

BMJ Open Workforce safety in the remote health sector of Australia: a scoping review

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ABSTRACT

Objectives To scope the evidence surrounding workplace health and safety risks for the remote health workforce in Australia and to collate the recommendations to address those risks.

Design A five-stage scoping review framework refined by Cooper *et al* was used for this review. Informit Health Collection, Ovid Emcare, Medline, Web of Science Core Collection, ProQuest and the grey literature were searched in October 2020 using a combination of key words derived from the eligibility criteria. No date restriction was placed on the search. Title and abstract screening, full-text review and data extraction were performed by three reviewers. Data were analysed by the lead author using qualitative thematic analysis.

Eligibility criteria Articles were eligible for inclusion if they were published research or industry reports, focused on safety for the remote health workforce in Australia, identified hazards/safety risks or recommendations to reduce risk, and were written in English.

Results The search yielded 312 articles, of which 18 met the inclusion criteria. A wide range of hazards/safety risks and recommendations were identified within the literature, which related to safety culture, isolation, safe environment, and education and training. Some recommendations, such as the use of a risk management approach, good post-incident support, safer clinics and accommodation, and improved access to education and training, had been discussed in the literature for over a decade, with a high level of agreement regarding their importance. Two articles briefly evaluated the impact of some recommendations.

Conclusion While many recommendations have been developed to improve the safety of the remote health workforce in Australia, there is little evidence of their implementation and evaluation. As many remote health professionals report ongoing or worsening workplace safety issues, there is an urgent need for the implementation and evaluation of the workforce safety strategies recommended in the literature and required by legislation.

INTRODUCTION

In Australia, the remote health sector serves isolated, culturally diverse populations, with high health needs and burden of disease compared with those living in the cities.¹ Although some towns and larger communities have small hospitals, the majority of very remote communities have primary health clinics without inpatient facilities, which

Strengths and limitations of this study

- This is the first scoping review regarding workforce safety in the Australian remote health sector.
- The scoping review methodology enabled a comprehensive search of the literature, including reports published by remote health services or peak professional bodies, and peer-reviewed studies with varied methods.
- For the industry literature, the reviewers could only access reports that had been made publicly available in some way.
- Limiting the review to a single country allowed an in-depth exploration of workforce safety in the Australian remote health context, but meant comparisons were not made to other countries with large remote health sectors.

are generally open during office hours and provide after-hours emergency care through on-call arrangements by the remote health staff.² These clinics vary in size, from single nurse posts to much larger teams of seven or more remote area nurses (RANs).³ Wherever possible, the clinics are also staffed by Aboriginal and Torres Strait Islander Health Practitioners and Aboriginal or Torres Strait Islander support staff from the local community.⁴ These small teams are at the front line for remote health, responsible for providing or facilitating all healthcare for their local communities.⁵

Work Health and Safety (WHS) responsibilities for employers and employees within Australia are set out in each State/Territory's WHS legislation, with most jurisdictions adopting the National Uniform Legislation to ensure consistency. Despite this, safety strategies for remote health are developed on a state-by-state, and often a health service-by-health service basis,⁶ leading to significant fragmentation.^{3,4,7} In 2016, national attention was drawn to RAN safety following the murder of RAN Gayle Woodford in South Australia. The call for change led health services and professional bodies to review existing safety policy frameworks and sparked changes to safety legislation in South Australia.^{8,9}

Poor workplace safety is a longstanding issue in the remote health sector.¹⁰ Among research measuring rates of workplace violence towards RANs in Australia, almost all participants experienced some form of workplace violence within a 12-month period, with an increase from 1995 to 2008.^{10 11} RANs have also reported a lack of commitment to staff safety among management, unsafe infrastructure and equipment, isolation (including geographical, professional and social isolation), and limited access to the education and training needed to safely carry out their role.^{3 4 10}

Concerns for workplace safety lead to increased stress and anxiety, and are linked to higher turnover.⁶ The increased stress has also been linked with reduced productivity, disengagement and reduced clinical decision-making.¹² All of these factors have a potential negative impact on the quality of patient care. For example, short-term staff may have trouble developing a therapeutic relationship with the community, as the required level of trust takes considerable time to develop.¹³ Therefore, effective workplace safety strategies are crucial to support the well-being of remote health staff and patients.

This scoping review aimed to examine the known workforce safety risks in the Australian remote health sector and to collate the recommendations to address those risks. A scoping review method was chosen as it allows a rigorous and transparent exploration of multifaceted topics.

METHODS

This scoping review is guided by a five-stage methodological framework refined by Cooper *et al* in 2019, which builds on the well-known Arksey & O'Malley scoping review framework.¹⁴ The stages are as follows: identifying the research question, identifying relevant literature, study selection, charting the data, and collating, summarising and reporting the results.¹⁴ The optional phase of the framework 'consultation exercise' was not undertaken. Unlike systematic reviews, quality appraisal of studies in a scoping review is optional and depends on the purpose of the review.¹⁵ This review's purpose is to scope what WHS risks and recommendations have been identified for the remote health sector of Australia. As no recommendations are prioritised over others and a quality appraisal of included studies would not affect the results of this review, it was not included. No protocol was registered for this review.

Stage 1: research questions

The research questions are as follows:

- ▶ What hazards/safety risks have been identified for the remote health workforce in Australia?
- ▶ What recommendations exist to address those risks?

Stage 2: identification of relevant literature

Search terms to address the research questions were developed, trialled and refined. The final searches were

database-specific. Where databases could not map search terms to medical subject headings (MeSH), the following terms were used: (*remote* OR *isolated*) AND *health** AND (*workplace* OR *workforce* OR *occupational*) AND (*safety* OR *security* OR *violence*) AND *Australia**. Where possible, the equivalent MeSH terms were used, such as when searching Ovid Emcare (see online supplemental material). *English language* was the sole limiter used. There was no date restriction on the search.

Four database searches were performed in October 2020, with Informit Health Collection, Ovid Emcare, Web of Science (Core Collection and Medline) and ProQuest (Australia & New Zealand Database, Health & Medical Collection, Healthcare Administration Database, Nursing and Allied Health Database, Public Health Database, Publicly Available Content Database). To identify additional articles and grey literature, reference lists from key literature and the websites of health services and relevant professional bodies were searched.

Stage 3: study selection

Two reviewers (LKW and SJ) independently screened all articles against the inclusion criteria: (1) English language, (2) published research or industry reports, (3) focused on Australian health workforce safety, (4) focused on the remote health sector and (5) identifies hazards/safety risks and/or recommendations to reduce risk. All reviewers (LKW, SJ and DL) then assessed the full-text articles selected for possible inclusion, and disagreements were discussed until consensus was reached.

Stage 4: charting the data

For data extraction, a data charting table was developed and agreed on by all reviewers. Using the table, the author, date, study location, title, study design, sample and key findings were extracted from each of the 18 articles identified for inclusion. Initial data extraction was completed by LKW, then reviewed by SJ and DL. For ease of reading, the data charting table was split into an overview of included literature table (see [table 1](#)) and a summary of key findings table (see [table 2](#)).

A qualitative thematic analysis was conducted by LKW, with NVivo V.12 used to aid data management. Nodes were created from the key findings in the data charting table. Articles were then read and re-read, and sections of text relevant to the research questions were sorted into nodes. These were then condensed into subthemes and themes, with NVivo used to check the themes against the original articles to ensure content validity.

Patient and public involvement

Patients and the public were not involved in the development of this review.

RESULTS

Of the 18 included articles, the earliest was published in 1995 and the most recent in 2019.^{10 16} Results of the

Table 1 Overview of included literature

Lead author (year) and location	Title	Study design	Sample
Fisher <i>et al</i> ¹⁰ (1995) Australia wide	'Context of silence': violence and the remote area nurse	Thesis. Mixed methods: Survey and focus group	Survey participants (n=98) Focus group participants (n=4)
NHMRC ⁵ (2002) Australia wide	When it's right in front of you: assisting healthcare workers to manage the effects of violence in rural and remote Australia	Industry report. Literature review and qualitative: Stakeholder consultation and workshop	Literature review conducted externally (n=unknown) Public consultation submissions (n=28) Workshop (n=14 participants, plus 11 project team members)
Weymouth <i>et al</i> ¹⁸ (2007) NT, SA and WA	What are the effects of distance management on the retention of remote area nurses in Australia?	Peer reviewed. Mixed methods: Survey and interviews	Participants (n=87) RAN survey (n=61) Ex-RAN interviews (n=26)
Timmins <i>et al</i> ¹⁷ (2008) Australia wide	Occupational health and safety risk factors for rural and metropolitan nurses: comparative results from a national nurses survey	Industry report. Quantitative: Survey	Participants (n=955) Rural or remote (n=219) Metropolitan (n=736)
Lenthall <i>et al</i> ²³ (2009) Australian studies	What stresses remote area nurses? Current knowledge and future action	Peer reviewed. Literature review	Publications (n=26)
Petrie <i>et al</i> ²⁶ (2009) State unknown	Informing and implementing policy to advance mental health and well-being through action research in a rural remote community mental health setting	Peer reviewed. Action research	Participants (1 community mental health team, n=unknown)
Opie <i>et al</i> ²⁰ (2010) Australia wide	Levels of occupational stress in the remote area nursing workforce	Peer reviewed. Quantitative: Survey	Participants (n=349)
Opie <i>et al</i> ¹¹ (2010) Australia wide	Trends in workplace violence in the remote area nursing workforce	Peer reviewed. Quantitative: Survey	Participants (n=349)
Kurti <i>et al</i> ⁶ (2012) Australia wide	Working safe in rural and remote Australia: final report	Industry report. Literature review and mixed methods: Interviews and a survey	Publications (n=80) Interview participants (n=13) Survey participants (n=624)
McCullough <i>et al</i> ²² (2012) Australia wide	Reducing the risk of violence towards remote area nurses: a violence management toolbox	Peer reviewed. Qualitative: Delphi study	Participants (n=10)
McCullough <i>et al</i> ²¹ (2012) Australia wide	Voices from the bush: remote area nurses prioritise hazards that contribute to violence in their workplace	Peer reviewed. Qualitative: Delphi study	Participants (n=10)
Terry <i>et al</i> ²⁵ (2015) Tasmania	Workplace health and safety issues among community nurses: a study regarding the impact on providing care to rural consumers	Peer reviewed. Qualitative: Interviews	Participants (n=15)

Continued

Table 1 Continued

Lead author (year) and location	Title	Study design	Sample
NT Department of Health ⁴ (2016) NT	Remote area nurse safety: on-call after-hours security	Industry report. Literature review and mixed methods: Audits, policy review, interviews and stakeholder consultation forums	Interviews (51 remote primary health clinics, one or more participants from each) Consultation forums (n=3)
Queensland Health ⁷ (2016) Queensland	Occupational violence prevention in Queensland Health's Hospital and Health Services: Taskforce report	Industry report. Literature review and mixed methods: Audits, policy review, site visits, interviews and focus groups	Literature review and interviews conducted externally (n=unknown) Focus group participants (n=103 face-to-face participants, unknown additional over videoconference)
CRANApplus ³ (2017) Australia wide	Remote health workforce safety and security report: literature review, consultation and survey results	Industry report. Literature review and mixed methods: Stakeholder consultation and a survey	Literature review: Publications (n=60) Symposia (n=189) Meetings (n=49) Survey (n=85)
Lenthall et al ²⁴ (2018) NT	Reducing occupational stress among registered nurses in very remote Australia: a participatory action research approach	Peer reviewed. Mixed methods: Action research model of planned change	Participants (n=unknown for workshops, 430 for survey)
Wressell et al ¹⁹ (2018) Australia wide	Exploring the workplace violence risk profile for remote area nurses and the impact of organisational culture and risk management strategy	Peer reviewed. Quantitative: Survey	Participants (n=99)
Adams et al ¹⁶ (2019) Mine sites within Australia	The implications of isolation for remote industrial health workers	Peer reviewed. Qualitative: Interviews	Participants (n=7) Medics (n=2) Paramedics (n=2) Registered nurses (n=3)

NHMRC, National Health and Medical Research Council; NT, Northern Territory; RAN, Remote Area Nurse; SA, South Australia ; WA, Western Australia.

Table 2 Summary of key findings

Lead author (year) and location	Risks	Recommendations
Fisher <i>et al</i> ¹⁰ (1995) Australia wide	<p>Most RAN participants reported experiencing verbal aggression or obscene behaviour within the past 12 months, and almost half had experienced physical violence or property damage.</p> <p>Risk factors for experiencing violence included working in small communities, having 24-hour on-call responsibilities, and working alone.</p> <p>Poor or no local/cultural orientation, alcohol in the community, poor clinic and accommodation security, poor access to police, working long hours and difficulties taking leave were identified safety issues.</p> <p>Under-reporting, the normalisation of violence and poor management support when reporting incidents were also common issues.</p>	<p>Training on handling violent incidents was recommended.</p> <p>Protective factors:</p> <p>RANs with a sense of belongingness to the community reported significantly less concern for their personal safety, but there was little change to rates of violence.</p>
NHMRC ⁵ (2002) Australia wide	<p>Remote-specific safety concerns include a lack of anonymity, limited access to police and unsecure buildings.</p>	<p>Staff and employers must understand their WHS responsibilities.</p> <p>Employers should use a risk-management approach, involving hazard identification and risk assessment, followed by collaborative risk control development, implementation, monitoring and review.</p> <p>Incident reporting is part of this process and requires fit for purpose reporting and feedback systems. Post-incident support is also essential and requires pre-existing procedures and manager training to be done well.</p> <p>Good self-care was recommended to improve staff resilience and protect against the psychological impact of violence.</p>
Weymouth <i>et al</i> ¹⁸ (2007) NT, SA and WA	<p>RANs reported several poor management practices, including inadequate post-incident support and poor responses to reported issues, especially in regard to WHS. Poor recruitment practices and lack of leave replacement were common, with a significant impact on staff safety, well-being, professional development and RANs' clinical work. Unrealistic expectations, with excessive on-call and high workload compounded this.</p> <p>Inadequate infrastructure and poor maintenance were a common concern. Safety concerns had a significant impact on staff and included accommodation, accommodation safety, security systems and access to police support. Poor support from management worsened RANs' frustration and stress, the perception that RANs are undervalued, and was linked to higher turnover.</p>	<p>Managers should have education and mentoring in management and leadership, as well as experience in remote health practice.</p> <p>There were generally positive perceptions of orientation, although local orientation with community collaboration was recommended.</p> <p>Protective factors:</p> <p>Despite the stated difficulties, many RANs described remote area nursing practice as a highly enriching and deeply satisfying experience, both personally and professionally.</p>

Continued

Table 2 Continued

Lead author (year) and location	Risks	Recommendations
Timmins <i>et al</i> ¹⁷ (2008) Australia wide	Perception of risks was similar between rural/remote and metropolitan nurses. Workplace stress was perceived as the greatest hazard, followed by heavy lifting, needlestick injury, prolonged standing and violence. Temperature extremes were a much higher perceived risk for rural/remote nurses than metropolitan nurses. Both groups reported moderate stress and fatigue. Lack of staff, exposure to dangerous situations, poor training in handling WPV and poor support from management were other issues identified.	<u>Protective factors:</u> Rural/remote nurses reported better WHS training and inspections at their workplace than their metropolitan counterparts.
Lenthall <i>et al</i> ²³ (2009) Australian studies	There was limited clear evidence regarding occupational stress among RANs. RANs face personal isolation, a lack of anonymity and unrealistic expectations. RANs also face high rates of WPV and are at risk of the resulting adverse effects. Poor management practices were identified as a significant issue in remote health, including poor human resource management, poor communication and poor responsiveness to reported issues.	Preparation for RANs' extended practice role through remote-specific education was recommended, as was adequate funding for safe workplaces and sufficient staffing levels. Improved management systems and practices were also recommended. The recognition of management as a health discipline, with associated training and accreditation, was identified as a strategy to achieve it.
Petrie <i>et al</i> ²⁶ (2009) State unknown	Rural and remote nurses provide care to patients with mental health issues, often with limited training or access to mental health specialists. WPV risk factors include poor communication, understaffing, inadequate safety knowledge and poor workplace security. WPV can lead to burnout among staff.	Staff ownership of the policy improvement process and involvement in decision-making had a positive impact on staff stress. Interagency collaboration drove improvements to safety policies and the processes in place for managing mental health consumers. Previous recommendations to reduce WPV include de-escalation training, procedural changes and improved building safety. Managing staff stress caused by a hostile work environment requires staff at all levels to consider the types of support and intervention required to ensure employee and patient safety.
Opie <i>et al</i> ²⁰ (2010) Australia wide	RANs reported high rates of occupational stress, including psychological distress and emotional exhaustion, compared with other professional populations. This was most strongly correlated with emotional demands, staffing issues, workload, unrealistic expectations, violence and safety concerns, and ultimately RAN recruitment and retention difficulties and high turnover rates.	Increased job resources, both human and physical, greater occupational support and targeted strategies to reduce occupational stress were proposed as ways in which RANs could be better supported and sustained. <u>Protective factors:</u> Despite this, RANs also reported high levels of work engagement and moderate job satisfaction, most strongly correlated with supervision, professional development opportunities and job control.

Continued

Table 2 Continued

Lead author (year) and location	Risks	Recommendations
Opie <i>et al</i> ¹¹ (2010) Australia wide	66% of RAN participants were concerned about their personal safety. 29% of participants had been the victim of physical violence within the previous 12 months and 80% had experienced verbal aggression. WPV and post-traumatic stress disorder symptoms had weak but statistically significant positive correlations. The rates of WPV experienced by RANs had significantly increased in the 13 years from 1995 to 2008, for physical violence, verbal aggression, property damage and stalking.	Collaboration among stakeholders for the implementation of existing policies and industry recommendations was identified as a strategy for reducing WPV. Improved manager training, post-incident processes, workplace safety and evaluation of WPV reduction strategies were also recommended.
Kurti <i>et al</i> ⁶ (2012) Australia wide	WPV risk factors related to location (such as home visits) or clients (such as intoxication or mental illness) are applicable across regions. Remote-specific risk factors include lack of anonymity, working long hours, cultural issues, remote driving and isolation from management, personal and emergency supports. Concern about WPV led to stress, anxiety, decreased confidence and turnover intentions. Under-reporting was a common issue, but varied by incident type. Normalisation and the perception that nothing would be done about it anyway were contributing factors. When incidents were reported, dissatisfaction with the employer's response was common.	Employers have a responsibility to identify hazards, implement risk mitigation strategies and monitor for incidents. Workplaces need relevant and implementable policies and procedures to address WPV. WHS legislation often used as a framework to build them on. Good workplace design can reduce the risk of violence. Education and training on recognising and handling potential violent incidents was also recommended. Check-in systems can support staff working off-site. If an incident occurs, post-incident support should be prompt and include good follow-up. Intersector and community collaboration is essential for violence prevention strategies.
McCullough <i>et al</i> ²¹ (2012) Australia wide		Primary prevention of violence through local orientation, collaborative development of safety plans and appropriate safety policies, reducing the isolation of staff, and prompt action from employers when hazards are identified. Secondary prevention through appropriate staffing, the use of second responders, and training for RANs to recognise, de-escalate and appropriately handle potentially violent situations. Tertiary prevention through post-incident support.
McCullough <i>et al</i> ²¹ (2012) Australia wide	Major hazards for WPV include treating patients at staff accommodation, poor infrastructure safety and security, lack of RAN experience and/or poor risk assessment skills, a lack of backup, fatigue, stress, burnout, patient intoxication, normalisation of violence and a lack of management support.	
Terry <i>et al</i> ²⁵ (2015) Tasmania	Several safety issues were identified by the community nurses working in isolated areas, including long distances in variable conditions, and working alone with poor communications. Safety issues around home visits include aggressive clients, poor home condition, dog attack and client smoking habits. Organisational safety issues include bullying, vertical and horizontal violence, unrealistic workloads, long working hours, stress and burnout, staffing issues and lack of role-specific training.	<u>Protective factors:</u> Learning from own experience and colleagues, collaborative problem solving with clients and supportive team members.

Continued

Table 2 Continued

Lead author (year) and location	Risks	Recommendations
NT Department of Health ⁴ (2016) NT	<p>The NT Department of Health's existing policy framework had limited staff safety policies and procedures for callouts and home visits, and placed responsibility for callout risk management on the RANs. Risk assessments often based on mental cues learnt from experience.</p> <p>There was also no consistency in recording callouts.</p> <p>Concerns about the repercussions of putting staff safety above clients' clinical needs hampered safety policy implementation. Other issues identified included access to police, poor orientation of new staff for safety considerations, limited access to relief or support staff in small clinics, unreliable communications technology, poor post-incident support, and poor building security and maintenance.</p>	<p>14 recommendations arose from the review of RAN safety across 51 sites in the NT. The use of second responders for all callouts and home visits was a key recommendation, especially by employing a local respected community member as second responder.</p> <p>Most callouts occurred in the evenings on weekdays or during the day on weekends. Some clinics significantly reduced their callouts by extending clinic opening hours.</p> <p>Improved orientation, policy framework, infrastructure, equipment, incident reporting and follow-up, and stronger interagency communication and collaboration were also recommended.</p>
Queensland Health ⁷ (2016) Queensland	<p>Health services and staff in isolated and remote communities were identified as 'high risk' for WPV. Healthcare staff have regular exposure to client-related risk factors for WPV, in stressful situations. Nurses were the victim of the majority of WPV incidents reported within Queensland Health.</p>	<p>A strong safety culture based on proactive management, support and staff reporting incidents and hazards was identified as essential for preventing WPV and overcoming the barriers of normalisation and ethical dilemmas.</p> <p>Training was also recommended, including education about WHS responsibilities, post-incident processes, risk assessment, communication and de-escalation. This must be part of a broader approach. Peer support programmes and communications technology were recommended remote-specific safety measures. The suitability of emergency/durress alarm systems, including personal durress alarms, should be investigated. Adequate resourcing, a focus on continuous improvement, interagency collaboration and a fit for purpose reporting system were also recommended.</p> <p>Good post-incident support is demonstrated when the victim's physical and mental well-being are supported. It should also involve prompt, rigorous incident investigation to develop or refine prevention strategies, including open communication with the victim.</p>
CRANAPlus ³ (2017) Australia wide	<p>Poor organisational safety culture and understanding of WHS responsibilities among managers and staff was a barrier to safety in some services.</p> <p>Only 55% of respondents had workplaces that required second responders for all callouts.</p> <p>Poor clinic and accommodation safety and security was an issue for 52% of respondents. Most of the recorded significant episodes of WPV occurred around staff accommodation.</p> <p>Driving in remote areas is a risk, but training for this was rarely provided. Dog attack was a common safety concern for RANs.</p> <p>High turnover was a barrier to safety, limiting local knowledge and increasing the need for good local orientation and training. Bullying by peers or management was a significant driver of staff turnover.</p>	<p>Incident reporting should be encouraged. A cross-jurisdictional register to monitor assault and trauma faced by the remote health workforce was recommended as a strategy to inform preventative measures.</p> <p>Support from management was recommended, including good post-incident support, a proactive approach to safety and good fatigue management strategies. Local orientation, training, 'never alone' guidelines, improved building safety and security, including functional alarms, were also recommended.</p> <p>Collaboration with the community and employment of local staff were identified as important safety strategies that should be undertaken despite the barrier of social disruption.</p>

Continued

Table 2 Continued

Lead author (year) and location	Risks	Recommendations
Lenthall <i>et al</i> ²⁴ (2018) NT	Key areas of interest included inadequate staffing, unrealistic workloads, poor management, poor orientation and advanced-practice education, physical safety, and inadequate infrastructure and equipment.	Some of the proposed interventions were implemented within the NT Department of Health, particularly around orientation, education, and equipment and infrastructure management. The outcome evaluation showed a significant reduction in infrastructure and equipment difficulties in the Top End. There was also an improvement to lack of support in Central Australia, but this was mirrored in the control group. Barriers to implementation included high turnover, lack of funding, normalisation of unsafe workplaces and interagency ownership issues.
Wressell <i>et al</i> ¹⁹ (2018) Australia wide	Many RANs could not report violent incidents without fear of reprisal, especially if their employer offered poor post-incident support and lacked reporting systems. Under-reporting hampers the monitoring and improvement of prevention strategies. Normalisation of violence also contributes to poor implementation of policies by staff and organisations.	To address WPV, it was recommended that relevant safety policies, support to report, a strategy to address 'risk normalisation' and a comprehensive, targeted risk assessment and management approach be implemented. Having robust governance systems in place and creating and sustaining a workplace culture that promotes safety, were perceived as key elements to RANs feeling safe in the workplace. Protective factors: Organisations' safety culture, workplace characteristics (shift work, built environment factors, client-specific factors), risk management practices and post-incident support were linked with RANs feeling safe at work.
Adams <i>et al</i> ¹⁶ (2019) Mine sites within Australia	Remote industrial health worker participants experienced significant geographical, personal and professional isolation. Geographical isolation meant participants worked alone in high-risk environments, with limited access to support from other clinicians, such as for medical evacuations. Personal isolation, especially with separation from family for extended periods of time impacted participants' well-being. Professional isolation was identified as a major issue. Industrial medics work within an unregulated industry, combined with employer expectations of a very broad scope of practice. Participants reported a lack of education or training for their role, limited opportunities for information sharing and socialisation with other health professionals, poor professional identity and poor career mobility.	Reduce professional isolation through the formation of a professional identity for industrial health workers and improved integration with rural/remote health frameworks, to improve access to collegial interaction and professional development. Role-specific education was also recommended, especially mental health training.

NHMRC, National Health and Medical Research Council; NT, Northern Territory; RAN, Remote Area Nurse; SA, South Australia; WA, Western Australia; WHS, Work Health and Safety; WPV, workplace violence.

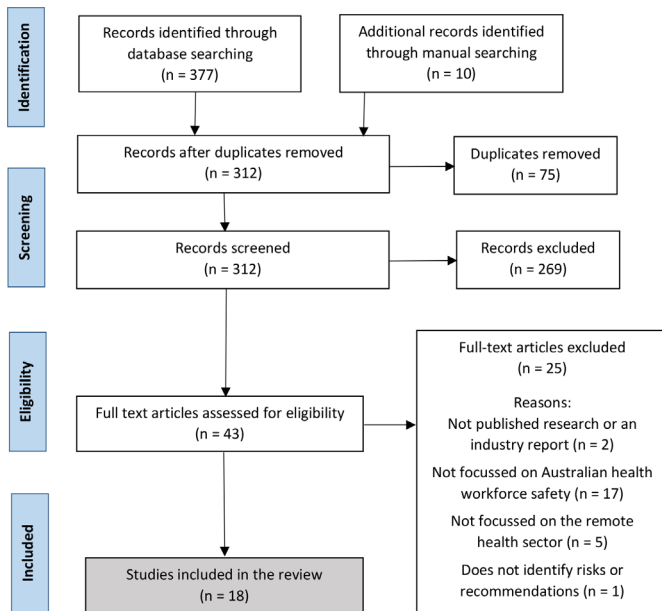


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram.³⁸

screening process are detailed in [figure 1](#), with the characteristics of the included literature detailed in [table 3](#). Industry (grey) literature comprised 33% of the articles, with three industry reports published in 2016/2017, in the aftermath of the Gayle Woodford murder mentioned earlier.^{3,4,7} Two of the most recent reports focused solely on remote health,^{3,4} while the remainder combined rural and remote.^{5-7,17} Among the peer-reviewed literature, 83% of articles focused solely on remote health,^{10,11,16,18-24} and the vast majority of those on RANs.^{10,11,18-24}

Table 3 Characteristics of included literature

Characteristics	References (n)
Type of study	
Quantitative	3
Qualitative	4
Mixed methods	3
Literature review	1
Industry report	6
Unspecified	1
Location	
Australia wide	12
Multistate (NT, SA and WA)	1
NT	2
Queensland	1
Tasmania	1
Unknown (single state)	1
Total	18

NT, Northern Territory; SA, South Australia; WA, Western Australia.

In the thematic analysis, the safety risks and recommendations identified in the literature followed four themes: safety culture, isolation (both physical and social), safe environment, and education and training.

Safety culture

Safety culture was the broadest theme identified from the literature, encompassing the attitudes, behaviours and available supports which prevent or promote staff safety in remote health. A strong safety culture, where workplace safety is valued and promoted by organisations, managers and staff, was highlighted as essential to workplace safety. Several industry reports discussed the need for an overarching culture of safety,⁵⁻⁷ while the peer-reviewed literature primarily explored individual aspects such as poor support from management.^{10,18,19,21,23-25}

Risks

A lack of understanding and commitment to WHS responsibilities within organisations was identified as a barrier to achieving a culture of safety in the workplace.^{5,7} Despite employers' legislated responsibility for the safety of their staff, two recent industry reports found some employers still placed the primary responsibility for safety on the clinicians themselves.^{3,4} A lack of commitment to safety could also be a problem among employees, as some remote clinicians reported feeling bullied by colleagues into ignoring workplace safety policies.³ Managers failing to follow safety guidelines, allocate funding for their implementation or address reported hazards provided further examples of poor commitment to WHS responsibilities.^{3,17,18,21} Studies over a wide time period reported RANs felt unsupported by management,^{3,10,18,23,24} an issue that influences organisations' safety culture, incident reporting, turnover rates, stress, fatigue and burnout among staff.^{3,5,18,20}

Insufficient staffing and high turnover are endemic in remote healthcare, and can be both a result of and contributing factor to the issues of poor management and a poor organisational safety culture.^{18,23} Fisher *et al* found that only 58.5% of RAN respondents had a fully staffed workplace,¹⁰ a theme that continued throughout the subsequent literature.^{3,4,6,17,24,25} The NT Department of Health report identified high turnover of staff as a significant barrier to compliance with callout safety policies.⁴ A study aimed at implementing a range of occupational stress interventions, including staff safety strategies, found that many of the proposed system changes were unable to be implemented, with high staff turnover and a lack of funding identified as barriers.²⁴ Additionally, high turnover causes poor continuity of knowledge for both safety strategies and patient care.^{4,5}

Under-reporting of WHS incidents is a widespread issue in the health sector, with a negative impact on health services' ability to monitor rates of incidents, develop targeted interventions and provide proactive support.⁴⁻⁷ Several causes of under-reporting were identified in the literature, including the normalisation of workplace

violence, lack of prompt investigation and action on previous reports, fear of reprisal and the usability of the reporting system.^{6 7 10 19} Normalisation occurs when incidents are a common occurrence, and are seen by staff and organisations as 'part of the job'. This is compounded by a lack of support or action from employers when incidents are reported, reinforcing the perception that there's no point in doing so.^{6 7 10 21}

Recommendations

A 'risk management' approach was a key recommendation in the National Health and Medical Research Council (NHMRC) report,⁵ with the need for this proactive approach to staff safety echoed in subsequent literature. This involves the early identification of hazards, risk assessments to determine the likelihood an incident will occur and the consequences if it does, collaborative development of risk mitigation strategies, implementation of those strategies, monitoring via incident reports and regular audits, and regular reviews of the strategies.^{3 5 7 22 25} This cycle can greatly improve the safety of a workplace, but missed steps have a significant impact, such as when a panel of experienced RANs reported that safety policies were often developed without staff consultation or continuing evaluation, resulting in policies of little practical use.²²

Good post-incident support was identified by both industry and peer-reviewed literature as an essential aspect of workplace safety. It includes prompt, confidential one-on-one debriefing with an appropriately trained person (such as an external counselling service), allowing staff time to recover from the incident, incident investigation, a review of safety strategies to prevent recurrence and clear communication about this process with the staff involved.^{3-7 22}

An effective incident reporting system must enable quick and easy lodgement of incidents, especially those that occur frequently.⁴⁻⁷ Staff access to a reporting system and training on how to use it is also an important factor.^{19 24} To address the issue of under-reporting, a blame-free, multifaceted approach that addresses the normalisation of workplace violence, fear of reprisal, usability of the incident reporting system, and prompt investigation and action will be necessary.^{10 16}

Isolation

Risks

Isolation is a risk for staff working in remote health. Working alone was the most widely discussed aspect of this, from the earliest article in 1995 to the most recent in 2019.^{3 4 6 10 16 18 19 22 24 25} The early literature identified working alone with no or limited access to police or other health professionals as a risk to staff safety, with single nurse posts at particularly high risk.^{5 10 21 23} Weymouth *et al* identified being on-call alone as a particular concern for RANs.¹⁸ Following the 2016 call for change, industry literature also began to discuss the risks of attending callouts alone and develop strategies to address this issue.^{3 4}

Terry *et al* showed these risks are not limited to callouts, as community health nurses conducting scheduled home visits faced similar issues.²⁵ Poor communication technology was identified as a compounding factor, limiting nurses' ability to call for help if an incident occurred.^{3 4 25}

Opie *et al* identified high levels of stress and fatigue as a risk to the physical and mental health of RANs.²⁰ Working in small teams, with limited access to medical or allied health professionals, means RANs often have high workloads and significant on-call responsibilities. Limited access to relief staff to cover sick leave or recreation leave further compounds this problem, and has been a long-standing issue in remote health.^{3 4 10 18 23 24}

Social and professional isolation with limited access to support networks is a risk in remote health.^{4 17 23} This can adversely affect staff well-being by increasing psychological distress and emotional exhaustion, with the attendant implications for staff turnover and quality of care.^{16 20} Remote health professionals working in an industrial setting can be particularly vulnerable, as the hazards of geographical isolation and working alone are compounded by their isolation from the professional supports and regulation of the mainstream health system.¹⁶

With regard to geographical isolation, driving on remote roads can be a significant risk to staff safety.^{3 25} Driving long distances, often on unsealed roads, day or night, in all weather conditions, and under pressure of clinical urgency, is often a requirement of the job. The risk of accidents is high, and the CRANaplus national report found that many RAN respondents had not received driver training to prepare them for this role.³

Recommendations

Several recommendations have been developed to reduce the negative impacts of isolation in remote health. Second responders were identified as an important strategy for improving RAN safety during callouts.^{3 4 22 24} However, understaffing has been identified as a significant barrier to this strategy, as outlined within the *safety culture* theme. Due to the need to manage clinician fatigue and provide a continuous service, RANs can be reluctant to call in another clinician as second responder.³ Instead, the NT Department of Health report recommended that local community members be employed as drivers to act as second responders.⁴ However, participants in the CRANaplus report cautioned that many communities are experiencing considerable social disruption and may not always be able to support health services in this way.³ To improve staff safety both on callouts and during clinic hours, ensuring all communities have a police presence and streamlining processes for contacting the police was also recommended.^{4 10 22}

Appropriate communications systems and equipment were recommended by McCullough *et al* and the industry literature as a strategy to reduce isolation and improve safety. Portable duress alarms help staff call for help when off-site.^{3 5 7 22} Check-in systems were also

recommended.^{3-6 22} Automated check-in systems circumvent the problem of relying on staff to report their movements.^{3 4} For long-distance travel, recommendations include vehicle Global Positioning System (GPS) tracking, satellite phones and personal locator beacons.^{3 4}

Peer support programmes were recommended to offset professional isolation, including access to clinical supervision, mentoring and professional networks.^{5-7 16 22}

Recommendations to reduce social isolation and improve staff resilience include internet and phone access in staff accommodation, a supportive team environment, staff taking regular leave and staff engagement in social activities with community residents and others.^{3 4 10 18}

To reduce difficulties in accessing leave replacement, it was recommended that health services maintain a permanent pool of experienced relief staff.^{3 4 24}

Safe environment

Risks

Workplace violence is one of the main workplace safety risks discussed in the literature. It includes physical abuse, verbal abuse, threatening behaviour, bullying, sexual abuse, sexual harassment and property damage.¹¹ Opie *et al* found violence towards RANs was an ongoing issue, as 28.6% of participants had personally experienced physical violence in the preceding 12 months.¹¹ Research combining rural and remote nurses reported lower but still significant rates of workplace violence.^{6 7 17 25} This issue had significant implications for the mental and physical well-being of RANs, contributing to increased stress, burnout, post-traumatic stress disorder symptoms and high turnover.^{3 7 11 23}

Recent literature explored which remote health professionals were at greatest risk of workplace violence. Wressell *et al* and the NT Department of Health found locum/agency RANs were less likely to receive training in workplace violence prevention, and were more likely to work alone, work after hours, conduct home visits and respond to non-urgent callouts compared with their colleagues who had more experience with the community.^{4 19} The CRANaplus report found that Aboriginal and Torres Strait Islander Health Practitioners were at greater risk of 'payback' (assault by people projecting blame onto the health practitioner).³

Lack of anonymity is also a hazard for staff working in remote areas. McCullough *et al* identified patients visiting staff accommodation for treatment as the greatest hazard impacting RAN safety.²¹ In the Kurti *et al* report, the majority of rural/remote health sector respondents felt the line between professional and personal was blurred, and 45% reported they were vigilant when out in public due to the risks associated with their role.⁶

Unsafe infrastructure was a common, ongoing concern in the literature, including poor building design, poor maintenance practices and a lack of security technology.^{3 4 10 18 21 24} Poor clinic building and staff accommodation safety has been discussed for decades in the peer-reviewed literature, but the CRANaplus report

found 25% of participants still did not have safe and secure accommodation or workplaces.^{3 10 21} Proactive maintenance schedules are not widespread, and RANs encountered poor management responsiveness to reported faults.^{3 18 22 24} Of the major incidents of workplace violence identified in the CRANaplus report, many had occurred in or around staff accommodation.³

Recommendations

Several strategies were recommended to address workplace violence, but ethical considerations make some of them difficult to implement. For example, zero tolerance policies are common, but not always enforceable, as violence can have clinical causes such as delirium or mental illness.^{4 6 7} Even when violence is criminally motivated, denying a patient access can be ethically difficult, especially when there is no other health service in a community.^{6 22} Flagging high-risk patients is another example. On one hand, it facilitates the sharing of information useful for risk assessments, in a sector characterised by high staff turnover that reduces the level of local knowledge.⁶ On the other hand, clinicians can be hesitant to label a patient as violent, as it could adversely affect his/her future care.^{6 21} To balance these concerns, a protocol for when and how to flag a client as violent could be developed as part of a local response plan.

Local response plans build on services' policies and procedures, using formal consultation between the health service, community and relevant stakeholders to identify how staff can obtain help in a risky situation, what to do if an incident occurs, how and where to get to safety, and consequences for violent behaviour.^{5 22} Where inadequate local resources are a barrier to the development of these plans, the NHMRC recommends that small services form networks.⁵

For infrastructure safety, McCullough *et al* and the industry literature outlined several recommendations. First was building design, such as adequate locks on doors, security screens on windows, having multiple exits, minimising public access to clinical areas, comfortable waiting areas, a safe/escape room with access to communications, ensuring clear sightlines around exits and walkways, and good security lighting.^{3-6 21} Security technology was also recommended, including duress alarms, security systems, client screening technology for callouts, reliable communications technology and internet access in staff accommodation to check patient records before callouts.^{3-5 22} Lastly, timely maintenance and repair of infrastructure and equipment was highly recommended, with regular audits to ensure this is being done.^{3 4 7}

Education and training

Risks

Insufficient local orientation for new staff was highlighted as a significant safety issue. RAN participants in several studies reported receiving no local orientation or handover when starting at a new workplace, with little apparent improvement to this issue between 1995 and

2017.^{3 4 10 24} Where orientation was offered, many RANs found it to be inadequate, such as a focus on service requirements without the inclusion of workplace safety or cross-cultural information.^{3 10 18 24} Lenthall *et al* and the NT Department of Health identified high turnover as a contributing factor to poor local orientation, as the frequent need to orient short-term staff further added to the workload of longer-term staff.^{4 24} This further adds to the risks faced by locum RANs, as outlined in the *safe environment* theme.

Inexperience and inadequate preparation for the specific safety risks inherent in remote practice are also risks to staff safety. For example, inexperience with conducting mental health assessments was identified as a significant hazard by Petrie *et al* and McCullough *et al*.^{21 26} Insufficient training in risk assessment and de-escalation skills increased the risk of workplace violence. In remote health, this issue is compounded by the risks of isolated work outlined in the *isolation* theme.⁵ Despite more rural/remote nurses receiving training in recognising and responding to workplace violence than their metropolitan counterparts or other rural/remote professionals, the rate of training remained low, at 67% in 2008 and 45% in 2012.^{6 17} Although most respondents in the CRANaplus report were confident in their de-escalation skills, many noted that refresher training would be beneficial.³ This problem is compounded by managers also experiencing poor preparation for their role, limiting their ability to fulfil their WHS responsibilities.²⁵

Recommendations

Good local orientation was recommended as a strategy to improve staff safety, by providing the knowledge needed to practise safely in a new workplace. To achieve this, several orientation requirements were identified. An introduction to the local policies and practices related to workplace safety and security was recommended by most of the industry reports.³⁻⁶ The inclusion of cross-cultural information was also recommended, with a particular need for community-specific cultural safety knowledge.^{6 10 24} The inclusion of strategies for maintaining personal well-being was a less widespread recommendation.^{3 10}

Training in safety skills such as risk assessment and de-escalation was highly recommended for remote health staff.^{3-5 7 10 22 26} In the absence of formal training or policies, staff developed skills to reduce workplace violence through personal experience and learning from colleagues.^{4 25} Experience in a role was found to improve staff safety.^{19 21}

Remote-specific education to prepare and support remote health professionals for their advanced practice role was also recommended.^{10 16 23} Lenthall *et al* discussed short courses and postgraduate courses that were developed to meet this need.²³ However, Weymouth *et al* had found understaffing was a barrier to access, especially a lack of relief staff to cover for clinicians attending professional development outside the community.¹⁸

Role-specific education and training for managers was also recommended. Managers in remote health must be accessible and supportive to staff, responsive to issues that arise, show strong leadership and manage the service, often with the disadvantage of not being physically present at the workplace.¹⁸ The *safety culture* theme highlighted the significant impact of poor management on workplace safety, so it is essential that managers be properly prepared to fill this role. In the older literature, this was most commonly discussed in the context of managers' overall ability to support staff, such as through post-incident support.^{5 11 18 23} More recent literature also discussed managers' understanding of the remote context, WHS issues and their responsibility for proactive risk management.^{3 24 25}

DISCUSSION

This review found a modest body of literature investigating the workplace safety risks faced by RANs and developing recommendations to overcome them. A wide range of hazards and safety risks were identified within the literature. Safety culture was an overarching theme, with a lack of commitment to WHS (particularly at an organisation level) identified as a barrier to addressing identified hazards.^{3 17 18 21}

Isolation was another major theme, with working alone, such as with single nurse posts or during callouts, highlighted as a major hazard.^{3-5 10 21 23} Within the safe environment theme, workplace violence and unsafe infrastructure (including clinic buildings and staff accommodation) were identified as significant ongoing risks.^{3 6 7 10 11 17 21 25} The final theme was education and training, where inadequate local orientation and preparation of staff and managers for their roles were barriers to safety.^{3 4 10 18 24 25}

While there are some contemporary recommendations to address these issues, others have been around much longer, with a high level of agreement on their importance. In addition, many of these recommendations are included in Australian WHS legislation and codes of practice, meaning employers are legally obligated to implement them. For example, the WHS (National Uniform Legislation (NUL)) Act 2011, Part 2, Division 2 states the employer must maintain staff accommodation (in specified circumstances) so the worker is not exposed to health and safety risks.²⁷ With staff accommodation a high-risk location for workplace violence in remote health, it is particularly important that these facilities are secure and well maintained.³ Despite this, a recent national survey found that 25% of RAN participants did not have safe and secure accommodation, as outlined in the *safe environment* theme.³

This review highlighted the significant impact of safety culture on workplace safety. In particular, the use of a risk management approach was identified as an overarching strategy with an impact on all other themes identified in this review.^{4 5 7} This cycle of hazard identification, risk assessment, and the selection, implementation,



monitoring and review of controls is a standard approach to WHS, echoing employers' legislated responsibilities regarding the management of risks to health and safety.^{5 28} Codes of practice provide practical guidance for employers on how to achieve this.^{29 30} Some recommendations within the literature surpass these legal requirements, by calling for community members and other stakeholders to be included in consultation as well as the employees.²⁸

Several risk mitigation strategies were identified to reduce the risks associated with isolation. Personnel-related strategies included second responders, relief staff and access to police.^{3 4 22 24} Recommendations related to communication systems and equipment included duress alarms, check-in systems and communications equipment for long-distance travel.^{3-7 22} Supervision and mentoring were recommended to reduce professional isolation.^{5-7 16 22} Many of these recommendations are mirrored in the *Managing the work environment and facilities Code of Practice*, including the buddy system, communication system and movement records.³¹ The provision of effective systems of communication for remote or isolated workers is also specifically required by the WHS (NUL) Regulations, providing additional incentive for employers to implement this.²⁸

Another critical component of workforce safety is sufficient education and training, including good local orientation and role-specific education.^{3-7 10 18 22 23 25} Factors such as high turnover can make implementing this a very resource-intensive process,^{4 32} but there are significant benefits to overcoming the barriers, as opportunities for professional development, skill development and application are strongly linked with job satisfaction and work engagement among RANs.²⁰ In addition, the WHS (NUL) Act states that one of the primary duties of care of employers is the provision of information and training to protect workers from WHS risks.²⁷

Despite the above recommendations and requirements, there is limited literature assessing what has been implemented, or the impact of that implementation on staff and health services. Importantly, there is not yet any literature following up on the changes within the remote health sector following the 2016 murder of RAN Gayle Woodford, although some recommendations have been implemented since then, such as mandatory second responders, improved orientation, increased relief staff, safety equipment and infrastructure improvements.^{8 9} It is crucial for the future of the remote health workforce that the effects of these interventions be evaluated. This will allow successful interventions to be promoted, and unsuccessful ones to be modified or eliminated.

Additionally, there are few studies looking into the workplace safety perspectives of remote health staff other than RANs. For example, a study of rural general practitioner (GP) clinics found that workplace violence towards receptionists is a significant issue, suggesting this could also be relevant to frontline support staff in remote health, such as drivers and administrative assistants.³³ Studies that

explore the safety needs of support staff and Aboriginal and Torres Strait Islander Health Practitioners would address a significant gap in the literature. Some work has been done in regard to the safety of Aboriginal and Torres Strait Islander workers in community night patrol, with findings including the need for culturally appropriate support from management, sufficient resources and safety training.³⁴ However, there remains a need to evaluate whether the recommendations have been taken up, and if so, whether they have improved staff safety.

This comprehensive scoping review enabled an in-depth exploration of academic and industry research regarding workforce safety in the Australian remote health sector. The lack of a date restriction allowed the discussion of longstanding risks and comparisons between historical and contemporary recommendations. There were also limitations to this review. As a scoping review, this article does not comment on the strength of evidence supporting any of the recommendations identified in the literature. The lack of implementation studies also means this article is also unable to comment on the efficacy of those recommendations. Additionally, industry reports that had not been made publicly available could not be accessed. Media references to one such internal report were identified during the literature search,³⁵ but the report could not be retrieved.

While this review focused solely on the Australian context, remote health professionals in other developed nations face similar risks to their safety.^{36 37} By clearly presenting the safety risks and recommendations from the Australian remote health literature, this review could assist international efforts to address this issue.

CONCLUSION

Safety for the remote health workforce, especially RANs, has been discussed in the literature and within the industry for several decades. Historically, there has been a focus on workplace violence, but a wide range of workplace safety hazards have been identified. In this review, risks to staff safety and the recommendations to overcome them were located within four themes, including safety culture, isolation, safe environment, and education and training. These themes were interconnected, highlighting the need for a multifaceted approach to achieve meaningful improvements to the safety of the remote health workforce. Many of these recommendations were also reflected in Australian WHS legislation and codes of practice, providing additional incentive for employers to implement them. A vital next step is to investigate how well the recommendations have been implemented in the remote health sector, what enablers and barriers have been encountered, and the impact of those strategies on staff.

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