle.

The expert perspectives collected by the present Delphi method suggest that funding bodies and funding contracts held by visiting service organisations are often influential in determining their scope of practice (Oliver-Baxter & Brown, 2013). This relationship between funding and scope may limit an organisation's ability to effectively investigate the needs of the community and adapt their service accordingly. Funding constraints may also determine the length of time an organisation can spend in a particular community (e.g., flood or drought recovery contracts). Panel members warned of the negative impacts of short-term funding models on community members' trust of visiting services and their engagement with health care more generally (Buykx et al., 2010; Humphreys & Solarsh, 2008;

Oliver-Baxter & Brown, 2013). The two concepts funding and sustainability have been combined and are represented as the Feasibility principle in the revised model. This principle must be considered in both the development, and evaluation of visiting health care services to effectively determine the impact on communities serviced.

The reconceptualisation of Co-ordination and Support into the Partnership principle represents feedback from the expert panel for visiting services to prioritise community health needs.The literature and panelists identify multiple factors that contribute to the misalignment of services delivered in rural and remote communities. Some examples include the following: funding terms that involve a narrow and specific scope of practice, difficulty attracting and retaining staff to rural and remote areas and related high rates of staff turnover and short-term funding contracts (Buykx et al., 2010; Carey, Sirett, Russell, et al., 2018; Carey, Sirett, Wakerman, et al., 2018). Further, the expert panel warned of the negative consequences associated with organisations blindly applying a model of care suitable to a metropolitan area without acknowledging, or responding to, the cultural context of the rural or remote community. Each rural and remote region of Australia alone is unique in their knowledge of health care services, willingness to seek help and trust of external providers. The inclusion of Partnership in the revised Carey et al., model (2018) emphasises the need for visiting service organisations to consider the cultural context of health care in the communities where they are operating and assess the ability for their model of service to bend accordingly.

Finally, the order and flow of the revised model better reflect the practical reality of visiting service delivery. The limited literature available suggests that where visiting services are in operation, different service models, intervention type, terminology and evaluation procedures have been used (2018). These observed inconsistencies in the literature are reflective of the vastly variable landscape of rural and remote health needs. Effective visiting services must be dynamic and adaptable, and thus, a model to capture key principles must reflect the same. The revised model is represented in a circular shape to more accurately reflect the need for visiting services to be aware of, and adaptable to, community need and also responsive to findings from Review. There is no end point of the model but a continual investigation of the organisation's impacts on each community. A spiral shape has been used to further illustrate this dynamism while also conveying that the principles do not have to occur in a particular, linear order. The outcome is a revised and credible model that more intentionally reflects the nature of visiting health service delivery in rural and remote areas.

The revised model can now be operationalised and applied to visiting service organisations. This process will require individual organisations to review their

interventions through the lens of the seven principles. Suggestions made by panel members for how this can be achieved are reported in Table 9.

Table 9

Suggestions Made by Expert Panel to Operationalise the Model

Principle	Suggestions to Operationalise
Justification	Conducting a health needs analysis with the community and regularly re-assessing and reviewing to ensure the appropriateness of the service in response to identified needs
Partnership	Drawing upon data collected by the organisation relating to their involvement with each community including meetings with community-based organisations, schools and health care services, and collecting feedback from stakeholders relating to the effectiveness of the partnerships and opportunities for improvement
Scope	Using data collected by the organisation including session statistics, cost to clients, waitlist data, incidents of inappropriate referrals, number and the frequency of clients not attending scheduled appointments
Scheduling	Assessing the number and frequency of visits to individual communities, justifying why particular dates were chosen and how appropriate the timing of visits was for each community
Continuity	Using data held by the organisation in relation to its procedures and management, including rate of staff turnover, strategies to retain staff, processes to reduce disruption to services when staff are unavailable or on leave, as well as assessing the clinician roster for each region
Review	Reviewing clinical case audits. Using Patient Reported Outcome Measures. Assessing health outcome data during or post-intervention. Consulting with community, resident services and other visiting services
Feasibility	Investigating the funding application, contract or grant. Calculating the return on investment for funders

3.12 Limitations and Conclusions

The nature of visiting health care services reported in research literature is heterogeneous (Carey, Sirett, Wakerman, et al., 2018). The revised model produced by the current research is appropriately broad and flexible to be tailored in its application to individual

organisations. While clinically, this is a strength, empirically the model's dependability (stability of outcomes over time) is a limitation (Korstjens & Moser, 2018). Future research should apply the revised model as a framework for evaluation to different visiting health care services. When conducted, decisions relating to how each principle was operationalised should be reported with detail and clarity, to enhance the dependability of the model in future applications. Further, where possible, this research should be peer-reviewed and published to increase the currently limited evidence base pertaining to visiting health care services, and strengthen the quality of services delivered to rural and remote residents. The revised model presented in this research highlights the need to evaluate visiting health care services within the context of the communities they are operating. The application of this revised, credible model and continued critique will direct evidence-informed practice and enhance the quality and availability of health care services to residents of rural and remote regions.

3.13 Acknowledgements

The research team would like to formally acknowledge the panel of experts who so generously donated their time, knowledge and experiences to this project. Specifically, we would like to thank (in alphabetical order) Ed Johnson Clinical Innovation Advisor, Umbo; Geoff Argus, Director of Southern Queensland Rural Health; Geoffrey Woolcock, Senior Research Fellow, Rural Economies Centre of Excellence Institute of Resilient Regions USQ; Joanne Trentin, Practice and Quality Manager, Family and Disability Services, Uniting Care; Dr John Fisher, Clinical Lead GP Services, RFDS Western Operations, WA; Lynette Pirie, Senior Psychologist, Darling Downs Hospital and Health Service; Dr Melanie Trivett, General Manager of Primary Health Care, RFDS Victoria; Natalie Szabo, Executive General Manager of Health Services, RFDS South Australia; Prof Sonja March, School of Psychology and Counselling and Centre for Health Research, USQ; and four others who did not consent to having their information released. The current research was facilitated by the USQ Postgraduate Research Scholarship.

3.14 Conflict of Interest

LH has worked for a visiting service organisation, Outback Futures, since 2013. No expert panel members were existing connections of LHs (e.g., clients, stakeholders or professional colleagues) from the organisation. Regular supervision from GB and PM was maintained throughout the research to ensure any biases from LH were identified and eliminated.

3.15 Author Contributions

All authors contributed to the conceptualisation, design of methodology and editing of the manuscript. LH conducted all contact with panel members, developed each survey round, reviewed and synthesised the data, and prepared the draft manuscript. GB and PM provided supervision throughout. All authors approved the final manuscript prior to submission.

3.16 Disclosure

This research has been supported by funding from Outback Futures and the University of Southern Queensland through the Postgraduate Research Scholarship.

REFERENCES

Australian Institute of Health and Welfare. (2019). *Rural & Remote Health*. https://www.aihw.gov.au/reports/rural-remote-australians/rural-remote-health

Baker, J., Lovell, K., & Harris, N. (2006). How expert are the experts? An exploration of the concept of 'expert' within Delphi panel techniques. *Nurse Researcher, 14*(1). https://doi.org/10.7748/nr2006.10.14.1.59.c6010

Barclay, L., Phillips, A., & Lyle, D. (2018). Rural and remote health research: Does the investment match the need? *Australian Journal of Rural Health, 26*(2), 74-79. https://doi.org/10.1111/ajr.12429

Buykx, P., Humphreys, J., Wakerman, J., & Pashen, D. (2010). Systematic review of effective retention incentives for health workers in rural and remote areas: towards evidence-based policy. *Australian Journal of Rural Health, 18*(3), 102-109. https://doi.org/10.1111/j.1440-1584.2010.01139.x

Carey, T. A., Sirett, D., Russell, D., Humphreys, J. S., & Wakerman, J. (2018). What is the overall impact or effectiveness of visiting primary health care services in rural and remote communities in high-income countries? A systematic review. *BMC Health Services Research, 18*(1), 476. https://doi.org/10.1186/s12913-018-3269-5

Carey, T. A., Sirett, D., Wakerman, J., Russell, D., & Humphreys, J. S. (2018). What principles should guide visiting primary health care services in rural and remote communities? Lessons from a systematic review. *Australian Journal of Rural Health, 26*(3), 146-156. https://doi.org/10.1111/ajr.12425

Chen, N., Hsieh, H.-P., Tsai, R.-K., & Sheu, M.-M. (2015). Eye care services for the populations of remote districts in eastern Taiwan: a practical framework using a Mobile Vision Van Unit. *Rural and Remote Health, 15*(3442). https://doi.org/10.22605/RRH3442

de Meyrick, J. (2003). The Delphi method and health research. *Health Education, 103*(1), 7-16. https://doi.org/10.1108/09654280310459112

De Roodenbeke, E., Lucas, S., Rouzaut, A., & Bana, F. (2011). *Outreach servces as a strategy to increase acess to health workers in remote and rural areas. .* https://www.ncbi.nlm.nih.gov/books/NBK310729/

Dixon, J., & Welch, N. (2000). Researching the rural-metropolitan health differential using the 'social determinants of health'. *Australian Journal of Rural Health, 8*, 254-260.

Gruen, R. L., Weeramanthri, T. S., & Bailie, R. S. (2002). Outreach and improved access to specialist services for indigenous people in remote Australia: the requirements for sustainability. *Journal of Epidemiology and Community Health, 56*(7), 517-521. https://doi.org/10.1136/jech.56.7.517

Hallowwell, M. R., & Gambatese, J. A. (2010). Qualitative Research: Application of the Delphi Method to CEM Research. *Journal of Construction Engineering and Management, 136*(1), 99-107. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000137

Hohmann, E., Cote, M. P., & Brand, J. C. (2018). Research Pearls: Expert Consensus Based Evidence Using the Delphi Method. *Arthroscopy, 34*(12), 3278-3282. https://doi.org/10.1016/j.arthro.2018.10.004

Humphreys, J. S., & Solarsh, G. (2008). At Risk Populations: Rural. In H. K. Heggenhoughen (Ed.), *The International Encyclopaedia of Public Health* (pp. 242-253). Elsevier.

Iqbal, S., & Pipon-Young, L. (2009). The Delphi Method. *The British Psychological Society, 22*(7).

Junger, S., Payne, S., Brine, J., Radbruch, L., & Brearley, S. (2017). Guidance on Conducting and REporting DElphi Studies (CREDES) in palliative care- recommendations based on a methodological systematic review. *Palliative Medicine, 31*(8), 684-706. https://doi.org/10.1177/0269216317690685

Korstjens, I., & Moser, A. (2018). Series: practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice, 24*(1), 120-124. https://doi.org/10.1080/13814788.2017.1375092

Liddell, A. E., Allan, S., & Goss, K. (2017). Therapist competencies necessary for the delivery of compassion-focused therapy: A Delphi study. *Psychology and Psychotherapy, 90*(2), 156-176. https://doi.org/10.1111/papt.12105

McDermott, R. A., Schmidt, B., Preece, C., Owens, V., Taylor, S., Ming, L., & Esterman, A. (2015). Community health workers improve diabetes care in remote Australian

Indigenous communities: results of a pragmatic cluster randomized controlled trial. *BMC Health Services Research, 15*(68). https://doi.org/10.1186/s12913-015-0695-5

Murphy, M. K., Black, N. A., Lamping, D. L., McKee, C. M., Sanderson, C. F., Askham, J., & Marteau, T. (1998). Consensus development methods, and their use in clinical guidline development. *Health Technology Assessment, 2*(3).

Norcross, J. C., Pfund, R. A., & Prochaska, J. O. (2013). Psychotherapy in 2022: A Delphi poll on its future. *Professional Psychology: Research and Practice, 44*(5), 363-370. https://doi.org/10.1037/a0034633

O'Sullivan, B. G., McGrail, M. R., Joyce, C. M., & Stoelwinder, J. (2016). Service distribution and models of rural outreach by specialist doctors in Australia: a national cross-sectional study. *Australian Health Review, 40*(3), 330-336. https://doi.org/10.1071/AH15100

Oliver-Baxter, J., & Brown, L. (2013). *Primary health care funding models* (ISSN 1839-6348). (33). https://dspace.flinders.edu.au/xmlui/bitstream/handle/2328/36248/RRU%20Sep%202013.pdf?sequence=1&isAllowed=y

Scarce, M., & Margolis, S. A. (2009). The Royal Flying Doctor Service primary skin cancer clinic: a pilot program for remote Australia. *Rural Remote Health, 24*(9). https://doi.org/10.22605/RRH1048

Wakerman, J., Humphreys, J. S., Wells, R., Kuipers, P., Entwistle, P., & Jones, J. (2008). Primary health care delivery models in rural and remote Australia: a systematic review. *BMC Health Services Research, 8*. https://doi.org/10.1186/1472-6963-8-276

APPENDIX A

Communication with Panel Members

As participation in each Delphi round was online, great effort was made to communicate clearly with panel members and encourage continued participation. The following information provides examples of email communication to panel members sent at the beginning of each round.

Round 1

The Research

The aim of the current research is to evaluate a model said to underpin essential components of effective visiting services proposed by Carey, Sirett, Wakerman, Russell and Humphreys (2018). It is important that all of our participants familiarise themselves with this framework prior to completing the first round of the Delphi study. To do this you can:

1. Read the original article (attached)
2. Read the model summary document attached
3. Watch a video of myself talking through each of the seven factors (referred to as principles in the original article).
    a. Link to the video: https://www.youtube.com/watch?v=O3gJUe-1Vns&t=1s

If you have any questions or concerns please get in touch prior to commencing the first survey.

Otherwise, use the following link to commence the first round of the Delphi Study:
https://surveys.usq.edu.au/index.php/466254?lang=en

I am so thankful for your openness to participate, and really look forward to keeping in touch throughout the project.

Kind regards,

Laura

Round 2

It is with great excitement I let you know that our second round survey is ready and waiting for your input. We so appreciate for the time you have invested sharing your knowledge and experiences in round one and look forward to presenting the data collected with you.

To begin, please watch a brief, 2min,
video https://www.youtube.com/watch?v=c2FgTTlscSA.

Following that, begin the survey by following this link:
https://surveys.usq.edu.au/index.php/573958?lang=en.

We would love for the responses to be completed in two weeks' time, by **Monday 31st August**. Please reply to this email letting me know that you have received it and when you expect to have the survey completed. This will be a great help as we readjust expected deadlines for the following round.

If you have any questions, concerns or technical glitches, please get in touch with me via phone or email.

Thanks again for your continued participation.

Laura

Round 3

We are excited to share with you the Round 3 Survey of our Delphi Study and relieved to let you know that it is the shortest round yet.

Your responses so far have contributed to the development of a revised model. To begin the round, watch this video introducing the revised model and outlining its variations from the original:

https://www.youtube.com/watch?v=e7W-PAitHnE

Following that, visit this link to the survey:
https://surveys.usq.edu.au/index.php/716177?lang=en

The goal is to have all responses back by Monday 2 November. Thanks for your willingness to have it done by then. Please get in touch if you have any questions, concerns, or would like to discuss further.

Thanks again for your continued support,

Laura

CHAPTER 4: STUDY 3

Study three drew on the findings of both study one and two in the application of the revised model of seven principles for effective visiting services with a case organisation. This study has been submitted for publication and is reproduced in this chapter. The formatting has been changed to be consistent with the presentation style of this Thesis.

Authors: **Healy, L.J**., Beccaria, G., and McIlveen, P.

ABSTRACT

Objective Visiting primary care services supplement resident health services in rural and remote communities. There remains inconsistency in approach to determine the effectiveness and impact of visiting services on these communities. The objective of this study was to assess the clinical utility of a model of seven principles for effective visiting primary care services[1,2] and to determine how it could be conceptualised as a tool for evaluation.

Setting The research was undertaken in the context of visiting primary care services with an agency, Outback Futures, selected as a case study.

Participants Three executive staff with Outback Futures participated in the research.

Design The case study design involved data collection by group interviews. The data were collected through four group interviews conducted between July and November 2021. The interview data were analysed using thematic analysis.

Results This case study is additional evidence for the clinical utility of the model of seven principles. The results reinforce the importance of a community-focussed approach to assess the impact of visiting service organisations on rural and remote communities. Furthermore, visiting primary care services should not be evaluated on the basis of clinical outcomes alone. Instead, a comprehensive approach to evaluation is required to justify the investments made and safeguard the health and well-being of rural and remote residents. The participants proposed indicators for each of the seven principles of the model for use as a self-assessment tool. Furthermore, three themes were drawn from the data: *relationship is fundamental*, *the importance of co-design*, and *being effective as a visiting service is challenging.*

Conclusion The model is appropriate for the case study organisation, and has clinical utility and implications for other visiting services. Suggestions for a self-assessment protocol have been proposed. Future research should apply the model and protocol self-assessment tool in an effort to construct a consistent and credible approach to evaluation of a visiting primary care service.

Type of paper: original research, qualitative

What is already known on this subject

- There is limited literature describing different visiting service models and inconsistencies in the assessment and reporting of visiting primary care services.
- A model of seven principles for effective visiting services has been proposed and revised to include Justification, Partnership, Scope, Scheduling, Continuity, Review and Feasibility.

What this paper adds

- This study confirms the clinical utility of the revised model of seven principles for effective visiting services through the case of Outback Futures.
- The findings include the model conceptualised as a protocol self-assessment tool to be used by visiting primary care organisations.
- The findings of this study emphasise the importance of the approach and posture adopted by visiting primary care services. To be effective, visiting service providers must prioritise their relationship with community members and invest in co-design to effectively adapt their service to local needs.

Abstract References

1. Carey TA, Sirett D, Wakerman J, Russell D, Humphreys JS. What principles should guide visiting primary health care services in rural and remote communities? Lessons from a systematic review. Aust J Rural Health. 2018;26(3):146-56.

2. Healy LJ, Beccaria G, McIlveen P. Revised model for evaluating visiting health care services in rural and remote settings. Aust J Rural Health. 2021;29(5):779-788.

INDICATORS FOR EFFECTIVE VISITING PRIMARY CARE SERVICES: A CASE STUDY

Visiting primary care services operate to reduce disparities in access and outcome for residents of rural and remote areas (Carey, Sirett, Wakerman, et al., 2018; de Roodenbeke et al., 2011). There is great variation in the type of visiting primary care services in operation, including differences in the type of practitioners involved, the organisation's model of service delivery, and the focus of interventions (e.g., well-being, diabetes, specific injuries or illnesses, generalised primary care) (Healy, Beccaria, Daken, et al., 2021). Furthermore, literature pertaining to visiting primary care services is sparse and inconsistent, particularly that which describes assessment of impact or evaluation (Carey, Sirett, Russell, et al., 2018; Carey, Sirett, Wakerman, et al., 2018; Healy, Beccaria, Daken, et al., 2021). The lack of research and models for service evaluation have implications for residents of rural and remote areas.

Health services based in communities, whether they be metropolitan or rural in location, ideally target their services toward the needs of their respective communities. Models for evaluation of the impact of visiting primary care services should account for the contextual nuances of rural and remote communities. The model of seven principles for effective visiting services (Carey, Sirett, Wakerman, et al., 2018) has potential utility for evaluating services. That model was recently revised (Healy, Beccaria, & McIlveen, 2021) to enhance its credibility. The revised model based on a Delphi study is depicted in Figure 8.

Figure 8

The Revised Model of Seven Principles for Effective Visiting Services Published in Volume 29, Issue 5 of the AJRH (Healy, Beccaria, & McIlveen, 2021).

Comprehensive definitions of each principle are published elsewhere (Healy, Beccaria, & McIlveen, 2021); therefore, concise summaries are provided for the current study. *Feasibility* refers to the funding and expected sustainability of the visiting service to continue operating in the select rural and remote region. *Justification* requires visiting service organisations answer the question, "on what grounds are you justified to deliver services in X location at Y time?" Example responses could include the health and demographic data from residents in the area and statistics of services available on the ground. *Partnership* refers to how well a visiting service collaborates and integrates with the communities it services. The process of forming a healthy and robust partnership should occur prior to the organisation establishing itself in a new region with community consultation as a priority. *Scope* describes the capacity and specificity of services provided by the visiting service and their relation to the needs identified as a priority by, and for, the community. *Scheduling* refers to the frequency and duration of visits to a community. *Continuity* relates to the consistency and reliability of the visiting service. *Review* involves an iterative discussion of the effectiveness and appropriateness of clinical and non-clinical aspects of the client and community interaction. Review is likely to combine two components: a needs analysis of the community and an evaluation of the service provided (Healy, Beccaria, & McIlveen, 2021). The revised model

provides visiting services a framework for evaluation; however, it is in need of critical appraisal by stakeholders in the field. The objective of the present study is to assess the clinical utility of the revised model and to determine how it can be conceptualised into a tool for evaluation used by visiting service organisations.

Case study (Merriam, 1998) was selected as the method to appraise the model and a visiting primary care organisation, Outback Futures, was chosen as the case. Outback Futures is a not-for-profit allied health service based in a capital city, Brisbane, Australia. Its team of psychologists, counsellors, speech pathologists, occupational therapists and social workers travel to remote and very remote areas of Queensland to deliver face-to-face services. In between visits, clinicians meet with clients for regular sessions conducted by telehealth. Outback Futures work with clients across the lifespan in a range of formats including individual therapy, professional development, and community presentations.

The research questions guiding the case study were: What is the clinical utility of the revised model of seven principles for effective visiting services in the case of Outback Futures? And, can the model be conceptualised as a tool for evaluation used by visiting primary care services?

STUDY DESIGN

4.1 Research Team

All authors are psychologists registered with the Australian Health Practitioners Registration Authority. The first author receives research funding from the case organisation, Outback Futures, and is interested in improving access to evidence-based healthcare services in rural and remote areas. The second and third authors have extensive experience in rural service delivery having worked as FIFO practitioners and have continued research and development in aspects of health and well-being in regional, rural and remote communities. The first author's pre-existing relationship with the organisation and potential for bias were managed through weekly supervision with the second and third authors.

4.1.1 First Author Reflexivity Statement

The first author occupies positions of social privilege as a heteronormative, middle-class, able-bodied, Caucasian, Australian. LH's worldview was shaped by her upbringing in inner-city Brisbane, with the privilege of a high-quality education and seamless accessibility to heath care. LH is a PhD candidate with undergraduate and master's qualifications in clinical psychology. Through the broader project that this study is part of, LH has developed a

comprehensive knowledge of the literature available relating to visiting services including knowledge of the prominent gaps between research and clinical practice.

LH's experiences with the case organisation broadened her awareness to the prominent discrepancy in healthcare availability and health outcomes for residents of rural, remote and very remote regions. As such, LH is an insider researcher with existing rapport and trust with the case organisation (Braun & Clarke, 2021). Benefits of this existing relationship include reduced likelihood of participant's withholding information, increased accuracy interpreting participant accounts, and convenience with access to the case organisation and recruitment. One prominent consideration for insider researchers is potential bias when interpreting the data including latching onto some information and missing other concepts from the participant responses (Braun & Clarke, 2021). LH personally transcribed recordings from each meeting for the current study to become familiar with the dataset and help reduce bias. Further, regular supervision was provided by the second and third authors throughout the project.

4.2 Theoretical Framework, Orientation and Theory

The research deployed Merriam's (1998) approach to case study which is grounded in constructivism with its epistemology being that knowledge and meaning are constructed by people through interactions with one another using language and symbols. As such, the method is designed to explore how people make sense of their experiences and the world around them (Yazan, 2015). Merriam's (1998) approach describes a case as a single entity with boundaries defining both the features of the case, and features that are outside the boundaries of the case (Merriam, 1998). The first two steps of Merriam's approach are a review of relevant literature and construction of a theoretical framework to guide the enquiry (Yazan, 2015). A recent review of the literature pertaining to visiting primary care services was conducted, written up separately, and used to inform the approach of the present study (Healy, Beccaria, Daken, et al., 2021). The key findings from that review include concern for the quantity and standard of research pertaining to visiting primary care services. The review's conclusions implore researchers to increase the quality and transparency of studies conducted to enhance the literature and more accurately inform future research, clinical practice, sponsorship and health policy (Healy, Beccaria, Daken, et al., 2021). The theoretical framework adopted for the presented study was the revised model of seven principles for effective visiting services (Carey, Sirett, Wakerman, et al., 2018; Healy, Beccaria, & McIlveen, 2021). The research problem identified for the present study was the disconnection

between theory and practice in the assessment and evaluation of visiting primary care services.

4.3 Participant Selection

Purposive sampling was used and involved a sample from which the most can be learned to understand and gain insight about the case (Merriam, 1998). Outback Futures is a small organisation with nine full-time equivalent (FTE) clinical staff and 15 FTE non-clinical staff, including administration and executive staff, among others. Three staff members from the organisation' executive team were selected as appropriate participants to provide insights into both the clinical delivery of services and the current context in the areas they service. Due to the small size of the organisation, no further demographic details are provided to preserve participants' anonymity.

4.4 Data collection

Data were collected in four one-hour group interviews with all three participants. The first interview was conducted in person and voice recorded for transcription purposes. The remaining three interviews were conducted over videoconference (Zoom) due to COVID-19 lockdown, and the video was recorded.

A semi-structured interview schedule was developed from the theoretical framework and research questions. Participants were asked to describe what each of the principles meant in practice for the case organisation, and asked to rate how important they believed each principle to be on a 7-point Likert scale from 1 = *not at all important* to 7 = *extremely important.* Participants were also asked if there was an aspect of practice that had been missed in the model, and contrastingly, if the model could be simplified any further.

The interview schedule was extended to include the concept of a self-assessment framework following data collected from the first interview. Participants were asked to identify relevant indicators for assessment of each principle.

4.5 Ethics Approval

This project was approved by the University of Southern Queensland Human Research Ethics Committee (H20REA024).

ANALYSIS

4.6 Data analysis

Recordings of the group interviews were transcribed by the first author and analysed using Braun and Clarke's (2021) six phase approach to reflexive thematic analysis. The six phases include: 1. Familiarizing yourself with the data, 2. Generating initial codes, 3. Searching for themes, 4. Reviewing potential themes, 5. Defining and naming themes, and 6. Producing the report (Braun & Clarke, 2021). The second and third authors provided regular supervision throughout the analysis. Data analysis began throughout the data collection process to inform further interviews, as recommended by Braun and Clarke (2012).

FINDINGS

The findings are organised into subsections. The research questions are addressed first by summarizing the participants' perspectives regarding the seven principles' clinical utility and potential for application and an evaluation tool. Then the findings of reflexive thematic analysis are reported as three themes of importance for the delivery of visiting primary care services to rural and remote regions (Braun & Clarke, 2021).

4.7 Clinical Utility

The participants were unanimous in their endorsement of the revised model of seven principles for effective visiting services (Healy, Beccaria, & McIlveen, 2021)(the model). The model's comprehensive approach fit with their organisation.

> I think all seven [principles] are really critical… We can be measuring clinical outputs and they can be good, but that doesn't mean that we're making any overall change in the whole of community. Our model is about whole of community transformation (Participant #1).

The concept of whole of community transformation in this instance relates to changes observed across a community, following intervention from a visiting service provider. The participants described the goal for Outback Futures' allied health interventions is to contribute to the mobilisation of community members to better engage with their own community. Whole of community transformation is a large and complex concept to measure. The participants' endorsement of the model indicates that the model demonstrates more than clinical utility, offering also the opportunity for transformative community change.

Furthermore, the participants reported that each of the seven revised principles held clinical utility for the specific case of Outback Futures, rating them all as either *very* or *extremely important* (ratings 6 and 7).

Two amendments were suggested to the definitions of principles Partnership and Review. With regard to Partnership, it is important for visiting services to consult with the community prior to establishing themselves, it was suggested that the definition also include an amendment indicating that the formation of healthy and robust partnerships require time and consistency to develop effectively. In the case of Outback Futures the development of rapport with rural and remote communities occurs over a period of at least two years. The second suggested amendment was for the definition of Review where the participants requested the inclusion of a strengths analysis of the community, as well as the previously defined needs analysis, to reframe the approach where appropriate.

The participant's emphasised their perspective that Outback Futures is different to other visiting services.

> I think one of the challenging things is that if you're looking at general visiting services, it's actually quite different to Outback Futures… We're one of the few, organisations who offers service provision but is actually focussed on whole of community change…A standard visiting service isn't focussed on community engagement and community mapping, they don't have time for that, they don't have funds for that. (Participant #1).

The participants reported that they believed Outback Futures is different to other visiting services because of their long-term commitment to community well-being. This commitment influences their funding decisions through the diversity of funders, and their workforce structure.

> The advantage of our workforce model…is the fact that we recruit to a region, so that even when we are not in a community physically, our headspace is in that community…It just means we're more accessible and… there's much greater consistency and reliability in that. (Participant #1).

Therefore, while the current study demonstrates clinical utility for the model with the case, the results cannot be completely transferred to all visiting services.

4.8 Application to Evaluation

During the second interview it was proposed for the model to be transformed into a self-assessment, accreditation tool. This suggestion was met with support from participants.

> I think it makes sense from the perspective that there's some consistency like across frameworks that are commonly used in Australia. To me it would be speaking the language of funders potentially as well, like Government bodies that would relate to that [the tool] and that can be helpful. (Participant #1)

> I agree with [Participant #2], I think at the moment there could be some real value in trying to get some consistency…whilst it looks daunting at one level, I think there could be some real value in it because I think ultimately, if it's evidence based and it's got some research behind it, it could actually um provide some validation for what we're doing and why we're doing it. (Participant #1)

The third and fourth interviews were structured to have participants brainstorm potential indicators for the accreditation tool. Each indicator was designed to capture an organisation's consideration of, and adherence to, each principle of the model. Preliminary indicators were proposed in the discussion of the group interviews. These were consolidated and refined by the research team and re-presented to the participants for review in a follow-up meeting. The participants expressed support for the preliminary indicators and suggested minor amendments in wording. The final indicators are presented in Table 10.

Throughout the data collection process, four of the seven principles were identified by the participants as mandatory indicating that they were of particular importance and the remaining principles were classified instead as necessary. Upon review, the participants requested the removal of the mandatory categories. "I feel like maybe you've ended up with seven categories that actually as wholes they're all pretty important" (Participant #2). "That was my feeling yesterday when I read through this, I was a bit concerned about only having four of them as mandatory, the others all felt really important." (Participant #1). The mandatory categories have since been removed.

Table 10

Indicators for Self-Assessment from the Model of Seven Principles for Effective Visiting Services

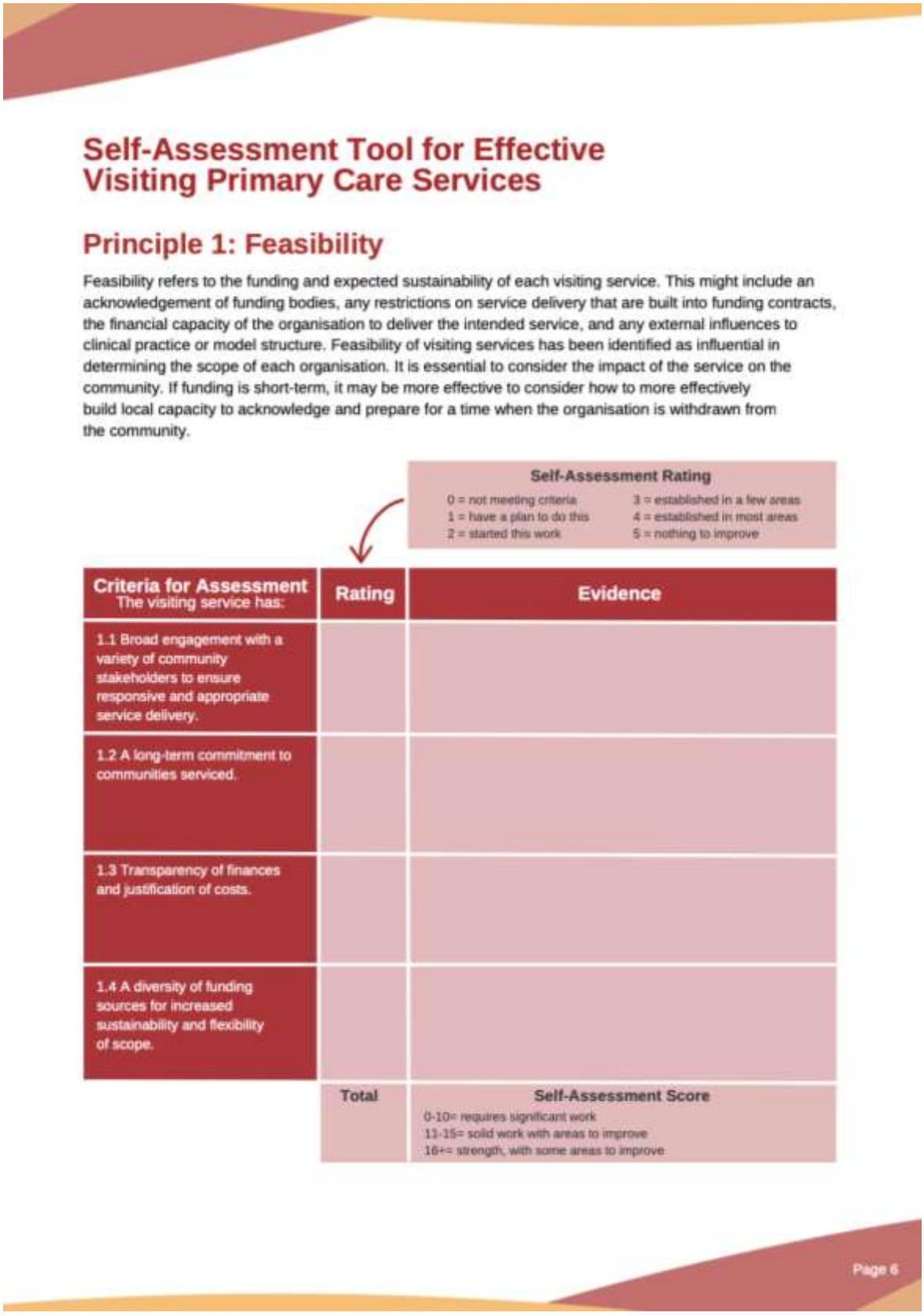
Principles	Indicators for Self-Assessment
Feasibility	The visiting service has: 1.1 Broad engagement with a variety of community stakeholders to ensure responsive and appropriate service delivery. 1.2 A long-term commitment to communities serviced. 1.3 Transparency of finances and justification of costs. 1.4 A diversity of funding sources for increased sustainability and flexibility of scope.
Justification	The visiting service has: 2.1 An active and ongoing invitation from communities. 2.2 Evidence of co-design and collaboration with community. 2.3 Produced a gap analysis of each community through the assessment of health needs and services available. 2.4 Evidence of regular monitoring for the purpose of updating the aforementioned gap analysis. 2.5 Met their identified service aims in each community.
Partnership	The visiting service has: 3.1 Support evident in community testimonials. 3.2 Support evident in the source of referrals. 3.3 Evidence of active engagement with health, community services and other organisations. 3.4 Evidence of active partnerships with health, community services and other organisations. 3.5 Evidence of liaison with multiple sectors (i.e., education, business, health, local council etc).
Scope	The visiting service: 4.1 Has a clearly defined scope of practice at all levels of the organisation. 4.2 Consistently applies the scope of practice with different practitioners. 4.3 Collects data to monitor how the organisation's scope is effectively fit to each community. 4.4 Has the capacity to absorb and manage limiting factors to preserve the scope of the organisation (e.g., funding limitations and reporting requirements). 4.5 Has flexibility and breadth embedded into the scope to respond appropriately to the specific needs of individual communities serviced.
Scheduling	The visiting service: 5.1 Has sufficient regular visits to each community to maintain authentic connection and trust. 5.2 Can provide evidence of co-design with the community in the development of schedule. 5.3 Prioritises multidisciplinary care through its schedule. 5.4 Incorporates both primary and secondary interventions in its schedule. 5.5 Plans their visits to a schedule that is responsive and appropriate to the needs of the community.

Continuity	The visiting service organisation: 6.1 Can demonstrate continuity in each community through data recorded (i.e., staff retention, length of time in a region and consistency of staff to each community). 6.2 Recruits to ensure consistency of specific personnel to each community. 6.3 Shows evidence of an adaptable workforce structure that prioritises continuity. 6.4 Has structures and systems established to maintain continuity with the community between face-to-face visits (i.e., telehealth, resourcing locals).
Review	The visiting service conducts: 7.1 Regular assessment of the effectiveness of clinical services through reliable, client centred measures. 7.2 Regular assessment of the effectiveness of the organisation's community codesign and partnership with the community. 7.3 Annual review of community well-being at a whole of community level. 7.4 Assessments for evidence of change in the community following prolonged intervention from the visiting service.

As an outcome of the current study, the self-assessment tool has been established and produced into a document for use by visiting service organisations. A preview of the output is captured in Figure 9 with the full-text presented in the Abstract. To use the self-assessment measure, visiting service organisations can use each indicator (four or five per principle) and rate their performance on a 6-point Likert scale presented in Figure 10. Totals can be calculated for each Principle to determine if the organisation *requires significant work* on a principle or has rated as *solid work with areas to improve,* or *strength with some areas to improve.* Organisations are required to provide evidence including specific examples to justify their decision. Graphic designers were used to construct the business-use document informing both cosmetic and functional features. Of note is the "Smart PDF" features that have been incorporated to allow users to fill the form out electronically. These features make regular review more achievable and allow organisations to capture changes over time.

Figure 9

Preview of the Self-Assessment Protocol Business-Use Document



Self-Assessment Tool for Effective Visiting Primary Care Services

Principle 1: Feasibility

Feasibility refers to the funding and expected sustainability of each visiting service. This might include an acknowledgement of funding bodies, any restrictions on service delivery that are built into funding contracts, the financial capacity of the organisation to deliver the intended service, and any external influences to clinical practice or model structure. Feasibility of visiting services has been identified as influential in determining the scope of each organisation. It is essential to consider the impact of the service on the community. If funding is short-term, it may be more effective to consider how to more effectively build local capacity to acknowledge and prepare for a time when the organisation is withdrawn from the community.

Self-Assessment Rating

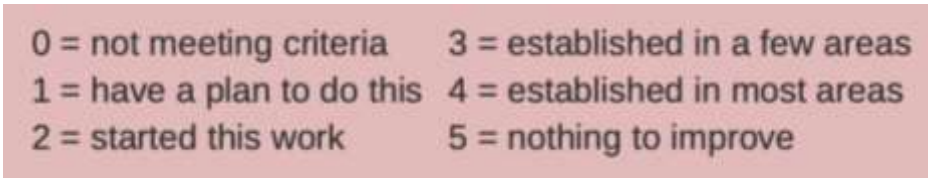
0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service has:	Rating	Evidence
1.1 Broad engagement with a variety of community stakeholders to ensure responsive and appropriate service delivery.		
1.2 A long-term commitment to communities serviced.		
1.3 Transparency of finances and justification of costs.		
1.4 A diversity of funding sources for increased sustainability and flexibility of scope.		
	Total	**Self-Assessment Score** 0-10= requires significant work 11-15= solid work with areas to improve 16+= strength, with some areas to improve

Page 6

Figure 10

Scale Used to Rate Performance on Each Indicator of the Self-Assessment Protocol



4.9 Notable Themes

The six phases of reflexive thematic analysis were used to analyse the data collected (Braun & Clarke, 2021). The first author became familiar with the data through the process of transcribing each interview, as well as listening to the recordings to generate initial codes. Following this, seven preliminary themes were identified. The transcripts were again reviewed and quotations relating to any of the preliminary themes were extracted. The first author reviewed the preliminary themes in supervision with second and third authors. The preliminary themes were further condensed into three potential themes. The potential themes were then reviewed and assessed for quality, boundaries, specificity, evidence in the dataset, and relationship to other potential themes. Following review and further supervision, the themes were defined and named.

4.9.1 Relationship is Fundamental

The participants spoke frequently about the relationship between the visiting service and the community. The participants reported high frequency of staff turnover and inconsistency of services to the remote and very-remote regions that Outback Futures visits. As a result of turnover and inconsistency, community members are sceptical of visiting services, their commitment and sustainability.

> I remember when [community member] sat down and said “oh no, not another one, we have had so many of you guys and I can never keep up.” Then two years later he was saying “… you guys are the most consistent service providers we’ve got”… The reality is that when you’ve got schools with five principals in one year, and organisations where roles are vacant for two years at a time, then they are filled for six-months and then they are vacant for another two years, if you are persistent, it doesn’t take long to show people. (Participant #1).

The participants also spoke of rural and remote communities feeling invalidated by visiting services that make assumptions of their context and needs. The participants provided examples of how they develop and maintain a relationship with communities.

> One of the things that we try and drum into our team is that we're not the city experts... We don't come with all the answers. We are here to listen and learn and work with the local context and I think because there is that mindset very strong in the bush of "oh look here's someone else from Brisbane that's come out to show us the latest you-beaut thing and they'll be gone before we know it and nothing will change"… it's kind of the posture you go with and the way you carry as opposed to just turning up as the latest person with the silver bullet. (Participant #3).

As well as the approach of the visiting service, the participants reported the continuity of staff and continuity of brand, demonstration of consistency, and direct efforts to connect with local stakeholders as factors that influence the development of relationship. As an outcome of these strategies, the participants reported that once the relationship has been established and the organisation has demonstrated consistency and commitment to the community, the service is able to tailor the frequency of visits without impacting the strength of relationship. Further, the participants reported that a team approach with an existing relationship allows for the movement of staff when required (e.g., maternity leave, promotion to managerial role, or a re-allocation to new region) without impact to client's access to services.

4.9.2 Importance of Co-Design

In the case of Outback Futures, co-design is fundamental to their model of service. The participants explained that the organisation operated purely on an invitation-only basis.

> We won't go into a region unless there's been some level of invitation from the community, and that invitation then leads us to do a whole series of community engagement processes to ensure we are actually welcome and that we are doing what they want us to be doing. (Participant #1).

Once invited to work in a community, Outback Futures prioritises partnership through co-design.

> Hopefully we carry that posture of humility or partnership or working alongside and listening so that… we are designing stuff together. We use that word 'co-design' a lot. We genuinely try to collaborate and do all of that stuff that's good partnership work. (Participant #3).

> I think the coming together of our expertise with the community's expertise is what actually helped identify the priority because sometimes we go, "oh it's obviously going to be around..." whatever "mental health, education or working" they're going, "oh well it's obviously going to be this, because we know our community" but both of those groups actually have blind spots… it's really only as you put them together, and they wrestle together that you actually figure out what the priority is. It's actually a genuine co-creation of stuff and having the breadth of voices [from the community] is part of the important bit of that… you can get a bit of a biased view dependant on who you listen to. (Participant #3).

The participants indicated that to be effective in co-design requires flexibility from the visiting service. Specifically for the case, flexibility in funding sources, scope of practice, and in the structure of their workforce with non-clinical, community-focussed roles.

> I think the diversity of our funding comes back in again because, if you are just funded by Government, then it's only the procured services that are going to be funded and that's going to determine how much you've got to invest time, and money, and resources and into engagement, or into co-design, or into listening. The fact that we have diversity in our funding means that we have more flexibility to invest in the less service-orientated aspect of our model. Like the listening and the co-design. (Participant #1)

> They [rural communities] don't realise that, OT once a year is inadequate, until they experience OT once a week. I think it's evolving, and the scope needs to be flexible and needs to evolve. (Participant #1).

> Our regional leads and our regional coordinators are actually… they're thinking about the community, they're thinking about connection, they're thinking about our presence there… So, when you elevate it above just pure service delivery and you embed people in the team who constantly have an eye and an ear for what's going on in the community and our reputation there, and our presence there, and our impact there, then um that's important for continuity too because it sort of carries… an overarching understanding of the community that holds that team and its presence in the community together. (Participant #3).

Co-design between visiting services and rural and remote communities is essential but does not come without challenges.

4.9.3 Being Effective as a Visiting Service is Challenging

The participants consistently indicated that being an effective visiting service is really challenging. This theme is the broadest of all three themes produces and is related to the previous two separately. Establishing an effective relationship is difficult due to the existing stigma in rural and remote communities and hesitancy to trust visiting services generally. Co-design is challenging due to mis-matched expectations for what the service will provide, logistical challenges of partnership, and scheduling, as well as the difficulty sourcing a well-rounded, unbiased community opinion rather than an individual viewpoint. Further, both developing a reliable relationship and engaging in co-design require time and resources that are often not incorporated into funding grants. Outback Futures is a not-for-profit organisation and currently operates a no-fee for service to reduce barriers to engagement. A challenge for the organisation now, having worked in some communities for five years, is to introduce a fee to enhance the likelihood of long-term community engagement with healthcare, beyond visits from Outback Futures.

> Part of our challenge at the moment is looking at how do we build that in as part of the model? So that communities are actually valuing what they're getting, because if whoever- whether it's Government, or Outback Futures, or another agency give them [clients] free service for five years and later on they're forced to pay for it, if they don't value it enough, they won't be prepared to. (Participant #1).

The participants stated that Outback Futures is determined to make a long-term impact on community well-being which involves challenges particularly related to funding.

> …You have never really got a long-term funding commitment, you've got a long-term service commitment. So, it does make feasibility really difficult but the organisation has committed to just keep trying to fill those buckets [of different funding]. (Participant #2).

Another prominent challenge reported by the participants were the high rates of workforce turnover in rural and remote communities and implications this has for the organisation's justification, partnership and scope.

> I think that one of the hard things is that because there's so much turnover… keeping on top of who's there, and also keeping on top of exactly what they're doing because part of the justification of what we're doing is because other services aren't doing it. But sometimes they are, sometimes they aren't, because sometimes they can get a

> speech [speech pathologist] and sometimes they can't, and that can really change with the wind. Sometimes we are doubling up [with other services] and sometimes there's gaping holes (Participant #2).

> Other fly-in-fly-out services or even other services that are on the ground but are servicing 15 schools between Alpha and Birdsville or are servicing seven Central West Shires. The reality is, their head is only in the community that they're in, when they're there physically. Because they're in Winton this week, they're in Boolia next week, they're in Barcoo the next week, actually our capacity to collaborate with them, at any point, is very difficult. (Participant #1).

Within the organisation, the participants reported there are also logistical challenges related to scheduling clinics, coordinating with community and part-time staff. Finally, review and evaluation of visiting services is largely uncharted territory.

> I think any sort of impact stuff is really challenging. Even if at a clinical level it's very hard to get practitioners to use outcome measures well, to select outcome measures that are actually meaningful… it's just hard to get a good read of communities in general. What sort of tools can we use to help us to get to know the full breadth of the community better? Read it better and sort of have an ongoing iterative process around that evaluation so that we're being constantly informed by how that community's feeling and doing. (Participant #2).

DISCUSSION

The current research provides evidence for the clinical utility of the revised model of seven principles for effective visiting services (the model) (Carey, Sirett, Wakerman, et al., 2018; Healy, Beccaria, & McIlveen, 2021). A pragmatic outcome of the current research is a self-assessment tool for the case organisation to use as a tool for evaluation. This is an innovative contribution to the literature relating to visiting primary care services, also informing the area of clinical practice.

In the case of Outback Futures, the model received unanimous endorsement by the case study's participants. The participants reported that the comprehensive approach aligned well with their target of improving whole of community well-being, an approach endorsed by the Orange Declaration (Perkins et al. 2019). The participants requested minor amendments to the existing published definitions of the principles Partnership and Review. Further, the participants reported to believe that the case of Outback Futures is not representative of

typical visiting services. This belief may have risen from the discrepancy between different community's expectations and Outback Futures' success with relationships and co-design. One of the many advantages of Outback Futures' model is their availability to both community members and other service providers. By recruiting to a region, their staff are more available to meet with, and discuss matters relating to that region, even when not on the ground in-person. Further, the multimodal approach with both face-to-face and telehealth interventions also contributes to the continuity of the service. Due to the perceived difference between OF and other visiting services, future research is required to determine the suitability of the model to other visiting primary care organisations.

Currently, no guidelines, standard procedures or recommendations exist to direct the evidence-based evaluation of visiting primary care services. The product of the present study is the first known attempt to establish a tool for evaluation to be used by visiting services. Following the support collected for the model, the case of Outback Futures was used to inform the development of the self-assessment tool previewed in Figure 9. While currently this measure is specific to the case, it provides a prototype that could be replicated and modified by other services. Due to the variation in visiting primary care services, a framework centred on the model provides a consistent solution to be adaptably applied to different organisations. Three themes were identified from the data collected and illustrated different components of effective visiting service delivery from the perspective of the case.

4.10 Relationship

The participants explained how the relationship between the visiting service and community is fundamental to the effectiveness of the organisation. They reported that the health workforce in the areas Outback Futures visit have high rates of staff turnover and difficulties in the attraction and retention of staff which aligns with evidence relating to workforce challenges in rural and remote areas (Carey, Sirett, Russell, et al., 2018; Jackson Pulver et al., 2010; World Health Organization, 2010). Workforce turnover is particularly damaging for mental health and counselling services that involve vulnerability from clients to seek help and proceed with treatment. These findings from the case organisation are further support for the revised model, particularly the principles of partnership and scheduling which emphasise collaboration with communities serviced (Healy, Beccaria, & McIlveen, 2021). In addition to existing literature, the present study implores visiting services to prioritise their relationship with community members by adopting a stance of humility to listen and learn the

local context, and demonstrating reliability through continuity of staff and continuity of visits.

4.11 Co-design

The development of a robust relationship can be further enhanced through collaborative co-design. This finding aligns with the conclusions of The Orange Declaration on Rural and Remote Mental Health (2019). The Orange Declaration is a publication that described ten problems related to current models of mental health and well-being in rural areas, and proposed ten solutions. In relation to the present research, the Orange Declaration outlined the problem of urban assumptions and their influence through top-down service models, as well as the discrepancy between service provision and population need in rural locations. Solutions proposed by the Orange Declaration include service models tailored to the context of individual communities, and co-designed, bottom-up processes to generate appropriate solutions (Perkins et al., 2019). The process of codesign encourages an increase in capacity, empowerment, resilience and connection as individuals are asked to provide their perspective as experts of their own community and culture (Perkins et al., 2019; Steen et al., 2011). Outback Futures' co-design process begins with an invitation from communities and continues through genuine partnership, seeking to understand community identified needs, collaborate in expertise and adapt the service provided accordingly. For co-design to be effective, visiting services must have flexibility to tailor their service to the needs and plans discussed. For Outback Futures this flexibility is found in the diversity of their funding sources that allows them to continue to prioritise community engagement and co-design beyond specific grants allocated only to the delivery of services. Further, Outback Futures' scope of practice has flexibility to evolve where required, rather than being specific and fixed (i.e., communities select which types of practitioners visit). Finally, Outback Futures have structured their workforce to include non-clinical managerial roles whose responsibility it is to be aware of the community context and Outback Futures' reputation and relationships within it. Co-design is a vital component of the effectiveness of Outback Futures as a visiting service.

4.12 Challenge

From the perspective of the case, being effective as a visiting service organisation is challenging. It is challenging because of the stigma that has developed around visiting services and work required to build trust and rapport. It is challenging because being genuine and committed to co-design requires time, resources and flexibility. It is challenging because

the literature related to visiting services is sparse and inconsistent and because Outback Futures feels different to the typical mould of visiting services. It is challenging because Outback Futures' commitment to communities extend beyond what they can grasp in funding, and because valued components of their service are not often included in funding grants (i.e., co-design). Further challenges include the turnover of workforce in rural and remote areas and impact this has on the organisation's justification, partnership and scope; internal team logistics scheduling clinics and responding to need. It is challenging to review the service in an evidence-based and meaningful way. The challenges reported have not been published in literature relating to visiting services, and could serve as an explanation for the state of the literature, being sparse and inconsistent. This clinical experience is a valuable contribution to the research literature.

4.13 Conclusions and Recommendations

This case study provides support for the clinical utility of the revised model of seven principles for effective visiting services, and includes a prototype self-assessment tool. The themes identified indicate that the posture adopted by visiting services in rural and remote communities is critical to their effectiveness. It is recommended that visiting services invest sincerely in their relationship with each community, prioritise co-design, and adapt their service to the unique needs of the individual communities. The case acknowledges the challenges this involves but indicates the output is of great value to rural and remote residents. A limitation to the application of the prototype self-assessment tool is its development with reference to a single case. The case study represents a valuable contribution to the literature however further research is required to assess both the clinical utility of the revised model, and the applicability of the prototype self-assessment tool to other visiting service organisations. The self-assessment tool should remain as a prototype until further assessment has been conducted.

REFERENCES

Braun, V., & Clarke, V. (2012). Thematic analysis. In *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological.* (pp. 57-71). American Psychological Association. https://doi.org/10.1037/13620-004

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. Sage.

Carey, T. A., Sirett, D., Russell, D., Humphreys, J. S., & Wakerman, J. (2018, Jun 19). What is the overall impact or effectiveness of visiting primary health care services in rural and remote communities in high-income countries? A systematic review. *BMC Health Services Research, 18*(1), 476. https://doi.org/10.1186/s12913-018-3269-5

Carey, T. A., Sirett, D., Wakerman, J., Russell, D., & Humphreys, J. S. (2018). What principles should guide visiting primary health care services in rural and remote communities? Lessons from a systematic review. *Australian Journal of Rural Health, 26*(3), 146-156. https://doi.org/10.1111/ajr.12425

de Roodenbeke, E., Lucas, S., Rouzaut, A., & Bana, F. (2011). *Outreach services as a strategy to increase access to health workers in remote and rural areas*. https://apps.who.int/iris/handle/10665/44589

Healy, L. J., Beccaria, G., Daken, K., & McIlveen, P. (2021). Visiting primary care services: A systematic quantitative literature review. *Submitted for Publication*.

Healy, L. J., Beccaria, G., & McIlveen, P. (2021, Oct). Revised model for evaluating visiting health care services in rural and remote settings. *Australian Journal of Rural Health, 29*(5), 779-788. https://doi.org/10.1111/ajr.12774

Jackson Pulver, L., Fitzpatrick, S., & Norrie, M. (2010). An evaluation of a voluntary dental program within an Aboriginal and Torres Strait Islander community controlled primary health service. *Aboriginal & Islander Health Worker Journal, 34*(4). https://doi.org/10.3316/informit.179715989399359

Merriam, S. B. (1998). *Qualitative research and case study applications in education*. Jossey-Bass.

Perkins, D., Farmer, J., Salvador-Carulla, L., Dalton, H., & Luscombe, G. (2019, Oct). The Orange Declaration on rural and remote mental health. *Australian Journal of Rural Health, 27*(5), 374-379. https://doi.org/10.1111/ajr.12560

Steen, M., Manschot, M., & De Koning, N. (2011). Benefits of co-design in service design projects. *International Journal of Design, 5*(2), 53-60.

World Health Organization. (2010). *Increasing access to heath workers in remote and rural areas through improved retention*. https://apps.who.int/iris/bitstream/handle/10665/44369/?sequence=1

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *The Qualitative Report, 20*(2), 134-152. https://nsuworks.nova.edu/tqr/vol20/iss2/12

CHAPTER 4 APPENDIX

Supplementary Material: Business-Use Document
The business use document produced in Study 3 is stored in PDF format. The PDF document has been "embedded" below however, some features (including coloured boxes around text) have not translated. If you would like a copy of the original, please email Laura on U1106966@umail.usq.edu.au.

Self-Assessment Protocol of Visiting Primary Care Services

Acknowledgements

The authors of this document acknowledge the authors of the original model of seven principles for effective visiting services; Carey, Sirett, Wakerman, Russell, and Humphreys (2018). This work would not have been possible without the innovative foundations established by them.

This self-assessment tool was produced by the ACCELL research group and funded by a visiting service organisation, Outback Futures, in collaboration with the University of Southern Queensland.

Recommended Citation

Healy, L.J., Beccaria, G., & McIlveen, P. (2022). Self-assessment protocol of visiting primary care services.

Background and Context

There is a significant health disadvantage for residents of rural and remote locations, both in Australia and throughout the world.[1-3] Rural and remote populations of geographically large, high-income countries, such as Australia and Canada, experience major inequalities in service provision and resource distribution. The outcome of which can be seen in the subsequent inequitable health and well-being of these populations when compared to those living closer to major cities.[4]

Despite reforms in Australia, the current health system continues to be focused on specialised acute care in major metropolitan centres as opposed to redirecting resources to provide preventative care, population health initiatives and high-quality primary care across the country. Evidence suggests that Australia's most significant health workforce issue is not one of total supply but of distribution including inadequate service provision to populations of extreme disadvantage including residents of rural and remote areas.[5]

Visiting primary care services operate to reduce disparities in access and outcome for residents of rural and remote areas.[2-6] The published, scientific literature pertaining to visiting primary care services is sparse and inconsistent, particularly that describing the assessment of impact, and evaluation of service types.[6-8] This lack of research and absence of guidance for how to complete service evaluations has implications for the residents of rural and remote areas.

The Model

A model of seven principles for effective visiting services (the model) was published by Carey, Sirett, Wakerman, Russell, and Humphreys in 2018 and revised in 2021.[9] The model was developed in response to the sparsity of literature available and in acknowledgement of the complexity to effectively operate an visiting service.

The seven principles of the model are depicted in Figure 1 and include Feasibility, Justification, Partnership, Scope, Scheduling, Continuity, and Review. Definitions for each principle are provided in the self-assessment tool below.

Figure 1. The revised model of seven principles for effective visiting services.

The spiral shape of the model reflects the dynamic nature of visiting services as they respond to community-identified needs. Further, the shape of the model also indicates that the principles can occur or be evaluated in any order with each maintaining connection as important principles for effective visiting services.[9]

The Self-Assessment Tool

The clinical utility of the model was assessed through case study research with a visiting allied health service, Outback Futures.[10] The case organisation expressed unanimous endorsement for the model and contributed to the development of the self-assessment tool through four group interviews.

The self-assessment tool was developed for organisations to appraise their practice against the model. Each of the seven principles is first defined, and then communicated as four or five indicators. To use the tool, organisations must review each indicator and determine their performance on a 6-point Likert scale.

0 = not meeting criteria	3 = established in a few areas
1 = have a plan to do this	4 = established in most areas
2 = started this work	5 = nothing to improve

This scale allows the calculation of a total score for each of the seven principles. For principles with four indicators, scores of 0-10 denote significant work is required for the organisation to effectively demonstrate the principle in their practice (scores of 0-12 for principles with five indicators). Scores of 11-15 (13-19 when five indicators are present) denotes sold work, with areas to improve; and scores of 16 or above (20+ when five indicators are present) denotes a strength, with some areas to improve. Further research is required to determine the validity of this scoring system and particularly, the cut off points however, as a protocol it provides organisations a tangible tool to evaluate practice and procedures, and to track outcomes over time.

The use of organisation-specific examples as evidence is encouraged. The self-assessment tool is the first of its kind within the visiting primary care literature. The goal of implementation is to increase the rigor of assessment and evaluation of visiting primary care services and in doing so, improve the quality of care delivered to residents of rural and remote regions.

Self-Assessment Tool for Effective Visiting Primary Care Services

Principle 1: Feasibility

Feasibility refers to the funding and expected sustainability of each visiting service. This might include an acknowledgement of funding bodies, any restrictions on service delivery that are built into funding contracts, the financial capacity of the organisation to deliver the intended service, and any external influences to clinical practice or model structure. Feasibility of visiting services has been identified as influential in determining the scope of each organisation. It is essential to consider the impact of the service on the community. If funding is short-term, it may be more effective to consider how to more effectively build local capacity to acknowledge and prepare for a time when the organisation is withdrawn from the community.

Self-AssessmentRating

0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service has:	**Rating**	**Evidence**
1.1 Broad engagement with a variety of community stakeholders to ensure responsive and appropriate service delivery.		
1.2 A long-term commitment to communities serviced.		
1.3 Transparency of finances and justification of costs.		
1.4 A diversity of funding sources for increased sustainability and flexibility of scope.		

Total

Self-Assessment Score

0-10= requires significant work
11-15= solid work with areas to improve
16+= strength, with some areas to improve

Principle 2: Justification

The justification of a visiting service describes the 'why' behind each organisation's practice. On what grounds is the organisation justified to deliver services in X location at Y time? Each service must be established with collaboration and consultation with community members and organisations. A needs assessment of each community could be used to establish Justification for the service and could include an assessment of the health needs of the community, the community demographics, cultural context, rates of chronic disease, local service capacity, staff retention rates in resident services, distance from other health services and related access to transport.

Self-AssessmentRating

0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service has:	Rating	Evidence
2.1 An active and ongoing invitation from communities.		
2.2 Evidence of co-design and collaboration with community.		
2.3 Produced a gap analysis of each community through the assessment of health needs and services available		
2.4 Evidence of regular monitoring for the purpose of updating the aforementioned gap analysis.		
2.5 Met the service aims in each community.		

Total

Self-Assessment Score

0-12= requires significant work
13-19= solid work with areas to improve
20+= strength, with some areas to improve

Principle 3: Partnership

Partnership refers to how well a visiting service collaborates and integrates with the communities it services. The visiting service is responsible for creating an environment for collaboration, through trust, integrity, and honesty. It is important to ensure visiting services are complementing rather than duplicating or overloading existing resident services and for Partnership to be an ongoing and dynamic process. A key component of Partnership is understanding the local cultural context. Consultation with community must be a priority prior to an organisation establishing itself in a new region, however evidence suggests the formation of healthy and robust partnerships require time and consistency (i.e., approx. 2 years). Partnership also includes the two-way mutually beneficial relationship between visiting and existing service providers to deliver the best possible health care for consumers.

Self-AssessmentRating

0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service has:	Rating	Evidence
3.1 Support evident in community testimonials.		
3.2 Support evident in the source of referrals.		
3.3 Evidence of active engagement with health, community services and other organisations.		
3.4 Evidence of active partnerships with health, community services and other organisations.		
3.5 Evidence of liaison with multiple sectors (i.e., education, business, health, local council etc).		

Total

Self-Assessment Score

0-12= requires significant work
13-19= solid work with areas to improve
20+= strength, with some areas to improve

Principle 4: Scope

Scope refers to the capacity and specificity of services provided by the visiting service and their relation to the needs identified as a priority by and for the community. It also incorporates the flexibility of organisations to adapt to community needs when operating in a number of different locations. Communicating an organisation's scope of service is important to manage client and referrer expectations. The scope is likely to be influenced by the outcomes of Feasibility and contribute to the Justification of the service.

Self-AssessmentRating

0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service:	Rating	Evidence
4.1 Has a clearly defined scope of practice at all levels of the organisation.		
4.2 Consistently applies the scope of practice across different practitioners.		
4.3 Collects data to monitor how the organisations' scope is effectively fit to each community.		
4.4 Has the capacity to absorb and manage limiting factors to preserve the scope of the organisation. (e.g., funding limitations and reporting requirements).		
4.5 Has flexibility and breadth embedded into the scope to respond appropriately to the specific needs of individual communities serviced.		

Total **Self-Assessment Score**

0-12= requires significant work
13-19= solid work with areas to improve
20+= strength, with some areas to improve

Principle 5: Scheduling

Scheduling refers to the frequency and duration of visits to a community and how well both of these factors are aligned to the community identified needs. The schedule of visits will largely depend on the type of service offered (e.g., a visiting GP is likely to require at least monthly visits to review prescribed medications) and must consider the community calendar with existing events, seasonal periods likely to impact the availability of community members, and local holidays. Scheduling could also be impacted by an organisation's ability to offer the service by another modality, for example- remote monitoring or telehealth.

Self-AssessmentRating

0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service:	**Rating**	**Evidence**
5.1 Has sufficient, regular visits to each community to maintain authentic connection and trust.		
5.2 Can provide evidence of co-design with the community in the development of schedule.		
5.3 Prioritises multidisciplinary care through its schedule.		
5.4 Incorporates both primary and secondary interventions in its schedule.		
5.5 The timing of the visiting service's schedule is responsive and appropriate to the needs of the community.		

Total **Self-Assessment Score**

0-12= requires significant work
13-19= solid work with areas to improve
20+= strength, with some areas to improve

Principle 6: Continuity

Continuity refers to the consistency and reliability of a visiting service. Specifically, the continuity of staff returning to communities, the frequency of the organisation's presence on the ground, consistency of the approach between different clinicians of a single service and reliability of supplementary systems to maintain service provision between visits (i.e., telehealth, phone or local affiliation services).

Self-AssessmentRating

0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service has:	**Rating**	**Evidence**
6.1 Can demonstrate continuity in each community through data recorded (i.e., staff retention, length of time in a region and consistency of staff to each community).		
6.2 Recruits to ensure consistency of specific personnel to each community.		
6.3 Shows evidence of an adaptable workforce structure that prioritises continuity.		
6.4 Has structures and systems established to maintain continuity with the community between face-to-face visits (i.e., telehealth, resourcing locals).		
	Total	

Self-Assessment Score

0-10= requires significant work
11-15= solid work with areas to improve
16+= strength, with some areas to improve

Principle 7: Review

The principle of review involves an iterative discussion of the effectiveness and appropriateness of clinical and non-clinical aspects of the client and community interaction. This process will involve the consideration of a wide range of parameters and draw upon qualitative experiences of staff, clients, resident services and relevant community stakeholders. Review is likely to combine two components: a needs/ strengths analysis of the community and an evaluation of the service provided. Health needs of communities will change over time so this process must be frequent and feedback to the justification for the service in each community.

Self-AssessmentRating

0 = not meeting criteria
1 = have a plan to do this
2 = started this work
3 = established in a few areas
4 = established in most areas
5 = nothing to improve

Criteria for Assessment The visiting service has:	**Rating**	**Evidence**
7.1 Regular assessment of the effectiveness of clinical services through reliable, client centred measures.		
7.2 Regular assessment of the effectiveness of the organisation's community codesign and partnership with the community.		
7.3 Annual review of community wellbeing at a whole of community level.		
7.4 Assessments for evidence of change in the community following prolonged intervention from the visiting service.		

Total

Self-Assessment Score

0-10= requires significant work
11-15= solid work with areas to improve
16+= strength, with some areas to improve

References

1. Australian Institute of Health and Welfare. Rural & remote health. Australian Government [Internet]. 2019 [cited 2022 Feb 16]. Available from: https://www.aihw.gov.au/reports/rural-remote-australians/rural-remote-health/contents/summary
2. de Roodenbeke E, Lucas S, Rouzaut A, Bana F. Outreach services as a strategy to increase access to health workers in remote and rural areas. Geneva: World Health Organization; 2011.
3. The World Health Organisation (WHO). Working together for health. Geneva: World Health Organisation; 2006 [cited 2022 Feb 16]. Available from: https://www.who.int/whr/2006/whr06_enpdf.
4. Humphreys JS, Solarsh GC. Populations at special health risk: Rural populations. The International Encyclopaedia of Public Health. 2008;5:242 - 253.
5. Mason J. Review of Australian Government health workforce programs. Canberra, ACT: Australian Government Department of Health and Aging [Internet]. 2013 [cited 2022 Feb 16]. Available from: https://www1.health.gov.au/internet/publications/publishing.nsf/Content/work-review-australian-government-health-workforce-programs-toc.
6. Carey TA, Sirett D, Wakerman J, Russell D, Humphreys JS. What principles should guide visiting primary health care services in rural and remote communities? Lessons from a systematic review. Aust J Rural Health. 2018;26(3):146-56.
7. Healy LJ, Beccaria G, Daken K, McIlveen P. Visiting primary care services: A systematic quantitative literature review [submitted for publication]. [Toowoomba (AU)]: University of Southern Queensland; 2022 [cited 2022 Feb 16].
8. Carey TA, Sirett D, Russell D, Humphreys JS, Wakerman J. What is the overall impact or effectiveness of visiting primary health care services in rural and remote communities in high-income countries? A systematic review. BMC Health Serv Res. 2018;18(1):476.
9. Healy LJ, Beccaria G, McIlveen P. Revised model for evaluating visiting health care services in rural and remote settings. Aust J Rural Health. 2021;29(5):779-88.
10. Healy LJ, Beccaria G, McIlveen P. Indicators for Effective Visiting Primary Care Services: A Case Study [submitted for publication]. [Toowoomba (AU)]: University of Southern Queensland; 2022 [cited 2022 Feb 16].


ACCELL
AUSTRALIAN COLLABORATORY FOR CAREER EMPLOYABILITY & LEARNING FOR LIVING


outback
futures


USQ

CHAPTER 5: GENERAL DISCUSSION

The current research project was established in response to the health disadvantage experienced by Australian's living in rural and remote areas and the paucity of reliable evidence related to visiting primary care services (Australian Institute of Health and Welfare, 2020; Carey, Sirett, Wakerman, et al., 2018).

Rural and remote populations of geographically large, high-income countries experience major inequalities in resource distribution and service provision. Residents of rural and remote areas are subject to poorer health outcomes compared to those living in metropolitan areas including higher rates of burden of disease and injury, as well as higher rates of self-harm and suicide behaviours (Australian Bureau of Statistics, 2018; Australian Institute of Health and Welfare, 2020). Despite efforts for reform in Australia, the health system continues to be focussed on specialised acute care in metropolitan areas, as opposed to redirecting resources to provide preventative care and high-quality primary care across the country. Evidence indicates that Australia's most significant health workforce issue is one of distribution, rather than supply (Mason, 2013).

The Orange Declaration (2019) was developed and published in response to failed attempts to reform mental health service delivery in rural and remote areas (Perkins et al., 2019). The declaration outlines ten problems and ten solutions. A key feature of the problems identified include a misalignment of the services provided and the needs of individual communities. Proposed solutions include place-based approaches, service models tailored to community context, co-designed processes, more appropriate funding models, and the consideration of prevention and early intervention, among others presented in Chapter One (Perkins et al., 2019).

The concerning evidence for the service distribution and health outcomes in rural and remote regions is clear. Visiting services have been established to reduce the health disadvantage by sending teams of health professionals from metropolitan areas or centralised hubs, to rural, remote and very remote areas. Whilst visiting services have been in operation for approximately 100 years, the limited literature about these services cannot effectively inform decisions of policy-makers, funding bodies, and visiting service organisations themselves (Carey, Sirett, Russell, et al., 2018; Royal Flying Doctor Service, 2022). Sending travelling teams to rural and remote areas is costly, and their currently stands no guideline or recommended approach to evaluation to inform and justify their funding.

The present research project builds-on work conducted by Carey, Sirett, Wakerman, Russell and Humphreys, who published two review articles in 2018 (Carey, Sirett, Russell, et al., 2018; Carey, Sirett, Wakerman, et al., 2018). The first review concluded that there was great variation in the literature describing visiting services including the terminology used, the description of services, and the salient issues identified in each publication. Despite the marked variability, the authors developed a model of seven principles for effective visiting services including Justification, Scheduling, Coordination, Scope, Continuity, Support, and Review (Carey, Sirett, Wakerman, et al., 2018).

The second review by the same authors applied the model of seven principles to existing publications describing visiting services (Carey, Sirett, Russell, et al., 2018). Recommendations from the study included the need to identify a suite of measures to assess the effectiveness of visiting services in relation to each of the seven principles (Carey, Sirett, Russell, et al., 2018). The authors concluded that more research is required to better understand the role and nature of visiting services (Carey, Sirett, Russell, et al., 2018; Carey, Sirett, Wakerman, et al., 2018).

The objectives of the current research were to 1) conduct an updated review of the literature, 2) to assess the credibility of the model of seven principles for effective visiting services, and 3) to conceptualise the model into an evaluation tool for visiting services. The three proposed objectives have been met through three, separate studies.

5.1 Overview of Findings and Contribution to the Literature

5.1.1 Study One

The first study was a Systematic Quantitative Literature Review (SQLR) assessing the current state of the literature. The SQLR approach is an explicit and replicable method that is particularly beneficial when applied to new fields of inquiry (Pickering & Byrne, 2013). The objective of the study was to comprehensively review the published literature available relating to visiting primary healthcare services in high income countries.

The review confirmed that the literature relating to visiting primary care services remains variable, inconsistent, and limited, and is not reflective of the quantity of services in operation or funding invested (CheckUp, 2020). One example of the inconsistency within the published literature is the use of the terms “rural” and “remote”. The majority of studies did not utilise a geographical classification system to justify the use of the terms and thus similarities and differences between the areas reported on are unclear. For this reason, care must be taken in the interpretation and comparison of these studies.

Findings of the SQLR include refinements in the terminology and definition of visiting primary care services to increase consistency in future research. The review identified three distinct categories of visiting service: visiting specialist services (involving a medical specialist and requiring a referral to access), visiting primary care services, and integrated visiting services (involving a combination of both primary care and specialist practitioners e.g., breast cancer screening clinics). The current research focussed on visiting primary care services, defined as: organisations that travel to rural and remote areas to deliver health care services not requiring referral (e.g., from a GP). This definition does not preclude, however, a person's health practitioner recommending a visiting primary care service to which the prospective client would initiate contact in order to access the service. This definition also distinguishes visiting primary care services from other visiting services that require a referral from a medical practitioner.

In light of the sparse literature available pertaining to visiting primary care services, it is hypothesised that a body of valuable evidence is being held within grey literature and used by organisations to inform practice and justify their service to funding bodies. Future research should investigate the grey literature kept and used by visiting primary care services, and review and report on the methods used to assess the effectiveness of the service and fit to each community.

The conclusion of the review is that the literature relating to visiting services remains sparse and inconsistent, and significant contribution is required. The searches of the previous review (Carey, Sirett, Wakerman, et al., 2018) were conducted in 2013 indicating that there has not been adequate advancements in the visiting service literature over the past eight years. The current review also extended the literature by applying the SQLR method and producing a database of extracted data coded into quantitative form. This database can operate as a dynamic record of relevant literature and be added to with further published articles. The clarification and definition produced from this study extends the literature by providing parameters for the concept of visiting services. With an increase in the consistency of terminology and definitions used, the literature pertaining to visiting services will become more robust and reliable, allowing it to have a meaningful influence on evidence-based practice.

5.1.2 Study Two

Following the clarification of terminology in study one, the second study used the Delphi method to assess the credibility of the model of seven principles for effective visiting services

(the model) (Carey, Sirett, Wakerman, et al., 2018). The model was developed to incorporate the broader context within which visiting services operate. The seven principles of the original model were Justification, Scheduling, Co-ordination, Scope, Continuity, Support and Review (Carey, Sirett, Wakerman, et al., 2018).

A panel of 13 experts in rural and remote healthcare participated in three iterative, online survey rounds, conducted between July and December of 2020, to appraise the model. The goal of the Delphi method was to stimulate dialogue between panel members to draw out their expertise on the topic, and to generate consensus in response to an identified research question. The research question guiding the Delphi study was, does the proposed model have evidence of confirmability and credibility when reviewed by relevant experts? The Delphi method is intentionally structured to ensure that panel members remain anonymous to each other, to encourage honest responses from panel members and minimise the influence of group dynamics on outcomes (de Meyrick, 2003; Iqbal & Pipon-Young, 2009; Liddell et al., 2017). The objective of the Delphi study was to assess the confirmability of the model (i.e., the degree to which the findings of a research study can be agreed upon by other researchers, managers and practitioners) (Korstjens & Moser, 2018). Consensus between panel members was monitored through ratings of importance. Each survey round panel members were asked to quantitatively rate how important they believed each component of the model to be to visiting services, measured on a 7-point Likert scale where 1 = *Not at all important* and 7 = *Extremely Important.*

The results of the second study provide evidence of confirmability and credibility for the model. The outcome of the Delphi method was a revised model of seven principles for effective visiting services, depicted in Figure 11.

Figure 11

A Revised Model of Seven Principles for Effective Visiting Services Published in Volume 29, Issue 5 of the AJRH (Healy, Beccaria & McIlveen, 2021)

The revised model exhibits three amendments from the original, the introduction of the Feasibility principle, the restructure of Co-ordination and Support into the principle titled Partnership, and an intentional order and flow between principles of the model. Feasibility refers to the funding and expected sustainability of each visiting service. The expert panel agreed that the feasibility of an organisation needed to be depicted more intentionally. The Partnership principle refers to how well a visiting service collaborates and integrates with the communities it services. Partnership was produced following considerable overlap in the panel member's language used to describe the previous principles Co-ordination and Support, and in response to suggestions made to prioritise community consultation. The decision to absorb two existing principles was met with resounding support by the expert panel and has resulted in a clearer and more comprehensive concept. Finally, suggestions to enhance the flow of the revised model were supported within the expert panel. The revised model depicts a circular confluence (Figure 11), beginning with theoretical and logistical principles including Feasibility, Justification and Partnership, that are fundamental foundations for all visiting services. Principles then increase in practical application with Scope, Scheduling and Continuity, and finally Review completes the cycle, feeding back to the beginning, reflecting the need for visiting services to be dynamic and responsive to community-identified needs. Although this structure increases the perceived flow of the model, the panel agreed that the order of the principles is not rigid and, therefore, the research proposed a spiral shape to more

accurately reflect the nature of visiting service delivery models in different communities. The spiral metaphor means that the principles can occur and be evaluated in any order, with each maintaining connection as valued components of the dynamic model.

Additional outputs of the Delphi method were definitions of each principle. These definitions were drafted and confirmed by the expert panel and published for use by other researchers. The process and outcome of the Delphi study was to critically appraise the existing model of seven principles for effective visiting services and to communicate the revised model with detail and clarity informing further use by visiting service organisations. The output of the study can be operationalised and applied by visiting services as they seek to review their interventions through the lens of the credible, revised model.

The findings of the Delphi study provide a significant contribution to the existing literature. The revised model presents a comprehensive framework in response to the known challenges impacting health care delivery in rural and remote areas. Beyond the consideration of client outcomes, the revised model encompasses components influenced by the appropriateness of the fit between the visiting service and the communities visited, as has been recommended in the Orange Declaration (2019). Principles like Feasibility, Partnership, Scope and Continuity encourage visiting services to assess their practice in light of the known inconsistency of health care services, high rates of workforce turnover, and stigma as a barrier to help-seeking in rural and remote areas (Carey, Sirett, Wakerman, et al., 2018; Clement et al., 2015).

The outcomes of the Delphi study also extend the original development of the model by Carey and colleagues (2018) through the evidence of confirmability and credibility from a heterogenous panel of experts. This is an important step, enhancing the efficacy of the proposed model to both visiting services and rural and remote communities. Further, the revised model provides a framework from which to commence the process of assessing the impact of visiting services on rural and remote communities.

5.1.3 Study 3

The research outcomes of study one and two represent significant contributions to the sparse and inconsistent literature available relating to visiting services. The third study conducted drew upon the findings of the first two studies and further extended the literature related to the evaluation of visiting services.

The case study method (Merriam, 1998) was used to assess the clinical utility of the revised model and to determine how it could be conceptualised as a tool for evaluation. The

case selected was a visiting service organisation, Outback Futures, who were based in a capital city, Brisbane Australia, and travelled to central-west and north-west Queensland (MM6 and MM7) to deliver allied health care services (Australian Government, 2021). The case study design involved four group interviews with three executives from the case organisation, conducted between July and November 2021. The data collected was analysed using thematic analysis (Braun & Clarke, 2012).

The results of the study include both evidence for the clinical utility of the revised model and a prototype self-assessment tool to be used by visiting services (which is included in the Appendix of Chapter 4). The participants of the group interviews endorsed the clinical utility of the revised model and its comprehensive approach. The participants, however, believed that the case of Outback Futures is different to other visiting services. The participants reported that Outback Futures is focussed on whole of community change, as opposed to simply individual healthcare sessions. The participants reported that Outback Futures is unique in its model of service, including how they prioritise community engagement, structure their workforce, and determine funding decisions. While the Outback Futures approach aligns with solutions proposed in the Orange Declaration (2019), this perceived difference between the case and other visiting services has impacts for the generalisability of the results of the study. More research is required to assess the application of the model to other case examples.

The prototype self-assessment tool (the tool) developed in study three transformed the revised model into indicators for assessment. Each indicator was designed to capture an organisation's consideration of, and adherence to, each principle of the model. The tool represents the first of its kind within the visiting primary care services literature where no guidelines, standard procedures or recommendations for evidence-based evaluation exist. The tool is ready to be used by the case organisation, Outback Futures, and assessed and tailored where appropriate to other visiting service organisations.

Additional outcomes of the case study were the recognition of three prominent themes drawn from the qualitative data collected. These themes provide additional insight into the experience of visiting services as they seek to provide appropriate and effective care. The first theme described in the study was *Relationship is Fundamental*, which relates to the importance of the relationship between the visiting service provider and community members. The participants reported that residents of rural and remote areas are often suspicious of visiting services and hesitant to engage. This aligns with findings from the Delphi method relating to damage caused by inconsistent and unreliable visiting services and

the importance of the principle, Continuity. It is imperative for visiting services to invest in developing rapport with community members. Factors such as the approach of the service, the continuity of staff and continuity of brand, demonstration of consistency and direct efforts to connect with local stakeholders are reported to influence the development of the relationship. A visiting service cannot be effective on the seven principles of the model without an established relationship (Healy et al., 2021).

The second theme identified was the *Importance of Co-Design.* Co-design involves partnership and genuine collaboration between the visiting service and the community. It can only be instigated once the relationship is present however, can also contribute to the strengthening of the relationship between the visiting service and the community. Co-design also involves the sharing of expertise and requires flexibility from the visiting service to adapt their practice to best meet the needs identified as a priority by the community. In the case of Outback Futures, co-design is prioritised through their workforce structure with non-clinical, community-focussed roles including region leads and region coordinators. The finding of the importance of co-design aligns with solutions proposed in the Orange Declaration. In the Orange Declaration co-designed processes are recommended to generate appropriate solutions and to tailor service delivery models to the context of individual communities (Perkins et al., 2019). While the Orange Declaration (2019) was developed with reference to only mental health services, the case of Outback Futures provides confirmation of many of the points presented.

The final theme produced from the case study was *Being Effective as a Visiting Service is Challenging*. This theme encompasses the previous two themes and more comprehensively describes the difficulty experienced by those attempting to be an effective and sustainable visiting service. Examples of the challenges discussed include that related to the finite resources, barriers to engagement and stigma preventing clients from accessing services, feasibility and long-term sustainability, as well as collaborating with other organisations with high rates of staff turnover. Further, there are also challenges related to logistics of arranging clinics with part-time staff, and challenges to complete an evidence-based evaluation of their model of service with limited literature to direct the approach.

The results of the case study provide evidence of clinical utility for the revised model of seven principles for effective visiting services and present a prototype self-assessment tool. These outcomes build on from the previous two studies and represent significant contribution to the existing literature relating to visiting services. The prototype self-assessment tool is the first of its kind and was designed in response to the inconsistency in the literature identified

through the SQLR study. Visiting services are encouraged to consider this tool as a guide for evaluation. The tool captures the priorities of both the expert Delphi panel, from study two, and the experiences of the executives from the case organisation. The output is a comprehensive framework depicting the context of visiting primary care services in rural and remote regions. The tool has been intentionally designed to be clear and user friendly, encouraging regular use to reflect the ever-changing context in rural and remote communities. While the current prototype was designed specific to the case organisation, future research should further extend the literature applying the prototype tool to other case organisations.

Finally, the three themes identified reflect the importance of the posture adopted by visiting services when working in rural and remote contexts. This insight has not been published before in the research literature, yet it is reflective of data collected from both the Delphi study and the case study. It is recommended that visiting services invest genuinely in their relationship with the communities they serve and prioritise co-design to ensure the services delivered are effective and appropriate for the individual community. The case organisation also reported many and varied challenges involved in being an effective visiting service. The challenge, participants report as costly but of great value to the residents of rural and remote regions.

5.2 Methodological Implications

The findings of the current research have methodological implications for the literature pertaining to visiting services. The literature review conducted as study one identified prominent methodological limitations within the existing literature. First, the diversity of terminology used. Due to the variety of terms used to describe visiting services (e.g., outreach, mobile, FIFO, DIDO, hub and spoke), the search terms for the review were lengthy and ineffective at capturing appropriate results. Instead, large numbers of studies were removed at the initial screen with little relevance to the research question evident from the title. This process was time consuming for the two reviewers. In response, effort was taken to more accurately name and define the concept at the centre of the review.

The review also identified three different categories of visiting healthcare services, visiting specialist services, visiting primary care services, and integrated visiting services. Each category of visiting service is distinct and should be directed by its own literature base. Thus the decision was made to focus on visiting primary care services for the purposes of the review. Clarification was also made to the terminology, shifting away from *visiting primary*

healthcare services and towards *visiting primary care services* to align with the public health literature and more accurately describe the services included in the category (Muldoon et al., 2006). The refinement of terminology and clarification in definition produced by the review can be used to strengthen the consistency between studies published describing visiting services. Further, with increased consistency of terminology used, future reviews will become more efficient and accurate.

Second, the review study identified great variation in what information is reported in research articles describing visiting services, particularly related to the research design, clinician type, methodology and outcome measures used. While acknowledging the diversity between different types of visiting service, authors are encouraged to communicate their methods transparently. As a baseline, research relating to visiting services should describe: 1. the location that the service operates (State/Provence and Country) and the related geographical remoteness classification; 2. the types of clinicians involved; and 3. the research design selected. Additional useful information could include demographic details of the client population; the source of the organisation's funding (i.e., Government, private, philanthropic, or fee-for-service); the method and frequency of travel; and procedures to remain connected once returned to the base location.

The third methodological implication from the present research is the plea for authors (e.g., researchers, policy experts) and visiting services to reference standardised geographical classification systems in publications. Where articles include the terms *rural* and *remote,* the areas referenced need to be classified. Studies that do not reference a standardised classification system are notably flawed and create difficulty when seeking to compare the findings of different studies.

These findings support the conclusions made by Carey et al., (2018) in illustrating the variation between typology of visiting services and sparsity of literature available. The present research also extends the previous findings, through the use of the SQLR method, by providing a detailed analysis of the observed variation. The present project has produced a novel contribution to the literature through the refinement of terminology and clarification in the definition of the concept studied: visiting primary care services. Further, recommendations for future research have been clearly articulated to improve consistency and quality including baseline reporting guidelines (i.e., location of service, clinician type, and research design used), and the use of a classification tool when using terms "rural" and "remote". The application of the SQLR method to the context of visiting services was effective and has provided valuable contribution to the literature. The literature for visiting

services requires reform and the methodological implications from the current research can provide direction towards greater efficacy, consistency and reliability.

Finally, acknowledgement of the first author's reflexivity is essential for the integrity of the current research. LH occupies positions of social privilege as a heteronormative, middle-class, able-bodied, Caucasian, Australian. LH's worldview was shaped by her upbringing in inner-city Brisbane, with the privilege of a high-quality education and seamless accessibility to heath care. Through the current research, LH has developed a comprehensive knowledge of the literature available relating to visiting services including knowledge of the prominent gaps between research and clinical practice. LH is an insider researcher with existing rapport and trust with the case organisation (Braun & Clarke, 2021). Regular supervision was provided by the second and third authors (GB and PM) throughout the research project to minimise bias of LH's existing relationship and role as an insider researcher.

5.3 Theoretical Implications

The theoretical implications of the current research relate most prominently to the development of the revised model of seven principles for effective visiting services. The original model (Carey, Sirett, Wakerman, et al., 2018) was the first published conceptual framework for visiting services. The revised model builds upon the original through three key modifications and has evidence of confirmability and credibility, determined by a panel of experts. Further, the case study found evidence for the clinical utility of the revised model. Both the Delphi expert panel (Study 2) and the case study participants (Study 3) reported endorsement for the revised model, in particular, for its consideration of community identified needs. Reports from the participants indicate that too frequently, visiting services approach communities with their own agenda and a narrow and fixed scope of practise that is inflexible to the needs of the community. The revised model encourages visiting services to acknowledge the differences between communities and to consider the needs of each one individually through appropriately tailored service delivery. These findings again align with the proposed solutions of the Orange Declaration (2019).

Due to the great variation in both rural communities, and visiting services themselves, the revised model was constructed to be broadly comprehensive. The seven principles should be applicable to services regardless of their typology, area of practice, and model of service. The development and assessment of the revised model through the current research has valuable theoretical implications for the literature relating to visiting services, as well as clinical practice.

5.4 Practical Implications

The practical implications of the current research relate to the adoption and use of the first recorded tool to guide the assessment of visiting primary care services. The original model of seven principles for effective visiting services (Carey, Sirett, Wakerman, et al., 2018) was established to guide the development of new visiting services and encourage organisations to consider related complexities. In the third study, the case organisation reported great difficulty determining how to evaluate their existing service. These reports are also reflected in the findings of study one that could not determine a clear, credible, or consistent approach to evaluation. The approach of the current research was to guide existing services with the revised model and development of the self-assessment protocol. The output can however, be used to direct the development of visiting services with special considerations made in great detail through the indicators for self-assessment.

The results of the current research provide evidence-based guidance to visiting primary care services, directing them with important principles to assess when evaluating their service. The model is broadly comprehensive, and the proto-type self-assessment tool directs individual organisations to apply the model to their unique circumstance. Organisations are required to rate their performance for each indicator on a 6-point Likert scale where 0 = not meeting criteria, 1 = have a plan to do this, 2 = started this work, 3 = established in a few areas, 4 = established in most areas, and 5 = nothing to improve. Totals can be calculated for each principle to determine if the organisation *requires significant work* on a principle or is rated as *solid work with areas to improve,* or *strength with some areas to improve.* Organisations are required to provide evidence to justify their decisions, including specific examples relating to their practice. This approach allows the individual organisation to speak to their strengths through a single, consistent framework.

The prototype self-assessment tool should be used by visiting service organisations to guide the assessment of their effectiveness in each community, and monitor appropriately, to communicate their effectiveness to community members and funding bodies, and to contribute to a more consistent body of literature from which to inform practice. The tool is named as a prototype, as it was developed from the consultation with a single case. Further research is required in assessing the clinical utility of the revised model and applicability of the self-assessment tool with reference to different case examples.

5.5 Limitations

The inconsistency of the existing literature pertaining to visiting services provided both justification for the current research and limitations to conducting the current research. The results of the literature review demonstrate this and provide refinements in the terminology and definition of visiting primary care services in order to better inform future research and encourage the development of greater consistency.

The availability of published research was also a limitation to the present project. It is hypothesised that a considerable body of evidence exists within grey literature, held privately by visiting service organisations for internal and business use. This hypothesis was developed from the discrepancy between the number of active visiting services and the amount of published literature. Future research could investigate this hypothesis further through direct contact with individual visiting services.

Another limitation of the current research was the dependability of the revised model (the stability of outcomes over time). While clinically, the appropriately broad and flexible structure of the revised model is a strength, empirically, this characteristic is a limitation. In response to this limitation, future use of the model should be reported with detail and clarity, describing the methods used to conceptualise each principle, and enhance the dependability of the model in future applications.

Further, the use of the case study method constrains the generalisability of findings. The method was appropriate and effective in obtaining the research objectives however further research is required to investigate the applicability of findings in the context of other visiting primary care services.

Finally, the self-assessment tool produced from the current research is a protocol meaning that further research is required to assess the confirmability and credibility of the tool. This assessment must also review the scales for self-assessment of each principle and scoring system.

5.6 Conclusions

In summary, visiting primary care services operate to improve access and health outcomes for residents of rural and remote areas. An important, yet resource intensive, role. Despite visiting services being in operation for near 100 years, the related literature remains sparse and inconsistent. This is of great concern for funding bodies with ineffective means of determining the appropriateness and efficacy of services invested in, and most prominently is of great concern to for residents of rural and remote regions who may be receiving under-

evaluated, culturally insensitive health care. Prior to this project, there was inconsistency in the definition of visiting services and in the quality of evidence available, making it difficult to compare findings between organisations. The outcome of the current project is clarity and guidance for visiting services and future research. If the definitions, revised model, and self-assessment tool produced are utilised we will see a transformation of the literature pertaining to visiting services, for the betterment of residents of rural and remote regions.

REFERENCES

Ambulance Victoria. (2022). *Fees & Terms*. Retrieved 30 January, 2022 from https://www.ambulance.vic.gov.au/membership/fees-terms/

Australian Bureau of Statistics. (2012). *3303.0- Causes of death, Australia.* http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3303.0Explanatory+Notes12012

Australian Bureau of Statistics. (2016). *The Australian statistical geography standard (ASGS) remoteness structure*. https://www.abs.gov.au/websitedbs/D3310114.nsf/home/remoteness+structure

Australian Bureau of Statistics. (2018). *2071.0- Census of population and housing: Reflecting Australia- Stories from the Census, 2016*. https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2071.0~2016~Main%20Features~Small%20Towns~113

Australian Bureau of Statistics. (2021a). *Australian Statistical Geography Standard (ASGS) edition three*. https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026

Australian Bureau of Statistics. (2021b). *Regional internal migration estimates, provisional*. https://www.abs.gov.au/statistics/people/population/regional-internal-migration-estimates-provisional/latest-release

Australian Institute of Health and Welfare. (2020). *Rural and remote health*. https://www.aihw.gov.au/reports/australias-health/rural-and-remote-health

Australian Government. (2021a). *About medicare*. Retrieved 10 Febuary, 2022 from https://www.servicesaustralia.gov.au/about-medicare?context=60092

Australian Government. (2021b). *About private health insurance*. Retrieved 10 January, 2022 from https://www.health.gov.au/health-topics/private-health-insurance/about-private-health-insurance

Australian Government. (2021c). *Modified Monash Model*. https://www.health.gov.au/health-topics/rural-health-workforce/classifications/mmm?utm_source=health.gov.au&utm_medium=callout-auto-custom&utm_campaign=digital_transformation

Australian Institute of Health and Welfare. (2018). *Mental health services in brief 2018.* https://www.aihw.gov.au/getmedia/0e102c2f-694b-4949-84fb-e5db1c941a58/aihw-hse-211.pdf.aspx?inline=true

Australian Institute of Health and Welfare. (2019). *Rural and remote health.* https://www.aihw.gov.au/reports/rural-remote-australians/rural-remote-health/contents/summary

Australian Institute of Health and Welfare. (2020). *Rural and remote health.* https://www.aihw.gov.au/reports/australias-health/rural-and-remote-health

Battye, K., & McTaggart, K. (2003). Development of a model for sustainable delivery of outreach allied health services to remote North-West Queensland, Australia. *Rural and Remote Health, 3*(4).

Battye, K., Roufeil, L., Edwards, M., Hardaker, L., Janssen, T., & Wilkins, R. (2019). *Strategies for increasing allied health recruitment and retention in Australia: A rapid review*. https://www.sarrah.org.au/images/rapid_review_-_recruitment_and_retention_strategies_-_final_web_ready.pdf

Beccaria, L., McIlveen, P., Fein, E. C., Kelly, T., McGregor, R., & Rezwanul, R. (2021). Importance of attachment to place in growing a sustainable Australian Rural Health Workforce: A rapid review. *Australian Journal of Rural Health, 29*(5), 620-642. https://doi.org/10.1111/ajr.12799

Berry, H. L., Hogan, A., & Owen, J. (2011). Climate change and farmers' mental health: Risks and responses. *Asia Pacific Journal of Public Health, 23*(2). https://doi.org/10.1177/1010539510392556

Birks, M., Mills, J., Francis, K., Coyle, M., Davis, J., & Jones, J. (2010). Models of health service delivery in remote or isolated areas of Queensland: A multiple case study. *Australian Journal of Advanced Nursing, 28*(1), 25-34.

Boyd, C., Francis, K., Aisbett, D., Newnham, K., Sewell, J., Dawes, G., & Nurse, S. (2007). Australian rural adolescents' experiences of accessing psychological help for mental health problem. *Australian Journal of Rural Health, 15*(3). https://doi.org/10.1111/j.1440-1584.2007.00884.x

Braun, V., & Clarke, V. (2012). Thematic Analysis. In *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biologcal.* (pp. 57-71). American Psychological Association.

Buykx, P., Humphreys, J., Wakerman, J., & Pashen, D. (2010). Systematic review of effective retention incentives for health workers in rural and remote areas: towards evidence-based policy. *Australian Journal of Rural Health, 18*(3), 102-109. https://doi.org/10.1111/j.1440-1584.2010.01139.x

Canada FAQ. (2015). *What percentage of Canadians live in cities and towns?* Retrieved 10 January, 2022 from http://www.canadafaq.ca/what+percentage+canadians+live+in+cities/

Carey, T. A., Sirett, D., Russell, D., Humphreys, J. S., & Wakerman, J. (2018). What is the overall impact or effectiveness of visiting primary health care services in rural and remote communities in high-income countries? A systematic review. *BMC Health Services Research, 18*(1). https://doi.org/10.1186/s12913-018-3269-5

Carey, T. A., Sirett, D., Wakerman, J., Russell, D., & Humphreys, J. S. (2018). What principles should guide visiting primary health care services in rural and remote communities? Lessons from a systematic review. *Australian Journal of Rural Health, 26*(3), 146-156. https://doi.org/10.1111/ajr.12425

Carnie, T., Berry, H. L., Blinkhorn, S. A., & Hart, C. R. (2011). In their own words: Young people's mental health in drought-affected rural and remote NSW. *Australian Journal of Rural Health, 19,* 244-248. https://doi.org/10.1111/j.1440-1584.2011.01224.x

CheckUp. (2020). *Outreach Services: Creating healthier communities*. Retrieved 13 July, 2021 from https://www.checkup.org.au/page/Initiatives/Outreach_Services/About_the_Outreach_Programs/

Chisholm, M., Russell, D., & Humphreys, J. (2011). Measuring rural allied health workforce turnover and retention: what are the patterns, determinants and costs? *Australian Journal of Rural Health, 19*(2), 81-88. https://doi.org/10.1111/j.1440-1584.2011.01188.x

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rusch, N., Brown, J. S. L., & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine, 45*, 11-27. https://doi.org/10.1017/S0033291714000129

Commonwealth of Australia. (2013). *Cancer of the bush or salvation for our cities? Fly-in, fly-out and drive-in, drive-out workforce practices in regional Australia*. https://www.aph.gov.au/Parliamentary_Business/Committees/House_of_Representatives_Committees?url=ra/fifodido/report.htm

Cosgrave, C., Malatzky, C., & Gillespie, J. (2019). Social Determinants of Rural Health Workforce Retention: A Scoping Review. *International Journal of Environmental Research and Public Health, 16*(3). https://doi.org/10.3390/ijerph16030314

Cosgrave, C., Maple, M., & Hussain, R. (2018). An explanation of turnover intention among early-career nursing and allied health professionals working in rural and remote Australia- findings from a grounded theory study. *Rural Remote Health, 18*(3). https://doi.org/10.22605/RRH4511

de Meyrick, J. (2003). The Delphi method and health research. *Health Education, 103*(1), 7-16. https://doi.org/10.1108/09654280310459112

De Roodenbeke, E., Lucas, S., Rouzaut, A., & Bana, F. (2011). *Outreach services as a strategy to increase access to health workers in rural and remote areas*. https://www.ncbi.nlm.nih.gov/books/NBK310729/

Farmer, J., Munoz, S., & Threlkeld, G. (2012). Theory in rural health. *Australian Journal of Rural Health, 20*, 185-189. https://doi.org/doi:10.1111/j.1440-1584.2012.01286.x

Guerin, P., & Guerin, B. (2009). Social effects of fly-in-fly-out and drive-in-drive-out services for remote indigenous communities. *Australian Community Psychologist, 21*, 7-22.

Haggerty, J. L., Reid, R. J., Freeman, G. K., Starfield, B. H., Adair, C. E., & McKendry, R. (2003). Continuity of care: A multidisciplinary review. *BMJ, 327*(7425), 1219-1221. https://doi.org/10.1136/bmj.327.7425.1219

Hart, C. R., Berry, H. L., & Tonna, A. M. (2011). Improving the mental health of rural New South Wales communities facing drought and other adversities. *Australian Journal of Rural Health, 19*, 231-238. https://doi.org/10.1111/j.1440-1584.2011.01225.x

Hartley, D. (2004). Rural health disparities, population health and rural culture. *American Journal of Public Health, 94*(10), 1675-1678. https://ajph.aphapublications.org/doi/pdfplus/10.2105/AJPH.94.10.1675

Healy, L. J., Beccaria, G., & McIlveen, P. (2021). Revised model for evaluating visiting health care services in rural and remote settings. *Australian Journal of Rural Health, 29*, 779-788. https://doi.org/10.1111/ajr.12774

Hoyt, D. R., Conger, R. D., Valde, J. G., & Weihs, K. (1997). Psychological distress and help seeking in rural America. *American Journal of Community Psychology, 25*(4). https://doi.org/10.1023/A:1024655521619

Humphreys, J., Wakerman, J., Kuipers, P., Wells, R., Russell, D., Siegloff, S., & Homer, K. (2009). *Improving workforce retention: Developing an integrated logic model to maximise sustainability of small rural and remote health care service*. Australian Primary Health Care Research Institute. https://openresearch-repository.anu.edu.au/bitstream/1885/119205/3/full_report_10797%20(1).pdf

Humphreys, J., Wakerman, J., Pashen, D., & Buykx, P. (2009). *Retention strategies and incentives for health workers in Rural and Remote areas: What works?* . https://openresearch-repository.anu.edu.au/bitstream/1885/119206/3/international_retention_strategies_research_pdf_10642(1).pdf

Humphreys, J. S., & Solarsh, G. (2008). At-risk populations: Rural. In J. Healy & M. McKee (Eds.), *The International Encyclopaedia of Public Health* (pp. 242-253). Elsevier. www.sciencedirect.com/science/referenceworks/9780123739605

Iqbal, S., & Pipon-Young, L. (2009). The Delphi method. *The British Psychological Society., 22*(7), 598-601.

Jones, M., Versace, V., Lyle, D., & Walsh, S. (2021). Return of the unexpected: Rural workforce recruitment and retention in the era of COVID-19. *Australian Journal of Rural Health, 29*(5), 612-616. https://doi.org/10.1111/ajr.12817

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice, 24*(1), 120-124. https://doi.org/10.1080/13814788.2017.1375092

Kringos, D. S., Boerma, W. G., Bourgueil, Y., Cartier, T., Hasvold, T., Hutchinson, A., Lember, M., Oleszczyk, M., Palvic, D. R., Svab, I., Tedeschi, P., Wilson, A., Windak, A., Dedeu, T., & Wilm, S. (2010). The european primary care monitor: structure, process and outcome indicators. *BMC Family Practice, 11*(81), 1471-2296. https://doi.org/1471-2296/11/81

Kroezen, M., Dussault, G., Craveiro, I., Dieleman, M., Jansen, C., Buchan, J., Barriball, L., Rafferty, A. M., Bremner, J., & Sermeus, W. (2015). Recruitment and retention of health professionals across Europe: A literature review and multiple case study research. *Health Policy, 119*(12), 1517-1528. https://doi.org/10.1016/j.healthpol.2015.08.003

Liddell, A. E., Allan, S., & Goss, K. (2017). Therapist competencies necessary for the delivery of compassion-focussed therapy: A Delphi study. *Psychology and Psychotherapy, 90*(2), 156-176. https://doi.org/10.1111/papt.12105

Mason, J. (2013). *Review of Australian Government Health Workforce Programs.* https://www1.health.gov.au/internet/publications/publishing.nsf/Content/work-review-australian-government-health-workforce-programs-toc

Mbemba, G., Gagnon, M.-P., Pare, G., & Cote, J. (2013). Interventions for supporting nurse retention in rural and remote areas: an umbrella review. *Human Resources for Health, 11*(44).

Merriam, S. B. (1998). *Qualitative research and case study applications in education*. Jossey-Bass.

Mills, A., & Millsteed, J. (2002). Retention: An unresolved workforce issue affecting rural occupational therapy services. *Australian Occupational Therapy Journal, 49*, 170-181. https://doi.org/10.1046/j.1440-1630.2002.00293.x

Muldoon, L. K., Hogg, W. E., & Levitt, M. (2006). Primary care (PC) and primary health care (PHC): What is the difference? *Canadian Journal of Public Health, 97*(5), 409-411.

National Rural Health Alliance Inc. (2017). *Mental health in rural and remote Australia*. https://ruralhealth.org.au/sites/default/files/publications/nrha-mental-health-factsheet-dec-2017.pdf

Penchansky, R., & Thomas, J. W. (1981). The concept of access, definition and relationship to consumer satisfaction. *Medical Care, 19*(2), 127-140.

Perkins, D., Farmer, J., Salvador-Carulla, L., Dalton, H., & Luscombe, G. (2019). The Orange Declaration on rural and remote mental health. *Australian Journal of Rural Health, 27*(5), 374-379. https://doi.org/10.1111/ajr.12560

Pickering, C., & Byrne, J. (2013). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers. *Higher Education Research & Development, 33*(3), 534-548. https://doi.org/10.1080/07294360.2013.841651

Queensland Government. (2022). *The long paddock: Drought declarations*. Retrieved 10 January, 2022 from https://longpaddock.qld.gov.au/drought/drought-declarations/

Roberts, R., Wong, A., Jenkins, S., Neher, A., Sutton, C., O'Meara, P., Frost, M., Bamberry, L., & Dwivedi, A. (2021). Mental health and well-being impacts of COVID-19 on rural paramedics, police, community nurses and child protection workers. *Australian Journal of Rural Health, 29*(5), 753-767. https://doi.org/10.1111/ajr.12804

Royal Flying Doctor Service. (2022). *History of RFDS Sections*. Retrieved 10 January, 2022 from https://www.flyingdoctor.org.au/about-the-rfds/history/rfds-sections-history/

Schofield, T. (2009). The elephant in the room for Australian allied health workforce policy and planning? *Journal of Sociology, 45*(4), 383-400. https://doi.org/10.1177/1440783309346479

Smith, K. B., Humphreys, J. S., & Wilson, M. G. (2008). Addressing the health disadvantage of rural populations: How does epidemiological evidence inform rural health policies and research? *Australian Journal of Rural Health, 16*(2). https://doi.org/10.1111/j.1440-1584.2008.00953.x

Smith, T., Cooper, R., Brown, L., Hemmings, R., & Greaves, J. (2008). Profile of the rural allied health workforce in Northern New South Wales and comparison with previous

studies. *Australian Journal of Rural Health, 16*, 156-163. https://doi.org/10.1111/j.1440-1584.2008.00966.x

Thomas, S. L., Wakerman, J., & Humphreys, J. S. (2015). Ensuring equity of access to primary health care in rural and remote Australia: What core services should be locally available? *International Journal for Enquity in Health, 14*(111). https://doi.org/10.1186/s12939-015-0228-1

Verma, P., Ford, J. A., Stuart, A., Howe, A., Everington, S., & Steel, N. (2016). A systematic review of strategies to recruit and retain primary care doctors. *BMC Health Services Research, 16*, 126. https://doi.org/10.1186/s12913-016-1370-1

Versace, V. L., Skinner, T. C., Bourke, L., Harvey, P., & Barnett, T. (2021). National analysis of the Modified Monash Model, population distribution and a socio-economic index to inform rural health workforce planning. *Australian Journal of Rural Health, 29*(5), 801-810. https://doi.org/10.1111/ajr.12805

Vins, H., Bell, J., Saha, S., & Hess, J. J. (2015). The mental health outcomes of drought: A systematic review and casual process diagram. *International Journal of Environmental Research and Public Health, 12*, 13251-13275. https://doi.org/10.3390/ijerph121013251

Wakerman, J., Curry, R., & McEldowney, R. (2012). Fly in/fly out health services: The panacea or the problem? *Rural and Remote Health, 12*(2). https://doi.org/10.22605/RRH2268

Wakerman, J., & Humphreys, J. S. (2019). "Better health in the bush": why we urgently need a national rural and remote health strategy. *Medical Journal of Australia, 210*(5), 202-203. https://doi.org/10.5694/mja2.50041

World Health Organization. (2006). *Working together for health: The World Health Report 2006*. https://www.who.int/whr/2006/whr06_en.pdf?ua=1

World Health Organization. (2010). *Increasing access to health workers in remote and rural areas through improved retention* https://apps.who.int/iris/bitstream/handle/10665/44369/?sequence=1