

Exploring nurse practitioner practice in Australian rural primary health care settings: A scoping review

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Abstract

Introduction: Australians in rural areas experience limited access to services and poorer health outcomes than residents of metropolitan areas. Nurse practitioners (NPs) were introduced in 2000 to reduce pressure on the health system, address workforce shortages and improve rural populations' access to health care services.

Objective: This scoping review sought to identify, examine and synthesise research evidence of NP practice in Australian rural primary health care services to better understand how NPs are addressing service gaps in rural areas and to identify existing gaps in our knowledge.

Design: Peer-reviewed and grey literature from July 2012 to June 2022 was accessed from seven electronic databases, grey literature and hand searching of reference lists and citations.

Findings: From 154 articles, 19 articles of relevance were identified. Several projects describe the processes required for success, whilst others reported the challenges and barriers encountered. Limited research evidence of rural NP practice exists with a significant gap about how roles operate and their value in primary health care.

Discussion: Uptake and envisaged benefits of rural primary health care NP roles have yet to be realised, with barriers to implementing and sustaining NP roles persisting. Low-level awareness with ambiguity at health service and community level adversely impact on systematic implementation of NP roles.

Conclusions: Robust evaluations demonstrating the value of NP skills and practice are needed in combination with bipartisan support from all levels of health care and government providing adequate funding to enable effective implementation of NP roles in poorly resourced rural areas.

KEYWORDS

community based service delivery, nurse practitioners, primary health care, rural and remote nursing issues, rural workforce development

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1 | INTRODUCTION

On a range of health indicators, people living in rural and remote areas of Australia (where rural and remote refers to all areas outside major Australian cities¹) have poorer health outcomes than those living in metropolitan areas.¹ Compared with people living in metropolitan areas, those residing in rural and remote regions of Australia have higher levels of chronic disease, preventable illness and injury; higher mortality rates, rates of premature deaths and potentially avoidable deaths; and experience higher rates of disease burden.¹ First Nations Australians (reflects the diversity of the first peoples of Australia, both Aboriginal and Torres Strait Islander)² comprise a high proportion of the total population residing in inner and outer regional areas (44%) and remote and very remote areas combined (17%), with the proportion increasing with remoteness to 32% of the total population being First Nations Australians.³ Therefore, health inequities between metropolitan and rurally based residents also reflects health inequities between First Nations and non-First Nations Australians.³

A range of factors contribute to poorer health outcomes in rural and remote populations including the social determinants of health, such as reduced availability of affordable and nutritious foods, employment and educational opportunities, and a higher prevalence of health risk factors such as smoking and alcohol consumption.^{1,4} However, a major contributor to health inequities is reduced access to health services due to limited health infrastructure, shortages of registered health professionals, less availability of local specialist services and geographic imbalance in the health workforce.¹ For example, in the primary health sector, there is a maldistribution of the workforce, particularly medical practitioners, in rural and remote locations.^{5,6}

Primary care is generally understood as the first point of contact and level of care within the health system where individuals receive treatment from a health professional as a nonadmitted patient.⁷ Primary care is most often described as a subset of primary health care, a broader term that encompasses the core principles outlined by the World Health Organisation (WHO) that includes a whole of society approach to health policy and service provision with the aims of delivering health services close to communities and supporting peoples' health needs along the health care continuum.⁷ The Australian Institute of Health and Welfare (AIHW) defines the primary care sector as covering a range of public, private and nongovernment health services and health service providers that can be delivered in a diverse range of settings, from aged and disability care to general practice and community-based organisations.⁷

What is already known on this subject

- A major contributor to poor health outcomes for those in rural Australia is reduced access to health services with maldistribution of health professionals, particularly medical practitioners.
- Nurse practitioners are qualified to provide patient care in advanced and extended clinical roles.
- In Australia, the full integration of the NP role as a core component of health care delivery has been slow, with the role continuing to be underutilised.

What this study adds

- Persistent barriers to the implementation of sustainable nurse practitioner positions in primary health care continue to impede integration of the role.
- Successful projects or NP led models of care addressed an identified unmet population health care need or service gap; had secured community support and sometimes funding as well; and had engaged key stakeholders in the planning and implementation of the NP service.
- Implementation research undertaken in collaboration with academic researchers that can demonstrate both the practicalities of implementing and sustaining NP roles in rural settings and the value of these roles is urgently needed.

The nurse practitioner (NP) role was introduced in Australia in the context of increasing demand for health care services, rising costs, limited resources, inequitable access to services and gaps in workforce and infrastructure.^{8,9} The role was described as both a potential solution to the nursing retention crisis by addressing the lack of advanced roles in clinical nursing and enabling recognition of the extended roles that nurses were anecdotally already filling in rural and remote areas.^{9,10} A NP is a registered nurse (RN), educated at master's level, and endorsed by the Nursing and Midwifery Board of Australia to provide patient care in an advanced and extended clinical role.^{11,12} Nurse practitioners can practice independently and work collaboratively in multiprofessional environments.^{11,12} The NP role was promoted as a health reform strategy to reduce pressure on the health care system, address workforce shortages and improve rural and remote populations' access to health care services.^{8,13,14}

The first Australian NPs were introduced in NSW in 2000.^{8,9} Over 20 years later, whilst the numbers of NPs are increasing (1549 employed as NPs in 2021—National Health Workforce Dataset¹⁵), the full integration of the NP role as a core component of health care delivery has been slow. Nurse partitioners continue to be an underutilised resource.^{16–18} From the outset, barriers to NP implementation have been identified at several levels of the health system, including at the day-to-day practice level, at the organisation and institutional level and at the level of national policy, funding and regulatory systems.^{9,13,18} In 2021, the Australian Government acknowledged the lack of a national strategic plan to set a clear direction for the optimal use of the NP workforce, thereby failing to realise their value to the Australian community fully.¹⁹

Contrary to original plans for the NP role, the evolution of NPs in the Australian context has seen the role develop much more strongly around specialised areas of practice, with the majority of NPs working in acute sectors of hospitals located in urban areas rather than in the underserved, rural and remote primary health care sector.^{14,16,17,20,21} National health workforce data indicate that in 2019, approximately 71% of the employed NP workforce worked in metropolitan areas and 42% in hospital settings.²²

Under the ‘Stronger Rural Health Strategy’ and the ‘Primary Health Care 10 Year Plan’, the Australian Government’s focus is to invest in the nursing and rural doctor workforce to address rural workforce shortages.^{23–25} To date, little attention has been given to how the role of the NP operates in rural primary health care settings and what opportunities are available for NPs to practice in this context. Furthermore, no systematic reviews have examined how NPs address health service gaps in rural areas and improve patient outcomes. Identifying this evidence is vital to demonstrate the value of NPs to the health care system and ensuring the ongoing viability of the NP model of care. Thus, the objective of this scoping review was to identify, examine and synthesise research

evidence of NP practice in Australian rural primary health care services to better understand how NPs are addressing service gaps in rural areas and to identify existing gaps in our knowledge.

The following broad questions guided the scoping review:

1. How is the role of the NP described in literature specific to rural health care settings?
2. Is there research evidence demonstrating NP roles and their value in rural primary health care settings?
3. What factors support or hinder the implementation and sustainability of NP roles in rural primary health care?

2 | METHODS

2.1 | Protocol and registration

The review was performed in accordance with the Preferred Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews (PRISMA-ScR) guidelines.²⁶ The scoping review protocol was not registered.

2.2 | Eligibility criteria

The following table (Table 1) presents the eligibility criteria for inclusion in the scoping review.

2.3 | Information sources

From July 2021 to March 2022, seven databases were searched (CINAHL Plus with full text; EMCARE; Medline; Scopus; Informit; Trove; ProQuest Dissertations & Theses Global). Using the same search criteria, we conducted

TABLE 1 Inclusion and exclusion criteria.

	Inclusion criteria	Exclusion criteria
Language	English.	
Population	Nurse practitioners.	
Year of publication	2012–2022.	
Geographical location	Australia.	
Clinical context	Primary health care.	
Regional location	Rural, remote and regional areas of Australia.	Metropolitan, urban areas of Australia.
Study design	Randomised controlled trials, observational, descriptive, qualitative research and grey literature.	N/A.

an advanced google search and searched Google scholar, Mednar, JBI Evidence synthesis and Base for grey literature. A hand search of reference lists and citations of identified sources was also conducted to identify additional papers that may have been missed in the database searches.

2.4 | Search strategy

Search terms used to identify relevant sources with a NP focus included rural, and primary health care as keywords. The search string used was as follows: [nurse practitioner] AND [rural] AND [role OR structure OR job] AND [primary health care] (See Appendix S1 for further information).

2.5 | Selection process

All identified studies and articles were considered for inclusion. These were first uploaded into Covidence systematic review software,²⁷ and duplicates were removed electronically. After an initial pilot of the eligibility criteria by all authors, two authors (Authors 3 and 4) independently screened all titles and abstracts. Full-text publications were then reviewed initially by Author 1 and then independently by Authors 2, 3 and 4 against the eligibility criteria and any conflicts resolved by Authors 2, 3 and 4. Those deemed suitable were checked by Authors 1 and 2 prior to final inclusion.

2.6 | Data collection process

Data extraction was completed by Authors 1, 3 and 4 using a standardised author developed data extraction template (Covidence) that included author, date of publication, employment setting, geographical location and study design. To answer the review questions, additional fields were included to extract data relating to how the NP role in rural health care settings is described, research evidence evaluating NP roles in primary health care settings in rural Australia, evidence demonstrating the value of these roles, structures that support NPs in rural areas, and barriers and facilitators to implementing the NP role, gaps in the literature.

3 | SYNTHESIS OF RESULTS

Informed by Yin's 5-Phases of analysis,²⁸ data extracted from each source was compiled under the headings

specific to the broad questions guiding the review. This provided a framework for independently extracting findings with cross-checking undertaken by two authors (Authors 1 and 2). This process included paying close attention to rechecking the source documents for accuracy and reduce potential bias. The resulting synthesis of the results was reviewed by all authors.

4 | FINDINGS

4.1 | Source selection

One hundred and one full-text sources were assessed against the defined eligibility criteria and 19 articles meeting the inclusion criteria were included in the final review. Figure 1 shows the PRISMA-ScR²⁶ flowchart summarising the search and source selection process.

4.2 | Source characteristics

Table 2 describes the characteristics of each of the included sources.

4.3 | Synthesised findings

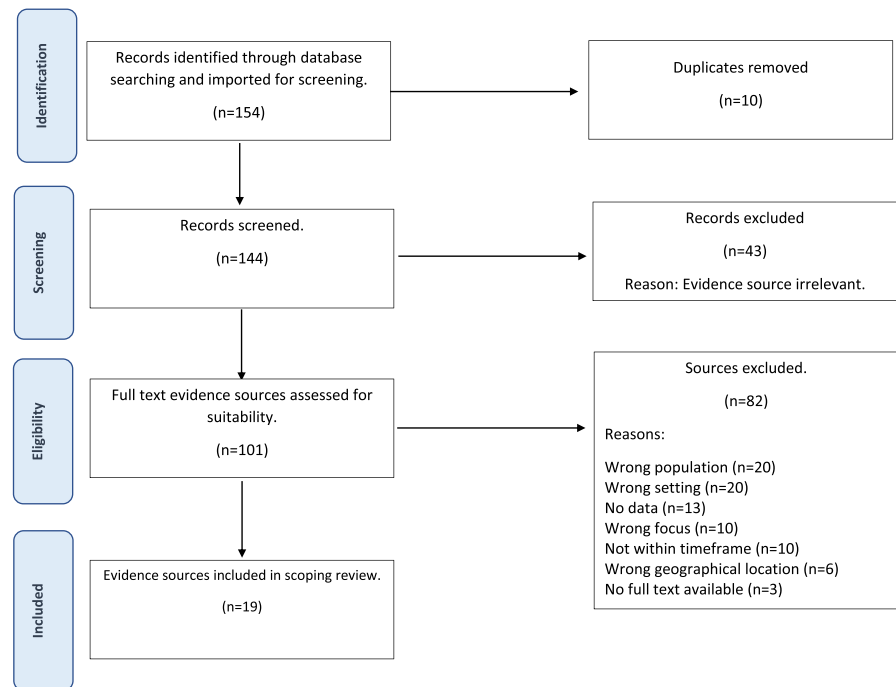
4.3.1 | Conceptualisation of the NP role in rural Australia

Most sources described NPs in terms of the educational and practice requirements necessary for endorsement by the Nursing and Midwifery Board of Australia.^{16,18,29-34} They conceptualised NPs' role in terms of their scope of practice.^{8,16,29,30,33-36} Other sources noted the potential of NPs to improve health care access, health outcomes and consumer satisfaction within rural health services³⁰ address service gaps^{14,32}; and adapt to changing community needs.¹⁴

Several sources reported NPs' descriptions of their role in primary health care that included providing care from a social and holistic perspective; with a focus on wellness, health promotion, prevention of ill health, management of chronic disease and encouraging community participation in health services.^{37,38} Nurses in these articles also reportedly spoke about their goals of achieving equality in access to health services, and making a difference in the lives of individuals and the community.^{37,38}

A lack of clarity about, and understanding of, the NP role by health professionals and the general public was also highlighted in several of the articles.^{18,31,35} Finally, several sources included in this review assumed readers'

FIGURE 1 PRISMA-ScR diagram of the review procedure.



knowledge and understanding of the role of the NP and did not include a description.^{37–41}

4.3.2 | Services and contexts where NPs practicing in rural Australia's primary health care settings

The review revealed a great number of commentary, narratives and personal accounts by NPs of their experiences in rural health settings, particularly in private and general practice settings, indicating significant support for their roles within communities. Whilst there is an absence of research outlining how the role of the NP functions in rural primary health care, articles described the NP role as incorporated into, or forming part of multidisciplinary teams^{8,39}; nongovernment organisations^{8,29}; local health districts (LHD) or health services.^{30,36}

The review revealed that NPs were working in community mental health and drug and alcohol services^{8,31,34}; at remote Aboriginal Medical Services³⁷ and Aboriginal Community Controlled Health Services³⁹; primary care in rural and remote locations^{32,37,38}; providing nurse-led assessment and treatment centres and community-based clinics^{20,21,30,36,41,42}; providing specialist aged care³⁵ and psychogeriatric services⁸; NP locum services¹⁴; and palliative care.³³ Some NPs worked across multiple health care settings, for example across hospital, residential aged care, general practice and community health.^{8,41} There were also examples of where NPs have responded to the identified health care needs of vulnerable or underserved populations, or health service gaps by initiating NP-led clinics,

including small communities where there is no longer a medical practitioner and remote holiday venues with no medical services.^{8,29,34,39,42}

4.3.3 | Structures that support implementation of NP roles in rural primary health care

Articles included identified several structures that support rural NPs to undertake their role in primary health care. These included the acceptance of the role, advocacy and support of the role by the local community, key stakeholders and medical practitioners.^{8,30,34} Other articles cited support from management, staff and colleagues^{18,31,40,41}; access to specialist health services^{35,38}; collaborative arrangements with local hospitals, retrieval services, GPs and other health professionals^{29,30,37}; financial/sustainable models of funding support^{29,36,40,41}; physical resources and information infrastructure^{37,38}; and mentorship.³⁵ One article reported that some of the services provided by NPs to remote communities were supported by links to health outreach programs administered by larger organisations and consultations provided by specialists located in regional cities.³⁹

4.3.4 | Barriers to implementing and sustaining NP roles in rural primary health care

The challenges or barriers to implementing NP roles were recurring themes in the literature. These impact

TABLE 2 Summary of included sources.

Author (s)/ year	Location	Aim	Research design	Data collection	Participants	Main findings
1 Barracrough 2014	Rural NSW	To describe the roles of two NPs in PHC settings: 1. Delivery of an integrated mental health service 2. Leadership in aged care.	Case study methodology, using multiple data sources.	Review of service documentation Observation Semi-structured interviews	31 key stakeholders, in the first case study, quantitative data were also analysed. Interview data were analysed thematically.	In depth description of why and how these roles were established, what the NPs do and their impact within the context of small rural towns. They illustrate how NPs established intersectoral partnerships, new service delivery models and advocacy regarding the way health care was provided. The case studies provide valuable information on incorporating NPs into rural PHC.
2 Barracrough, Longman & Barclay 2016	Rural New South Wales	To describe a NP led PHC rural mental health service and evidence of service integration with other services and the community.	Pragmatic exploratory study using case study methodology	Aggregated client data. Individual and group semistructured interviews and a 'stakeholder meeting'.	21 service providers and stakeholders.	Background data sourced to provide context. Thematic analysis of the qualitative data highlights NP potential to lead integrated services in rural primary healthcare settings. Community support, strong engagement and formal partnership agreement in combination with design to meet local community needs key to accessible service.
3 Clifford et al. 2020	NSW Local Health Districts 1 metro 1 rural	To identify deeper knowledge of NP practice and value to healthcare.	Preliminary study to test concurrent triangulation design	Online questionnaire comprising quantitative and qualitative questions.	15 Aged care (5 rural) 11 Chronic and complex care (4 rural) 6 Mental health (3 rural). 8 Generalist/ Rural and Remote (3 rural). 2 Palliative care (1 rural) 4 Diabetes (3 rural) 1 Women's health (1 rural)	NPs perceive role addresses gaps in healthcare access and service delivery. Most reported maintaining practice achievable, difficult to access NP specific education. Mixed opinions of support from employers. Supported at hospital level, less at AHS level; education, courses, and conferences paid by NPs. Identified 7 future areas of need over next 5 years. Aged Care, Chronic and Complex care, Mental Health, Generalist/Rural and Remote, Palliative Care, Diabetes, Women's Health
4 Ervin et al. 2019	Rural Victoria	To identify requirements for implementation of an Older Person's (OP) NP role in rural residential aged care	Qualitative Informed by May's implementation theory	Interviews and focus groups	58 medical and direct care staff who previously or currently work in an aged care setting where the OPNP delivered services.	OP NP role perceived to enable timely care and improved outcomes. Widespread implementation impeded by limited understanding of NP role, legislative requirements for a collaborative arrangement and limited access to MBS.
5 Hungerford et al. 2016	Australia	To examine a NP community PHC model of practice for residents in a remote tourist destination with no GP.	Case study design (component of large-scale national evaluation study)	Description of Observational notes, in-depth interviews	NPs, managers, medical practitioners and allied health workers	Enabled by sponsoring not-for-profit organisation, collaborative agreements at a systems level between the NP, other health professionals, and service providers. Challenges included limited capacity to back-fill for leave and professional development and obtaining recurrent funding. Lack of awareness of NP role.

TABLE 2 (Continued)

Author (s)/ year	Location	Aim	Research design	Data collection	Participants	Main findings
6 Kelly et al. 2017	Socio-disadvantaged rural Victorian region	Pilot project to investigate how NPs manage medical service delivery gaps	A cross-sectional study	Data from patient consultations over 6 months in 2013 Patient satisfaction survey	629 patients of a rural clinic servicing a rural Victorian population.	This NP Community Clinic demonstrated evidence that NPs can provide accessible medical management where service gaps exist. Funding reimbursement discrepancy between NP services and GP provided care.
7 Ling et al. 2013	Rural NSW	To examine barriers senior drug and alcohol rural nurses identify to seeking endorsement to practice as an NP	Mixed methods	Pilot survey comprising quantitative and open-ended questions	48 surveys distributed 17 (35%) completed surveys included in the results	There is agreement that NP positions in AOD settings would improve patient access to treatment and care. Most respondents were unfamiliar with pathways to endorsement. Barriers included lack of internal support from management and colleagues, no perceived financial gain.
8 Lowe et al. 2021	Victoria	To determine how NP roles are enacted in clinical practice	Quantitative survey design	On-line self-report survey	136 NP respondents (40% response rate)	Details NP work patterns and scopes of practice in multiple clinical settings and geographic locations. Evidence of NP roles successfully managing patients in multiple settings with the necessary clinical skills to assess, diagnose and manage broad patient profiles. Recommended: Legislative changes to enable NPs to work to full scope of practice and integration of NPs into the health workforce
9 McCullough et al. 2020	Remote or very remote areas (NT, Qld, WA and Indian Ocean Territories)	To explain interactions involved in delivery of PHC in remote communities as reported by nurses	Constructivist Grounded Theory study	23 telephone interviews and an expert reference group.	13 NPs, 11 RNs and nursing academics who had worked or were working in remote communities Length of service from 3 months to >15 years in remote areas.	Core issue was an inability to provide PHC. The process of doing the best you can with what you have, emerged as the way nurses dealt with the inability to provide PHC. The outcome of was making compromises to provide Primary Health Care.
10 McCullough et al. 2021	Remote or very remote areas (NT, Qld, WA and Indian Ocean Territories)	To explore the meaning and application of PHC principles as reported by nurses	Constructivist Grounded Theory study	23 telephone interviews and an expert reference group.	13 NPs, 11 RNs and nursing academics who had worked or were working in remote communities. Length of service from 3 months to >20 years in remote areas.	Expectations that nurses in remote settings can provide comprehensive PHC unrealistic due to limited resources and time resulting in high levels of stress and high turnover. To apply PHC principles requires adequate resources and support.

(Continues)

TABLE 2 (Continued)

Author (s)/ year	Location	Aim	Research design	Data collection	Participants	Main findings
11 Mitchell et al. 2016	West Moreton Region, QLD	To pilot a NP coordinated care planning project, for rurally located people with non-malignant disease who were nearing the end of their lives	Mixed methods evaluation	A range of patient and carer outcome measures, and QoL measures In-depth interview Telephone interview	Demographics for 62 patients and range of measures completed Interviews with NP and RN and key stakeholders	Changes required to protocol and focus on project, responding to referrals for patients in terminal stages of cancer. NP-coordinated, GP supported care resulted in prompt commencement of treatment, effective follow up, and a robust care plan where all professionals had named responsibilities. NP coordinated palliative care appears to enable more integrated care and may be effective in reducing hospitalisations. NB: Funding required to cover travel for home visits and to incorporate telehealth
12 Smith et al. 2019	Australia	To explore experiences and perceptions of NPs and colleagues working in non-metro settings, about barriers and enablers of extended scope of practice roles.	Qualitative design: elements of exploration and explanation. Design and analysis informed a multilevel, socio-institutional perspective	Semi-structured, in-depth interviews	Health professionals working in an extended scope of practice role in a rural or remote setting <ul style="list-style-type: none"> • 13 NPs, • 2 NP candidates • 5 colleagues 	Macro-level barriers and enablers: legal, regulatory, economic, and job availability. Meso-level: local health service and community factors, such as attitudes and support from managers and patients. Micro-level (day-today practice). Role clarity, with embedded professional hierarchies and traditional role expectations influencing interactions with individual colleagues. Needed to expend effort promoting and advocating for NP role due to limited understanding of NP scope of practice.
13 Wilson et al. 2021	Rural health service Victoria	To explore views of staff and stakeholders regarding implementation of after-hours NP model of health care delivery in Urgent Care Centre	Qualitative study	Semi-structured individual and group interviews	Professional stakeholders including hospital managers and staff who worked directly or indirectly with the after-hours NPs and local GPs, practice nurses, and paramedics	Thematic analysis identified 4 themes: transitioning to change with NP role in Urgent Care Centre; acceptance of the after-hours NP role; workforce sustainability; and rural context. NP-led model is valued in the study context, potential to reduce the burden of excessive after hour on-call duties for GPs and improve access for community to high-quality healthcare.
14 Woods & Murfet 2015	Tasmania	To demonstrate how NP practice can result in "products" that can be converted into value to the health care system.	Participatory critical inquiry utilising Kim's (1999) "Critical Reflective Inquiry" (CRI) method	Contextual reflexive diaries Multiple practice and patient episodes	Two NPs specialising in diabetes and chronic disease management.	The utility of CRI demonstrates how NP practice is integral to a continuous cycle of addressing health care services gaps, and the conversion of "products" into "value" and positions the NP to assimilate the role of the practitioner-researcher. NP's practice was examined under five themes; Specialised Care Access, Complications and Diagnostics Interventions, Pharmaceutical Treatment, Vulnerable Populations, and Leadership.

TABLE 2 (Continued)

Author (s)/ year	Location	Aim	Research design	Data collection	Participants	Main findings
15	Barrett et al. 2015 Kempsey, NSW	To report on a NP led implementation of a systematic approach to identification, prevention, and treatment/management of chronic kidney disease (CKD).	Implementation project to address inadequate identification of CKD in an ACCCHS	2 stage process: (i) Audit of high-risk pts for CKD, audit of other risk factors. Follow up and further screening (ii) Targeted education, support for clinic staff and community	Engagement with ACCCHS GPs and other clinicians Engagement with community members	The CKD project improved access to essential health care for vulnerable and at-risk populations, with 187 patients having been identified with kidney disease and staged for its severity. This equates to approximately 4% of the patients, which is twice the national expected prevalence, suggesting that CKD is commonly underdiagnosed.
Author	Location	Conference	Focus	Model of care	Key message	
Conference presentations						
16	James & Morcom 2015 Rural NW Victoria	13 National Rural Health Conference	To highlight a rural and remote NP model of care in a small rural public health facility	NP model of generalist care rotating roster with 2 local GPs. Has admitting rights to acute ward	Evolution of NP model of care from filling a gap in treating unplanned urgent care presentations to a trans-boundary role providing an experienced NP supporting mentoring RNs to respond to all patient health needs service wide providing knowledgeable clinical leadership. A full-time NP in a small rural community, facilitated health care across the lifespan with access to timely, safe and effective health care. The role now extends to providing collaborative care for acute inpatients, aged care facility residents and community members, palliative care enabling end of life care that meets the needs of patient and family.	
17	Cameron & Cruse 2019 Rural NSW (Pambula)	CRANAPLUS Conference	To describe the first 6 months of data post successful addition of NPs roles	NPs added to nurse-led Assessment and Treatment Centre at a small, downgraded hospital.	Previous RN-led service limited by the Scope of Practice for RNs, inclusion of NPs increased patient numbers, improved community confidence, filled a service gap between overloaded local GP services and the regional hospital ED, and significantly reduced the load on the regional hospital by reducing transfers and presentations. Demonstrated safe, cost effective, community-based care, with potential for development for the RNs to further increase their scope and work satisfaction and provides a potential training pathway for aspiring NPs. The success of this service has positive implications for many smaller rural and remote services needing innovative solutions for provision of safe and cost-effective care.	

(Continues)

TABLE 2 (Continued)

Author	Location	Conference	Focus	Model of care	Key message
18 Fabry 2019	Rural Victoria	ACNP National Conference	NP's account of her experience supporting 2 small rural Victorian towns as well as working at Medical Centre.	Community based PHC model	Positive feedback from NP's patients as part of QI – met patient needs; patients able to get an appointment with NP when GP appointment not available; recommendations made by other health professionals. Daily schedule; 20–25 consultations, usually 2–3 long consultations: av. standard consultation 10–20 minutes, including documentation. Identified limited access to remuneration via MBS, limited range of diagnostics, no access to team care and unable to complete MH Care Plans.
Discussion paper					
19 Jennings et al. 2021	Victoria		Purpose: To outline an alternative model of health care service delivery to rural and remote communities that is staffed by nurse practitioners.		Draws attention to previous publications evaluating a NP locum service model in a rural community. Highlights the deficit in evaluation of NP models of care, 'no studies to date that have focused on the economic or fiscal value of NP locums in delivering rural or remote after-hours or on-call healthcare services'. Interim findings of a Victorian NP-led locum after-hours on-call model point to the model meeting all stakeholder expectations.

the number of NPs entering the profession and, consequently the uptake in rural primary health care. Financial barriers, including lack of recurrent funding, inadequate reimbursement under the Medicare Benefits Schedule (MBS) subsidy schemes and current funding models^{8,18,20,33,35,36,41}; and prescribing restrictions under the Pharmaceutical Benefits Scheme (PBS).¹⁸ In addition, factors related to context such as risk of burnout due to lack of holiday relief and study leave^{8,31,40}; professional isolation^{8,18}; and lack of mentorship⁸ were identified as further barriers to continuing in the NP role in primary health care. Additional barriers included a lack of integration within the wider health system³⁴; a lack of support from management staff and colleagues^{18,40}; lack of resources including the availability of human and physical resources, information technology infrastructure^{37,38}; and lack of time to give adequate primary care and nonclinical workload impacting clinical care.³⁸ The lack of awareness, clarity and understanding of the NP role by consumers and other health professionals was also identified as a barrier to gaining acceptance and support for the NP role.^{18,29,31}

4.3.5 | Discussion

The objective of this review was to identify available research evidence regarding NPs practising in Australian rural primary health care. The findings of this review have demonstrated limited research evidence in the literature about NPs practising in rural primary health care, how NPs are addressing service gaps in rural areas and a significant gap in knowledge of the value that NP roles contribute to healthcare outcomes in primary health care settings.

The lack of awareness, understanding and ambiguity surrounding the NP role and scope of practice was frequently highlighted in the literature as impacting managers' and health professionals' acceptance and support for NPs, as well as interprofessional collaboration that limits the further development and implementation of NP roles.^{9,18,20,40} In one article, NPs reported that the lack of understanding of the NP scope of practice meant that they needed to expend effort promoting and advocating for their roles.¹⁸ It is important to note that historically, (that is from the introduction of NPs), there have been reports in the literature of the public's and health professionals' poor understanding of the NP role and uncertainty about role boundaries and scope of practice, as well as opposition by some doctors and medical organisations.^{9,13,18}

A lack of community awareness was also identified in the analysis of submissions and survey responses to the Nurse Practitioner 10 Year Plan¹⁹ with respondents indicating that the role of NPs was either not known at all, or

slightly known in Australia.⁴³ The ‘Transforming Health Care Campaign’ being led by the Australian College of Nurse Practitioners, with support from the Federal Government Department of Health, aims to address this issue and raise the profile of NPs within and across health care organisations.⁴⁴ Whilst there is limited evidence of support for NPs by some individual doctors, recent policy statements from medical organisations such as the Royal Australian College of General Practitioners (RACGP) in relation to the NP 10 Year Plan¹⁹ indicate that medical professionals’ resistance to the further development of the NP role persists, with the RACGP raising concerns about the Plan and contending that the proposal will result in “fragmented care”.^{45,46}

Whilst the initial vision for NPs was to improve rural and remote populations’ access to health care services, the findings of this review highlight that innovative practice opportunities driven by passionate NPs responding to identified unmet need in their communities are significant enabling factors.^{8,20,29,34,42} In addition, a commitment to providing equitable care, rather than ‘one-size fits-all’ service led initiatives initiated by health services, are key components of service delivery, as are organisational structures that have sound succession planning and opportunities for ongoing professional development.^{29,33,34,39,41,42} A similar finding of inconsistent development and implementation of the NP workforce has been reported in New Zealand, with ad hoc NP-led services being initiated by individual RNs and innovative service leaders, rather than through strategic workforce planning that recognises and responds to community-level needs.^{47,48}

This review identified a number of specialised areas of practice and primary health care settings as opportunities to develop and implement a NP-led model of care^{29,33–35,39} and reports where NPs worked in a primary health care role in multiple different locations⁴¹ or in one location moving across community health, into aged care facilities, palliative care services and into inpatient services.³⁰ However, there is a need to broaden the focus of attention to NPs working in rural primary health care more widely, particularly in private primary health care settings such as general practice. Although several papers described why and how NP roles or NP led primary health services were developed or reported the results of evaluations conducted during the early postimplementation phase, there is an absence of research studies that evaluate the impact of NP interventions several years after their inception. Longer term evaluations are integral in investigating the health outcomes experienced by individuals accessing NP services, the impact of NPs in improving health service delivery and equitable access to health services, and to provide evidence of the economic viability and long-term sustainability of NP services.

The challenge for all health care delivery is to undertake research to demonstrate ‘what works’ and ‘what needs to be improved’; as noted by Woods and Murfet,¹⁶ there is an ‘onus and opportunity for NPs to demonstrate how their practice adds value to the health care system’. Although several small reports in this review evaluated the impact of NP models of care on, for example patient outcomes, health care utilisation and staff and/or patient satisfaction,^{14,33,36,39} there is a recognised need by NPs, researchers and government (federal and local) for more robust evaluation research demonstrating the contribution and value of the NP role in the primary health care context.^{14,40,45,46} Insecure and short-term funding for NPs also impedes the ability to evaluate the longer term impacts of NP models of care, on improved patient outcomes, access to primary health care and financial sustainability.⁴⁹ It is important to note that in a role that is primarily ‘clinical’ with limited if any support for undertaking the research required this is a particularly difficult undertaking. For NPs to undertake this research, the support of academic researchers and health economists is required.¹⁶

The barriers and enablers to implementing NP roles were a recurring theme in the literature, with economic, legislative, regulatory, resourcing, job availability, support from management and colleagues and organisations’ inability to back-fill the NP for leave and professional development, being consistently cited.^{18,29,31,33,35,40,41} There are additional challenges in remote or very remote areas with NPs in several studies reporting that their ability to provide primary health care was compromised by poor resourcing, limited availability of specialist health services and lack of time.^{37,38}

Whilst noting that there have been some changes made to the National Medicare Benefit Schedule (MBS) with limited NP-specific MBS item numbers added, the current reimbursement/funding model makes it very difficult for NP positions to be financially viable in, for example, private practice or to be employed in primary care such as in general practice.⁵⁰ This particularly impacts negatively on marginalised, vulnerable and rural and remote communities who are unable to afford out of pocket costs.⁵⁰ There is also the tension between general practice as a business and providing care where both NPs and GPs are chronically underfunded.

With respect to factors that enable the implementation of NP roles in rural primary health care, this review found that examples of successful projects or NP-led models of care were those that addressed an identified unmet population health care need or service gap; had secured community support and sometimes funding as well; and had engaged key stakeholders in the planning and implementation of the NP service.^{8,29,34,42} Successful prospective practice models also demonstrated collaboration between health professionals and integration with other service providers.^{29,30,33,36,39,42}

4.3.6 | Recommendations for further research

This review highlighted a need for robust research demonstrating the value of the NP role in rural primary health care settings, in improving health outcomes, reducing inequities to health care access and enhancing multidisciplinary practice. Well-designed evaluation studies of rural and remote NP practice incorporating an analysis of the impact of the various complex systems involved in delivering healthcare would be beneficial in developing an understanding of how to improve access to care in these contexts.

Continual evaluation of the NP role and scope of practice will allow prospective planning and development in regional and rural areas, thereby enabling implementation of NP roles that can meet the needs of underserved communities. This will require bipartisan legislative support (federal, state and territory) and the Nursing and Midwifery Board of Australia (NMBA) support. Any potential research that reviews primary health care in regional and rural areas will need to track the potential of the NP role, including but not limited to NP job availability being recorded. To support the needed research, NPs in primary health care need assurance in the form of continuity of NP roles within services in combination with strong links to tertiary level academic institutions to continue professional development and maintain a research platform.

4.3.7 | Limitations of this review

The limitations of this review are first, the restricting to Australian sources only. Whilst the inclusion of international publications may have provided additional insights into NPs practising in rural primary health care, the decision was made to exclude based on the difficulties in making cross country comparisons due to differences in health systems. Second, the publication time frame was limited to 2012–2022 because whilst the themes in many of the earlier papers remained consistent over time, there had been changes, albeit limited and insufficient, to MBS rebates and prescribing regulations affecting NPs under the PBS.

The potential for interpretation bias is acknowledged given that each of the authors have previously worked as nurses in clinical practice, with Author 1 endorsed to practice as a NP. However, Author 1 has not practiced in that role for more than 20 years. Careful adherence to the review process was maintained to mitigate this potential limitation.

Whilst the current review identified 19 papers only, which could suggest caution is required when interpreting the results, it nonetheless synthesises the available sources and highlights the gap in the literature and potential areas for future research.

5 | CONCLUSION

Ensuring equitable access to health care for Australians living in rural and remote areas continues to be an ongoing issue, whilst implementation of NP roles in these settings remains limited. This scoping review found very little research evidence focused on NPs practising in Australian rural primary health care, particularly in private general practice. The sources accessed described positions established by individual NPs seeking to address unmet local community needs. Evidence of NP role development as a systematic approach by LHDs, primary health networks or private practice to address health workforce or population health needs was largely absent. Rigorous research is required to demonstrate the value of NPs and secure adequate funding to support viable and sustainable NP positions. Without bipartisan support from primary health networks, medical organisations, and state and federal governments, NPs will continue to be hindered in their capacity to fully optimise access to care for the patients they serve in rural and remote settings.

AUTHOR CONTRIBUTIONS

Rachel Rossiter: Project administration; writing – review and editing; formal analysis; funding acquisition; validation; investigation; methodology. **Rosemary Phillips:** Writing – original draft; formal analysis; validation; investigation. **Denise Blanchard:** Writing – review and editing; investigation; validation. **Kim van Wissen:** Investigation; validation; writing – review and editing. **Tracy Robinson:** Conceptualization; writing – review and editing; funding acquisition; methodology.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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