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Informing telehealth service delivery for cardiovascular disease management: exploring the perceptions of rural health professionals

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Abstract.

Objective. To explore the perceptions of rural health professionals who use telehealth services for cardiovascular health care, including the potential role of telehealth in enhancing services for this patient group.

Methods. Semi-structured interviews were conducted with ten rural health professionals across a range of disciplines, including medicine, nursing and allied health. All study participants were based in the same rural region in New South Wales, Australia.

Results. Participant responses emphasised the importance of including rural communities in ongoing dialogue to enhance telehealth services for cardiovascular care. Divergent expectations about the purpose of telehealth and unresolved technology issues were identified as factors to be addressed. Rural health professionals highlighted the importance of all stakeholders coming together to overcome barriers and enhance telehealth services in a collaborative manner.

Conclusion. This study contributes to an evolving understanding of how health professionals based in regional Australia experience telehealth services. Future telehealth research should proceed in collaboration with rural communities, supported by policy that actively facilitates the meaningful inclusion of rural stakeholders in telehealth dialogue.

What is known about the topic? Telehealth is frequently discussed as a potential solution to overcome aspects of rural health, such as poor outcomes and limited access to services compared with metropolitan areas. In the context of telehealth and cardiovascular disease (CVD), research that focuses on rural communities is limited, particularly regarding the experiences of these communities with telehealth.

What does this paper add? This paper offers insight into how telehealth is experienced by rural health professionals. The paper highlights divergent expectations of telehealth's purpose and unresolved technological issues as barriers to telehealth service delivery. It suggests telehealth services may be enhanced by collaborative approaches that engage multiple stakeholder groups.

What are the implications for practitioners? The use and development of telehealth in rural communities requires a collaborative approach that considers the views of rural stakeholders in their specific contexts. To improve telehealth services for people living with CVD in rural communities, it is important that rural stakeholders have opportunities to engage with non-rural clinicians, telehealth developers and policy makers.

Keywords: cardiovascular disease, cardiovascular health, cardiovascular inequalities, CVD, e-health, health services, regional Australia, rural Australia, rural clinicians, rural communities, rural health professionals, telehealth, telemedicine.

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Introduction

The provision of healthcare services for people living with chronic diseases such as cardiovascular disease (CVD) is complex and challenging, particularly in rural and remote locations.[1] Geographic factors, such as distribution across vast areas and low population density, place constraints on those who live in rural areas, particularly in terms of access to health care. In the literature, these 'deficits' are described as responsible for the poor cardiovascular health outcomes observed in rural populations (compared with metropolitan), both in Australia and internationally.[1–5] Other aspects of rural contexts include generally lower socioeconomic status compared with metropolitan areas, unique culture, connection to place, and social norms regarding the meaning of health; for example, good health may be characterised as the ability to work.[6,7] These factors combine with broad health system actions, such as funding allocation, policies and workforce strategy, to influence the delivery of health services in rural communities.[6]

Telehealth services are often proposed as a solution to overcome challenges related to cardiovascular health care in rural locations.[8,9] In the context of CVD, there are calls for telehealth to be used to help reduce health inequalities between metropolitan and rural populations, particularly in acute care.[9] A key example is the Victorian Stroke Telemedicine Program, which facilitates telemedicine between regional clinicians and metropolitan neurologists for acute stroke management.[10–12]

The Victorian Stroke Telemedicine Program has been scaled from a single-site to a statewide service, with authors referring to the engagement of local, multidisciplinary stakeholders as influential to the success of the expanded service.[10] In rural areas specifically, collaborative approaches such as clinician participation, shared ownership and co-design have been associated with successful telehealth.[13–15] Rural health professionals have valuable knowledge of their specific community contexts, and are well placed to identify opportunities to adapt telehealth. Additionally, an important factor in the uptake and integration of telehealth and other technologies in health care is clinician acceptance.[16–18]

Although the example of the Victorian Stroke Telemedicine Program is promising, rural populations are underrepresented in telehealth research.[19] In the context of cardiovascular health care, telehealth studies that include rural and remote populations are often small-scale feasibility examples, in which sustainability or integration into mainstream practice are not detailed.[20,21] Further, outcomes are strongly focused on health service access, effectiveness and resource utilisation.[22,23] There is limited research into the perceptions of rural health professionals or the wider community with respect to engaging with healthcare services via telehealth.[24]

Given the importance of clinician acceptance and the knowledge that rural health professionals have of specific community contexts, this research aims to explore their perceptions of telehealth, with the aim to enhance telehealth services for cardiovascular health care in rural locations.

Methods

The Standards for Reporting Qualitative Research guided the reporting of methods and presentation of findings for this study.[25] Further details are included in Table S1, available as Supplementary Material to this paper. Ethics approval was obtained from the Human Research Ethics Committee of the University of Newcastle (approval number H-2018-0005), with written informed consent provided by all participants.

Setting

This research formed part of a larger research project exploring opportunities to improve health service delivery for rural community members in the context of CVD. The project was conducted in a rural region of New South Wales, Australia, where age-standardised rates of early death due to CVD are disproportionately high (Australia: 58.5 deaths per 100 000; region: 50.1–202.0 deaths per 100 000).[26] The regional centre has a population of approximately 60 000 people,[27] and is located 280 km from the nearest major city. Local health professionals frequently refer patients to services in the major city for specialist care, and often provide outreach services to surrounding communities (populations range from 1600–8000 people).[28,29]

Telehealth in the region is largely delivered within the public health system and externally (from the public system to private general practitioners or patient homes) via videoconference. Applications include acute care, surgical follow up, fracture clinics, meetings and clinical supervision.[30] Although telehealth models of care are used within the rural region, they have limited uptake.[31] Australia's National Broadband Network provides high speed internet with the capacity to facilitate the use of telehealth; however, many areas in rural Australia are yet to have access to the network.[32]

Design

The interview guide (see File S1) for this qualitative study was developed using a strengths-based approach,[33] informed by appreciative inquiry.[34] This approach offers an alternative to the

dominant deficit view of rural health, acknowledging the capacity, vision and values that rural communities hold.[5,33,34] The guide included questions about factors that might enable telehealth use, consideration for future directions in telehealth, and the role of university researchers, all within the context of cardiovascular health care. Minor adjustments to the original protocol were made following initial interviews, including the addition of a telehealth definition (the terms telehealth, telemedicine and e-health were used interchangeably).[35]

Sampling

Potential participants included any health professional regularly working with patients within the local region who have or are at risk of developing CVD. Participants were purposively sampled to gain a wide range of opinions from varied discipline backgrounds. Letters of invitation were distributed throughout the region via professional networks (mailed copies and email) and word-of-mouth. Participants made contact with the research team via email or phone if they wished to participate. They were asked to provide written letters of invitation to other suitable health professionals to increase sampling via snowballing. Recruitment ceased when data saturation was reached, defined as no further, differing data being expressed in interviews.[36]

Data collection and analysis

Semi-structured interviews were conducted by one researcher (LK) between March and June 2018, for an average time of 45 minutes. Interviews were conducted in the participant's or the researcher's place of work, at the convenience of participants.

Inductive thematic analysis, guided by the approach of Braun and Clarke, was used to interpret the interview transcripts.[37] Braun and Clarke's six phases include: (1) familiarisation with data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) naming and defining themes; and (6) producing the report. Interviews were audio recorded, deidentified and transcribed verbatim by a professional service. All transcripts were verified by one researcher (LK) who simultaneously listened to the audio recording and read transcription text. Transcripts were then read several times (familiarisation). Initial coding was completed by two researchers (LK and KF) with regular discussions throughout the process to facilitate searching for and review of themes.[37] NVivo software (V11.1.0.411, QSR International Pty Ltd) was used to organise coding of the data. Final themes were named by one author (LK), who also drafted the manuscript. All members of the research team participated in discussions throughout data analysis as required.

Results

Ten health professionals from disciplines including medicine (general practice, $n = 2$), nursing ($n = 3$), allied health ($n = 4$) and hospital administration ($n = 1$) participated. Health professionals worked across a range of settings including the public health system and private sector. Most ($n = 9$) were female, and there were no new or recent graduates.

Rural health professionals emphasised the importance of including rural community members in ongoing dialogue to enhance telehealth services for cardiovascular care. Participants described experiences that were categorised within three key themes: (1) divergent expectations about the purpose of telehealth; (2) unresolved technology issues; and (3) coming together to enhance telehealth, a theme that highlighted the importance of collaboration between various stakeholders.

Divergent expectations about the purpose of telehealth

Rural health professionals perceived divergent expectations about the purpose of telehealth in cardiovascular health service delivery among different stakeholder groups. Health professional #3 expressed 'concerns that [telehealth was] seen as a money-making thing without people having to do what everyone sees as uncomfortable, coming out rurally… I don't want it to be seen as a fix everything'. Other participants described telehealth as the result of 'token funding' to negate the need to deliver face-to-face health care (health professional #4).

Although some participants expressed concern, many acknowledged the potential value of telehealth to improve health service access. As health professional #2 described, 'cardiac rehab on phones and that sort of thing…it's still engaging a more remote community in a service they wouldn't necessarily be able to access'. However, the benefit of increased access was contrasted by perceived differences in quality of care between telehealth and face-to-face services:

> [Telehealth is] *great at giving access where there might be no service or a limited service, but we have to be careful we don't substitute for a lesser service and say, 'Well, you're a rural person you don't warrant the same level of care as other people would get.' It's a really difficult balance to find.* (Health professional #10)

> *I don't think it's* [suitable for] *the replacement for services but there's definitely capacity to use it. You can't underestimate the therapeutic benefit of actually sitting in a room with someone…* [telehealth is] *reducing the load maybe not replacing it.* (Health professional #1)

Unresolved technology issues

Health professionals highlighted the need for appropriate technologies, particularly 'reliable internet [and] reliable phone services' (health professional #4) to facilitate the use of telehealth in rural communities. A scenario described by one participant illustrated how poor internet service can be a barrier to care:

> [The patient lives] *40 minutes out of a rural town… They've got the internet now via satellite, but it's hugely expensive and terribly slow. You couldn't do a Skype over it.* (Health professional #1)

It was important to rural participants that these unresolved technological barriers were acknowledged, particularly by metropolitan stakeholders:

> *I remember a particular* [rural conference]… *This woman was up the front from Sydney…saying 'Well look you just get your iPhone out and you just Skype. What's so hard about that?' We're like, 'Okay there's no phone reception. There's no internet reception and if there is, it's so slow that it won't*

run Skype.' She's like, 'Well can't you just go down to Maccas and use the internet there?' 'Okay, so…the closest Maccas is two hours drive away. And then you're going to sit in the middle of McDonalds…talking about your mental health issues are you?' (Health professional #1)

Others referred to the limitations of communication across distance using technology. One health professional described their experiences in accessing telehealth with a metropolitan hospital for training purposes:

Half the time the line's sketchy, we can't dial in, there's been some sort of mix up with what room's been booked and so they're dialling in to some empty room… it's just clunky. (Health professional #6)

Another participant described a recent experience with telehealth in which multiple people were trying to communicate:

People started to say something…and [someone on] *the other end came over the top…there was one person who made multiple attempts to say something and couldn't because the telehealth's technology actually took away their capacity to communicate.* (Health professional #10)

Coming together to enhance telehealth

Participants highlighted the importance of coming together to collaborate with metropolitan-based medical and health specialists to enhance telehealth. They acknowledged the complexities of professional relationships across distance, such as the initial groundwork and trust required to facilitate these relationships. As explained by health professional #1, 'I don't need five different [specialist] physicians that offer telehealth. I need one that's reliable… That might mean that Dr Bob has to come out to this area, to set up, to meet us all, to gain that trust…'

For some participants, a good working relationship enabled appropriate local care to be provided with the assistance of telehealth:

About every third one he [the metropolitan specialist] *involves me in the* [telehealth] *consultation, actually, with the patient's consent. I think that works particularly well for me in that context, because I understand it, but I also get a written note from him every single time after it, like you would with any normal consultation with a specialist. That for me is closing the loop and ensuring everybody's on the same page.* (Health professional #3)

However, other participants indicated they'd had experiences of distance-based professional collaborations that were insufficient:

Even though [the metropolitan cardiologist] *and I have a good working relationship…*[the metropolitan cardiologist] *felt like he had not provided an adequate service* [via telehealth]. (Health professional #2)

Participants highlighted the importance of telehealth stakeholders, such as university researchers, health services and metropolitan health service providers, understanding situational factors surrounding the use of telehealth in rural areas. Participants felt this was necessary to ensure the development of services appropriate to specific rural contexts, as elaborated by one participant:

I think too that the deliverer of [telehealth] *needs to have an understanding of the context of the individual. If you are a dietitian, for example, who works in* [regional city, population 60 000] *but you understand what* [outlying town, population 2000] *is like, you're not going to tell the person to go and do something that they can't do or that's unreasonable… You've got to understand some of the constraints about access to services and access to facilities* [in rural areas]. (Health professional #3)

Participants felt that some voices, particularly those of rural communities, were not present in ongoing dialogue to enhance telehealth services. Health professional #1 described experiences at 'several forums or conferences…talking about telehealth and its role and the answers always seem to be generated by people from Sydney [Australia]…I think getting people on board, who actually live in the area that we are dealing with is a huge one'. Another participant also highlighted the importance of consumer input:

Whatever we do, we should be asking consumers what it is that they want. Would they rather travel and have a service annually as opposed to being able to have it [via telehealth] *bi-monthly received to their towns?* (Health professional #2)

More specifically, rural health professionals emphasised the importance of engaging local clinicians in conversations to ensure clinically appropriate use of telehealth:

If you can actually understand how clinicians work and then you can tailor to that… researchers need to tailor how they're working towards the clinicians, and you will get success. (Health professional #6)

One of my colleagues was advised that they were doing too much driving…why not use telehealth? She's assessing people's homes for home modifications, you physically have to be there for that. Health services that are looking at ways to do this need to also consult with the clinicians about what's appropriate and what's not. (Health professional #1)

Discussion

This research provides an insight into rural health professional perceptions of telehealth. Participants emphasised the need for meaningful inclusion of rural communities in telehealth dialogue. The findings suggest that when all stakeholders collaborate to enhance telehealth service delivery, those involved may have divergent expectations about the purpose of telehealth, and differing perceptions of technology issues.

Responses by participants in this research suggest collaborative approaches may enhance telehealth services for cardiovascular care in rural communities. Collaboration is defined in a variety of ways throughout healthcare literature; however, for the purposes of this discussion the following definition is used: 'Collaborative practice happens when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care'.[38 (p.7)]

White and Winkworth identify shared value, or an 'agreed narrative' about purpose as a key driver of collaboration.[39] It was important to the rural health professional participants in this study that they were included as stakeholders in the development of telehealth, as expressed through the theme of coming together to enhance telehealth. Including relevant stakeholders in discussions about telehealth may facilitate the development of an 'agreed narrative' for the purpose of telehealth, potentially resolving some of the tensions around divergent expectations about the purpose of telehealth. An 'agreed narrative' may also provide opportunity to identify solutions to unresolved technology issues.

An additional driver of collaboration is authority, defined as a shared commitment among stakeholders at all levels.[39,40] A recent discussion paper released for consultation by the National Rural Health Commissioner suggested improvements in the quality of telehealth could be achieved with local engagement.[41] However, none of the policy options for consideration referred specifically to ongoing communication with rural communities. Currently, authoritative support for collaborative approaches to telehealth development is lacking. Rural telehealth research should be supported by policy that goes beyond acknowledging the importance of community engagement and actively facilitates collaboration with rural stakeholders.

There is limited published literature that explores how collaborative approaches to telehealth service delivery for cardiovascular care might occur. Examples such as the Victorian Stroke Telemedicine Program describe 'dynamic co-design' and 'stakeholder engagement' but not *how* the collaboration was established or the experiences of those involved.[10–12,42] Further, it is not clear from published examples how (or if) an 'agreed narrative' was established. Future research should build on the findings of this and other published literature[42] to outline how collaborative approaches between telehealth researchers, metropolitan health professionals, rural health professionals and rural community members can be established and maintained. Future research should also seek to further explore the important views of rural community members generally, rather than health professionals only.

This research was conducted with ten rural health professionals from a wide variety of health disciplines including medicine, nursing and allied health. A key strength of this study was that its participants regularly engage with community members and intended users of telehealth, and are also intended users themselves. An additional strength lies in use of the Standards for Reporting Qualitative Research,[25] to improve the transparency of reporting.

Limitations include use of a small, purposive sample from one rural region in New South Wales, Australia; although the sample included individuals from a range of health professions, the results may not be representative of wider views or experiences of health professionals within the broader rural community.

Conclusion

The findings of this study contribute to an evolving understanding of how telehealth is experienced in regional Australia. The rural health professionals in this study perceived divergent expectations among different stakeholder groups with respect to the purpose of telehealth services, and described unresolved technology issues associated with use of telehealth services. Future telehealth research should proceed in collaboration with rural communities, supported by policy that actively facilitates the meaningful inclusion of rural stakeholders in telehealth dialogue.

Competing interests

The authors have no competing interests to declare.

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References

1 National Rural Health Alliance. Cardiovascular disease in rural Australia. 2015. Available at: http://ruralhealth.org.au/sites/default/files/publications/cardiovascular-disease-fact-sheet-may-2015.pdf [verified 31 August 2020].

2 Alston L, Allender S, Peterson K, Jacobs J, Nichols M. Rural inequalities in the Australian burden of ischaemic heart disease: a systematic review. *Heart Lung Circ* 2017; 26: 122–33. doi:10.1016/j.hlc.2016.06.1213

3 Pong RW, DesMeules M, Lagacé C. Rural–urban disparities in health: how does Canada fare and how does Canada compare with Australia? *Aust J Rural Health* 2009; 17: 58–64. doi:10.1111/j.1440-1584.2008.01039.x

4 Smith KB, Humphreys JS, Wilson MG. Addressing the health disadvantage of rural populations: how does epidemiological evidence inform rural health policies and research? *Aust J Rural Health* 2008; 16: 56–66. doi:10.1111/j.1440-1584.2008.00953.x

5 Bourke L, Humphreys JS, Wakerman J, Taylor J. From 'problem-describing' to 'problem-solving': challenging the 'deficit' view of remote and rural health. *Aust J Rural Health* 2010; 18: 205–9. doi:10.1111/j.1440-1584.2010.01155.x

6 Bourke L, Humphreys JS, Wakerman J, Taylor J. Understanding rural and remote health: a framework for analysis in Australia. *Health Place* 2012; 18: 496–503. doi:10.1016/j.healthplace.2012.02.009

7 Gessert C, Waring S, Bailey-Davis L, Conway P, Roberts M, VanWormer J. Rural definition of health: a systematic literature review. *BMC Public Health* 2015; 15: 378. doi:10.1186/s12889-015-1658-9

8 Moffatt JJ, Eley DS. The reported benefits of telehealth for rural Australians. *Aust Health Rev* 2010; 34: 276–81. doi:10.1071/AH09794

9 Wade V, Stocks N. The use of telehealth to reduce inequalities in cardiovascular outcomes in Australia and New Zealand: a critical review. *Heart Lung Circ* 2017; 26: 331–7. doi:10.1016/j.hlc.2016.10.013

10 Bagot KL, Cadilhac DA, Kim J, Vu M, Savage M, Bolitho L, Howlett G, Rabl J, Dewey HM, Hand PJ, Denisenko S, Donnan GA, Bladinon CF, on behalf of the Victorian Stroke Telemedicine Programme Consortium. Transitioning from a single-site pilot project to a state-wide regional telehealth service: the experience from the Victorian Stroke Telemedicine programme. *J Telemed Telecare* 2017; 23: 850–5. doi:10.1177/1357633X17734004

11 Bladin CF, Molocijz N, Ermel S, Bagot KL, Kilkenny M, Vu M, Cadilhac DA, on behalf of the VST program investigators. Victorian Stroke Telemedicine Project: implementation of a new model of translational stroke care for Australia. *Intern Med J* 2015; 45: 951–6. doi:10.1111/imj.12822

12 Cadilhac DA, Moloczij N, Denisenko S, Dewey H, Disler P, Winzar B, Mosley I, Donnan GA, Bladin C. Establishment of an effective acute stroke telemedicine program for Australia: protocol for the Victorian Stroke Telemedicine Project. *Int J Stroke* 2014; 9: 252–8. doi:10.1111/ijs.12137
13 Gagnon M-P, Duplantie J, Fortin J-P, Landry R. Implementing telehealth to support medical practice in rural/remote regions: what are the conditions for success? *Implement Sci* 2006; 1: 18. doi:10.1186/1748-5908-1-18
14 Bradford N, Caffery L, Smith A. Telehealth services in rural and remote Australia: a systematic review of models of care and factors influencing success and sustainability. *Rural Remote Health* 2016; 16: 3808.
15 Abimbola S, Li C, Mitchell M, Everett M, Casburn K, Crooks P, Hammond R, Milling H, Ling L, Reilly A, Crawford A, Cane L, Hopp D, Stolp E, Davies S, Martiniuk A. On the same page: co-designing the logic model of a telehealth service for children in rural and remote Australia. *Digital Health* 2019; 5: 1–7. doi:10.1177/2055207619826468
16 Greenhalgh T. How to improve success of technology projects in health and social care. *Public Health Res Pract* 2018; 28: e2831815. doi:10.17061/phrp2831815
17 Wade VA, Eliott JA, Hiller JE. Clinician acceptance is the key factor for sustainable telehealth services. *Qual Health Res* 2014; 24: 682–94. doi:10.1177/1049732314528809
18 Greenhalgh T, Swinglehurst D, Stones R. Rethinking resistance to 'big IT': a sociological study of why and when healthcare staff do not use nationally mandated information and communication technologies. *Health Services and Delivery Research* 2014; 2(39). doi:10.3310/hsdr02390
19 Parker S, Prince A, Thomas L, Song H, Milosevic D, Harris MF, on behalf of the IMPACT Study Group. Electronic, mobile and telehealth tools for vulnerable patients with chronic disease: a systematic review and realist synthesis. *BMJ Open* 2018; 8: e019192. doi:10.1136/bmjopen-2017-019192
20 Sangster J, Furber S, Allman-Farinelli M, Phongsavan P, Redfern J, Haas M, Church J, Mark A, Bauman A. Effectiveness of a pedometer-based telephone coaching program on weight and physical activity for people referred to a cardiac rehabilitation program. *J Cardiopulm Rehabil Prev* 2015; 35: 124–9. doi:10.1097/HCR.0000000000000082
21 Barnason S, Zimmerman L, Schulz P, Pullen C, Schuelke S. Weight management telehealth intervention for overweight and obese rural cardiac rehabilitation participants: a randomised trial. *J Clin Nurs* 2019; 28: 1808–18. doi:10.1111/jocn.14784
22 Widmer RJ, Collins NM, Collins CS, West CP, Lerman LO, Lerman A. Digital health interventions for the prevention of cardiovascular disease: a systematic review and meta-analysis. *Mayo Clin Proc* 2015; 90: 469–80.
23 Merriel SWD, Andrews V, Salisbury C. Telehealth interventions for primary prevention of cardiovascular disease: a systematic review and meta-analysis. *Prev Med* 2014; 64: 88–95. doi:10.1016/j.ypmed.2014.04.001
24 Bradford NK, Caffery LJ, Smith AC. Awareness, experiences and perceptions of telehealth in a rural Queensland community. *BMC Health Serv Res* 2015; 15: 427. doi:10.1186/s12913-015-1094-7
25 O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med* 2014; 89: 1245–51. doi:10.1097/ACM.0000000000000388
26 Australian Health Policy Collaboration. Australia's health tracker by area. 2017. Available at: http://www.atlasesaustralia.com.au/ahpc/atlas/atlas.html?indicator=i27 [verified 31 August 2020].
27 Australian Bureau of Statistics. 2016 Census QuickStats: Tamworth. 2017. Available at: http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/UCL112014?opendocument [verified 31 August 2020].
28 Australian Bureau of Statistics. 2016 Census QuickStats: Wee Waa. 2017. Available at: http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/UCL115149?opendocument [verified 31 August 2020].
29 Australian Bureau of Statistics. 2016 Census QuickStats: Gunnedah. 2017. Available at: http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/UCL114013?opendocument [verified 31 August 2020].
30 Hunter New England Local Health District. Telehealth: information for clinicians. n.d. Available at: http://www.hnehealth.nsw.gov.au/telehealth/Pages/Information-for-clinicians.aspx [verified 31 August 2020].
31 Sabesan S, Kelly J. Implementing telehealth as core business in health services. *Med J Aust* 2015; 202: 231–3. doi:10.5694/mja14.01021
32 Gill M. A national telehealth strategy for Australia – for discussion. 2011. Available at: https://www.who.int/goe/policies/countries/aus__support_tele.pdf [verified 18 August 2020].
33 Saleebey D. The strengths perspective in social work practice: extensions and cautions. *Soc Work* 1996; 41: 296–305.
34 Cooperrider DL, Whitney D. Appreciative inquiry: a positive revolution in change. San Francisco, CA: Berrett-Koehler Publishers Inc.; 2005.
35 Fatehi F, Wootton R. Telemedicine, telehealth or e-health? A bibliometric analysis of the trends in the use of these terms. *J Telemed Telecare* 2012; 18: 460–4. doi:10.1258/jtt.2012.gth108
36 Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, Burroughs H, Jinks C. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quant* 2018; 52: 1893–907. doi:10.1007/s11135-017-0574-8
37 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006; 3: 77–101. doi:10.1191/1478088706qp063oa
38 World Health Organization. Framework for action on interprofessional education and collaborative practice. Geneva: Health Professions Networks, Nursing & Midwifery, Human Resources for Health; 2010. Available at: https://www.who.int/hrh/resources/framework_action/en/ [verified 19 November 2020].
39 White M, Winkworth G. A rubric for building effective collaboration: creating and sustaining multi service partnerships to improve outcomes for clients – concepts paper. 2012. Available at: https://static1.squarespace.com/static/5915469ebe6594c9ebc38030/t/59b2367a03596ecddfda38bf/1505204026738/CollaborationRubricConceptsPaper.pdf [verified 11 September 2020].
40 Way PL, Davidson PM, Winkworth G, White M. The pursuit of purposeful partnerships-making a health matrix successful. *Asia Pac J Health Manag* 2019; 14: i211. doi:10.24083/apjhm.v14i1.211
41 Office of the National Rural Health Commissioner. Discussion paper for consultation: rural allied health quality, access and distribution: options for Commonwealth Government policy reform and investment. 2019. Available at: https://www.acn.edu.au/wp-content/uploads/NRHC-rural-allied-health-options-discussion-paper-2019.pdf [verified 31 August 2020].
42 Bagot KL, Moloczij N, Barclay-Moss K, Vu M, Bladin CF, Cadilhac DA, on behalf of the Victorian Stroke Telemedicine Programme Investigators. Sustainable implementation of innovative, technology-based health care practices: a qualitative case study from stroke telemedicine. *J Telemed Telecare* 2020; 26: 79–91. doi:10.1177/1357633X18792380