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## Education to Prepare Health Professionals for Rural Practice: A Scoping Review

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### Abstract

Rural and remote communities are challenged by an incongruous combination of poorer health and deficits of health professionals. Health professionals working in rural and remote practice contexts are largely educated with standardised curriculum content designed for urban-dominant systems, even though non-urban populations account for approximately half of the global population. Education is one strategy considered pivotal to recruitment and retention of health professionals in rural areas yet has received far less research attention than strategies such as rural background, incentive schemes and clinical placements.

Following key health database searches, peer reviewed literature published in English between 2011-2021 was examined and 189 relevant articles were retrieved, of which 26 articles met the inclusion criteria for final analysis using a scoping review framework (Arksey & O'Malley, 2005) to examine how health professionals are currently being prepared for rural practice. Five themes were developed from the literature: Learning to Think Differently; Relationships; Health Leadership; Curriculum and Placement as Pedagogy. This scoping review identified a heavy reliance upon standardised curricula delivered via rural clinical and interprofessional placements with little evidence of specific rural curriculum content or pedagogic strategies that are tailored to rural and remote practice.

There is a paucity of theory, educational design and evaluation research to assess the value of education strategies that prepare health professionals specifically to work in rural places. Identifying key rural pedagogic strategies can support curriculum design and delivery, targeted experiences and assessment that provide health professionals with the competence, confidence and skills to sustain careers in rural and remote practice.

**Keywords:** *Curriculum, health professional, health professional education, pedagogy, rural, remote*

### Introduction

Globally, rural health is characterised by shortages of health professionals that limit access to health services for approximately half of the world's population (World Health Organization, 2021), who experience higher than average health needs (International Labour Organization, 2015). The World Health Organization recommends revision of undergraduate and postgraduate curricula to include rural health topics, design of professional development programs that meet the needs of rural and remote health professionals and different roles and scopes of practice for rural health workers (World Health Organization, 2021). Globally, Registered Nurses form the largest proportion of health personnel in rural settings (International Labour Organization, 2015). However, only 38% of the nursing workforce and less than a quarter of medical workforce provide care to this significant population who have higher health needs than urban populations (World Health Organization, 2021). Other services (such as medical and allied health services) are

provided remotely via videoconferencing (Johansson et al., 2017), visiting services and contract staff to support workforce shortages (Carey et al., 2018). Deficits of health workers can occur due to professional practice/development and family reasons that drive health professionals back to urban areas (Reid et al., 2011). In many settings globally, nurses often take on tasks associated with other roles owing to their 24-hour presence (Hoskins, 2012; Muirhead & Birks, 2019) that may be magnified in rural practice contexts where health professional roles are affected by service rationing and constrained capacity (Adams et al., 2015).

Providing health care in rural practice contexts differs greatly from health care delivery in urban health systems due to the distinctive economic and social challenges associated with rural areas (Hauenstein et al., 2014). Rural residents experience earlier mortality and higher rates of injury than urban residents, with decreased access to scant health maintenance services linked to a higher incidence of chronic health conditions (Australian Institute of Health and Welfare, 2022). The context-specific conditions for rural practice including limited workforce, necessitate greater autonomy, broad or overlapping scopes of practice and role substitution (Hauenstein et al., 2014). However, rural health education is situated amid centralised, urban-focussed policy and standardisation (Roberts et al., 2021). Greater complexity and comorbidity (Vaughan & Edwards, 2020) are further complicated by this centralised approach that does not recognise the divergent physical, human resources and distinctive health care needs of rural and remote environments.

Limited literature exists that explores a relationship between rural health curriculum content, teaching methodologies and health professionals' feelings of competence and confidence to enter rural practice environments. A global independent commission on health professional education states that *"Professional education has not kept pace with these challenges, largely because of fragmented, outdated, and static curricula that produce ill-equipped graduates"* (Frenk et al., 2010, p. 5) with a paucity of theory available to guide development of health curriculum generally (Lee et al., 2013), and rural health specifically (Bourke et al., 2010; Farmer et al., 2012). Rural health is more than health care conducted in rural locations, therefore critical interaction with rural theory is necessary to shape provision of health services in rural 'places' (Farmer et al., 2012) by providing an approach to the way rural topics are studied (Bourke et al., 2010).

Understanding the bio-psychosocial dimensions of rural places is needed if students are to understand the interaction of rural characteristics on the health of rural populations (Waller et al., 2021). Interprofessional Education to promote teamwork has been deemed essential for rural areas owing to the paucity of specialists, limited resources, increased costs and fragmentation of care (Stilp & Reynolds, 2019). Although there are multiple factors that influence decisions to work rurally (World Health Organization, 2021), education is stated to have a pivotal role in rural recruitment and retention strategies (Reid et al., 2011). Therefore, this review seeks to explore current international literature to understand how rural health is being taught to health professionals to inform further research regarding rural health pedagogy in Australian contexts.

## Methods

Initial questions regarding the types of pedagogies used in preparing health professionals for rural practice elicited a paucity of literature. A title and abstract search using 'rural', 'health' and 'pedagogy' yielded a combined total of two articles. A subsequent search used separate terms 'health' and 'professional' in combination with terms related to 'education' and 'rural', however, this elicited many articles related to community health and patient education rather than health professional education. Likewise, there was a paucity of relevant grey literature. A broader question using 'health professional' in combination was utilised, using a scoping review methodology. Using a broad term rather than individual health professional titles was used owing to the variety of nomenclature for health professionals internationally. This review uses the five stages for conducting scoping reviews, described as useful for examining the extent and

type of research in an area and for identifying research gaps in the literature (Arksey & O'Malley, 2005).

### **Stage 1 - Identifying the Research Question**

The aim of this review is to examine what international research exists regarding how health professionals are educationally prepared to practice in rural contexts. The key criteria for selecting articles were to ask of the literature – “How are health professionals prepared for practice in rural and remote practice settings?”

The limitation of this approach was that the term ‘health professional’ was used as a broad search term hoping to elicit health pedagogy relevant to all health professional disciplines and to avoid accidentally missing specific disciplinary titles relevant to international literature. This may have limited literature relevant to specific professional groups. Health disciplines such as medicine and nursing account for much of the broader literature on rural health practice so although every attempt was made to include literature from all disciplines, much of the background information and supporting literature was drawn from medicine and nursing.

For this research, health professionals/health workers are defined as any provider of health or social care and was limited only by the lack of available research from specific health disciplines. Throughout the review, terminology associated with the literature was adopted and no differentiation of health professional/health worker was undertaken. Although this review will mostly use ‘rural’ to encompass rural and remote practice, research supports significant differences between the two contexts (Wakerman et al., 2017).

### **Stage 2 - Identifying Relevant Studies**

This review used PICO (Population, Interest, Context) – Population (health professionals), Interest (pedagogy) and Context (rural, regional, remote) as a starting point. Five electronic databases were searched: EBSCOhost, ProQuest, Informit, PubMed Central and Web of Science. The search was limited to peer reviewed articles published in English between 2011-2021. Search terms included truncations of ‘health professional’, clinical, interprofessional; rural/regional/remote/place; pedagogy, praxis, ‘learning theory’ and education. Database searches were undertaken in July 2021. Iterative changes were made to inclusion/exclusion criteria based on literature characteristics (see Table 1). As much of the literature did not deliver explicit information on rural pedagogy, literature regarding student placements in rural areas were included in the review as it was evident that the context provided students with learning relevant to rural concepts. Examining the literature revealed that descriptive accounts could not be ignored as many contained a wealth of information relevant to student learning about rural practice. This was also consistent with broad inclusion of literature to define the scope of existing evidence.

**Table 1: Inclusion/Exclusion Criteria**

| Inclusion Criteria  | Exclusion Criteria   |
|---|--|
| <ul style="list-style-type: none"> <li>Original research, editorials and commentary that appear in peer-reviewed journals</li> <li>Any articles relevant to rural health professionals/health workers such as doctors, nurses, paramedics and allied health workers/professionals who provide healthcare in rural, regional or remote areas of any country</li> <li>Rural pedagogy, educating rural health professionals within rural contexts</li> </ul> | <ul style="list-style-type: none"> <li>Articles that specifically relate to community or patient health education</li> <li>Articles that are not specific to the rural environment or do not address rural concepts, outcomes and/or rural theory</li> <li>Articles where the word ‘remote’ is used with reference to technology used at a distance, not in relation to ‘remote’ as a place</li> <li>Articles where ‘space’ or ‘place’ are not related specifically to rural places</li> </ul> |

### Stage 3 - Study Selection

Selection was based on PICO terms in the title and abstract. Articles where ‘place’ related to a room or other physical space were excluded. Figure 1 gives examples of reasons for exclusion. A total of 189 relevant articles were retrieved. Duplicates were removed, and articles not meeting the search criteria or had no full text were removed. The remaining 55 articles were submitted to full text review, of which 26 articles met the inclusion criteria for final analysis. 18 sources were original research articles and eight were descriptive accounts that were included in the scoping review (see Table 2).

**Table 2: Literature by Type of Publication**

| Study type                    | Original Research | Non-Research Publications |
|-------------------------------|-------------------|---------------------------|
| Clinical Placement            | 4                 | 1                         |
| Interprofessional Education   | 10                | 3                         |
| Health Professional Education | 4                 | 4                         |

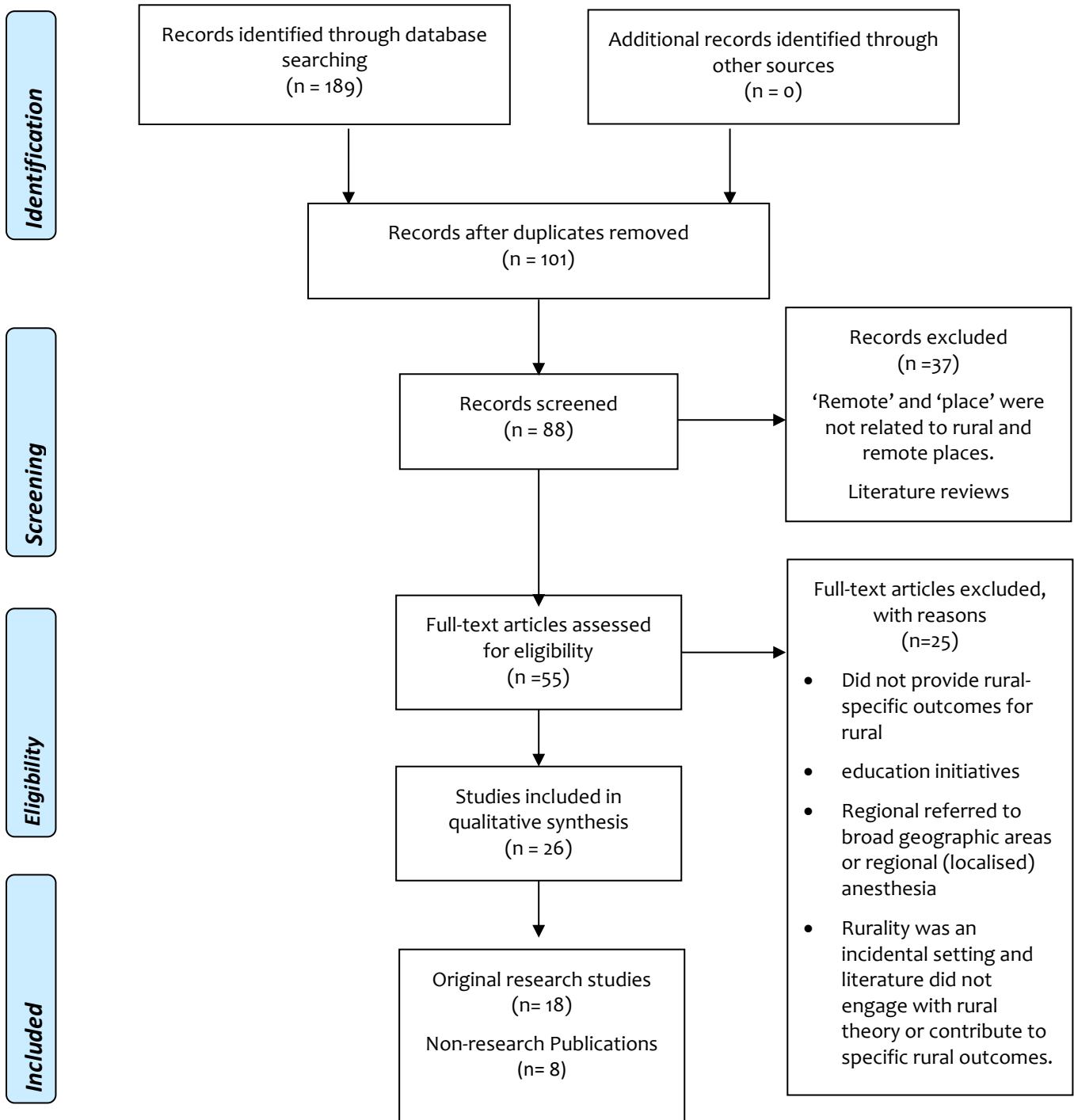
### Search Outcomes

See Figure 1: *Prisma Flow Diagram as per Moher et al. (2009)* for search outcomes.

### Stage 4 – Charting the Data

This stage recorded key information about selected studies and sorted data thematically. Information extracted was Author(s), year of publication, country, study type, health discipline, sample size/setting, outcomes and derived themes (see Table 3). Study findings and narrative data were placed into a table and read numerous times to gain a sense of the literature as a whole and for identification of key issues. Data were derived from research study findings and narrative reports and then coded manually. Codes were placed into another table, grouped into related areas and then into themes that answer the review question.

Figure 1: Prisma Flow Diagram



**Table 3: Literature Characteristics**

| Author(s)                | Methods  | Discipline | Sample size/<br>Setting  | Findings   | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|--------------------------|--|------------|--|--|--|-------------------------------|---------------------------------|-----------------------|--|
| Clinical placement       |  |            |  |  |  |                               |                                 |                       |  |
| Greenhill et al., (2015) | Interviews   | Medicine   | Programme directors or key informants from 16 universities, Australia                      | Positive impacts of rural and regional communities, curriculum innovation in medical education and community engagement activities.                |  | √                             | √                               | √                     | √                                      |
| Hanson et al., (2020)    | Interviews   | Medicine   | 9 trainees prevocational generalist experience in rural and regional Queensland, Australia | Enjoyable and valued experience that promoted rural engagement. Not a substitute for but compliments regional hospital experience.                 | √  | √                             | √                               | √                     | √                                      |
| Mak & Mifflin (2012)     | Curriculum documents, questionnaires, interviews, debriefings. | Medicine   | 198 Medical Students Both Rural and Remote Western Australia, Australia                    | Students experience rural and remote living and cross-cultural thinking. Improved understanding of rural and remote life and its impact on health. | √  | √                             |                                 | √                     | √                                      |
| Morgan (2018)            | Interviews, observation, questionnaire                         | Medicine   | 61 third year and 13 fourth-year students, Ethiopia  | Poorly resourced facilities and lack of specialists provided a challenging environment in which to learn.  | √  | √                             | √                               | √                     | √                                      |

| Author(s)                   | Methods                               | Discipline           | Sample size/<br>Setting  | Findings   | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|-----------------------------|---------------------------------------|----------------------|--|--|--|-------------------------------|---------------------------------|-----------------------|--|
| Pillay et al. (2016)        | Documented reflections, focus groups. | Allied Health        | 44 final year students, 8 educators Ukwanda, South Africa  | Positive experience. <i>“Positioned 'rural' as... developing learners' emerging identities as policy brokers.”</i> (p.169) Develop blended/multiple professional identities, sense of professional obligation. | √  | √                             | √                               | √                     | √                                      |
| Non-Research Article –      |                                       |                      |  |  |  |                               |                                 |                       |  |
| Baral et al., (2016)        | Commentary                            | Medicine             | N/A<br>Nepal   | Need to ruralise the academy through community engagement in health professional education, curriculum design/evaluation.  |  | √                             | √                               | √                     | √                                      |
| Interprofessional Education |                                       |                      |  |  |  |                               |                                 |                       |  |
| Jackman et al., (2016)      | Interviews, focus groups              | Medicine and Nursing | 3 Nursing students, 4 Medical students in 76-bed acute care setting in semi-rural western Canada | Clinical interprofessional education rotations are an alternative/adjunct to classroom Interprofessional Education owing to acute, holistic, community focus.  | √  |                               | √                               |                       | √                                      |

| Author(s)                | Methods                                 | Discipline  | Sample size/<br>Setting   | Findings   | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|--------------------------|---|---|---|--|--|-------------------------------|---------------------------------|-----------------------|--|
| Leshabari et al., (2012) | Programme evaluation                    | Medical, Pharmacy, Nursing, Dentistry and Environmental Sciences                          | 16 students, Bagamoyo, Tanzania   | Programme raised awareness of health needs, paucity of resources in rural areas and exposure to conditions that students would not otherwise see. Collaborative practice needs to be modelled to students. |  |                               | √                               | √                     | √                                      |
| Martin et al. (2021)     | Survey and 25 interviews                | Medicine, Nursing and Allied Health   | 5 teams of health service workers in 4 public health settings in regional and rural Queensland, Australia   | Lack of understanding of what interprofessional education is. Need for drivers at a system level - leadership, facilitation of collaboration and understanding the impact of rurality.                     |  | √                             |                                 |                       | √                                      |
| Mpofu et al., (2014)     | Questionnaire, focus group              | Physiotherapy, Nursing and Natural Medicine   | 17 students Western Cape, South Africa  | Desire to 'give back' to rural communities and to influence positive change. Reported lack of structured student placement/limited supervision.  | √  | √                             | √                               | √                     | √                                      |
| Pelham et al., (2016)    | Template analysis using a priori themes | Dentistry, Dietetics, Medicine, Nursing, Occupational Therapy, Pharmacy and Physiotherapy | 16 health professionals from 7 disciplines working in rural areas with a high Māori population, New Zealand | Greater workplace interprofessional collaboration. Positive outcomes from Indigenous community projects involving students.  | √  |                               | √                               | √                     | √                                      |



| Author(s)                | Methods  | Discipline  | Sample size/<br>Setting   | Findings  | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|--------------------------|--|---|---|---|--|-------------------------------|---------------------------------|-----------------------|--|
| Puskar et al., (2016)    | Quasi-experimental design using validated questionnaires     | Behavioural Health Counsellors, Public Health Workers and Nursing | 106 health professionals from rural areas in Pennsylvania, Ohio, and West Virginia, USA           | Challenges - Competing priorities, leadership support, technology, rural culture and fiscal consequences.   |  | √                             |                                 | √                     | √                                      |
| Reed et al., (2021)      | Questionnaires, focus groups                                 | Paramedicine, Nursing, Medicine, Allied Health, and Radiography   | 120 students. Community settings, working farms and rural hospitals in New South Wales, Australia | Understanding of other health care professions. Importance of effective communication.  | √  | √                             |                                 |                       | √                                      |
| Stilp & Reynolds (2019)  | Descriptive and values coding of student reflection journals | Medicine, Physician Assistants, Nursing, Dentistry and Pharmacy   | 30 students in Northwest USA  | Knowledge created through social and cultural interactions. Develop knowledge, connectivity and experience to practice rurally. Understanding rural interprofessional education can inform policy and curriculum for rural interprofessional education. | √  | √                             | √                               | √                     | √                                      |
| Woodroffe et al., (2012) | Questionnaires, interviews                                   | Medicine, Pharmacy, Nursing and Midwifery                         | 90 undergraduate students and facilitators Tasmania, Australia                                    | Exposure to interprofessional education can affect perceptions of collaboration, patient care and teamwork.   |  | √                             |                                 | √                     | √                                      |

| Author(s)   | Methods    | Discipline             | Sample size/<br>Setting | Findings   | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|---|------------|------------------------|-------------------------|--|--|-------------------------------|---------------------------------|-----------------------|--|
| Non-Research Articles - interprofessional education |            |                        |                         |  |  |                               |                                 |                       |  |
| Doolan-<br>Noble et al.<br>(2020)                   | Commentary | Health Science         | N/A<br>New Zealand      | Develop professional/interprofessional competencies and sociocultural understanding within supportive rural teams. Trust between tertiary education providers and rural health care providers (Valuing rural expertise).   |  | √                             | √                               | √                     | √                                      |
| Poulin &<br>Skinner<br>(2020)                       | Commentary | Multi-<br>disciplinary | N/A<br>Canada           | Argues for new rural-centric interprofessional education models that value unique rural contexts within core competencies. Need models of interprofessional education that do not focus of deficit models. Need to acknowledge community connection, local knowledge and utilise champions. Most models fail to adapt to rural contexts. |  | √                             |                                 | √                     | √                                      |

| Author(s)                     | Methods                   | Discipline  | Sample size/<br>Setting   | Findings   | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|-------------------------------|---------------------------|---|---|--|--|-------------------------------|---------------------------------|-----------------------|--|
| Waller et al.,<br>(2021)      | Commentary                | Occupational<br>Therapy, Social<br>Work,<br>Physiotherapy,<br>Nursing, Allied<br>Health and<br>Medicine | 5 case studies in<br>Modified Monash<br>Model areas 3-6.<br>Hospitals,<br>community health<br>centres, schools<br>and educational<br>facilities across<br>Australia | <i>“Interprofessional learning<br/>requires constructive<br/>alignment and positive<br/>contact conditions to ensure a<br/>quality and sustained<br/>experience.”</i> (p. 294)                                   |  |                               |                                 | √                     | √                                      |
| Health Practitioner Education |                           |   |   |  |  |                               |                                 |                       |  |
| Hu & Yi<br>(2016)             | Cross-sectional<br>survey | Postgraduate<br>Medicine,<br>Nursing and<br>other health<br>workers                                     | 570 participants<br>Guangxi region,<br>China  | Confirmed feasibility of<br>delivering decentralised<br>Continuing Medical<br>Education program in a rural<br>area to upgrade health<br>workers' level of education<br>and improve their clinical<br>competency. |  |                               |                                 |                       | √                                      |

| Author(s)                   | Methods  | Discipline   | Sample size/<br>Setting  | Findings   | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|-----------------------------|--|--|--|--|--|-------------------------------|---------------------------------|-----------------------|--|
| Reid et al.,<br>(2011)      | Case control study comparing education experiences of medical practitioners in rural public practice with those from urban public practice using a questionnaire | Medicine   | 174 rural cases and 142 urban control cases using a structured questionnaire, South Africa | Educational factors influencing practice location - Undergraduate curriculum; exposure to rural situation; exposure to meaningful and enjoyable rural experiences; increased sense of social accountability.   | √  | √                             | √                               | √                     | √                                      |
| Van Schalkwyk et al.,(2012) | Portfolios, interviews   | Medicine   | Ukwanda Centre for Rural Health South Africa   | <i>“Relevance of the curriculum to the community needs and related ... teaching and learning; development of graduate attributes; aligned, appropriate assessment. Evaluation ... to determine the effectiveness of the process in relation to the rural environment.”</i> (p. 1068) |  | √                             | √                               | √                     | √                                      |
| Yi et al.<br>(2015)         | Document review, interviews, questionnaire   | Postgraduate Medical, Nursing and other health workers | 669 completed questionnaires, Interviews with multiple stakeholders Guangxi region, China  | Insufficient budget/time for training medical professionals. Widespread ignorance of rural health needs.   | √  |                               |                                 | √                     | √                                      |

| Author(s)   | Methods    | Discipline | Sample size/<br>Setting | Findings  | Theme 1<br>Learning<br>to Think<br>Differently | Theme 2<br>Relation-<br>ships | Theme 3<br>Health<br>Leadership | Theme 4<br>Curriculum | Theme 5<br>Placement<br>as<br>Pedagogy |
|---|------------|------------|-------------------------|---|--|-------------------------------|---------------------------------|-----------------------|--|
| Non-Research Articles – Health Practitioner Education |            |            |                         |   |  |                               |                                 |                       |  |
| Kitchener<br>(2013)                                   | Commentary | Medicine   | N/A<br>Australia        | Needs teaching resources, telemedicine and telemedical education, provision of clinical supervisors. Difficulties gaining and maintaining appropriate skills, placement, and supervision. | √  |                               |                                 | √                     | √                                      |
| London &<br>Burton<br>(2018)                          | Commentary | Medicine   | N/A<br>New Zealand      | Rural communities as active partners in advocating for change. Need rural health policy, infrastructure, human resources and information technology services.                             | √  |                               | √                               | √                     | √                                      |
| Lyle &<br>Greenhill<br>(2018)                         | Commentary | Medicine   | N/A<br>Australia        | National network of rural academic units that enrich clinical education and training for medical, nursing and allied health students. Focussed on community engagement.                   |  | √                             |                                 | √                     | √                                      |
| Sen Gupta &<br>Murray<br>(2011)                       | Commentary | Medicine   | N/A<br>Australia        | Asks if it is valid to apply non-rural assessments to rurally based students. Cites advocacy for remote health as a separate discipline.  |  |                               |                                 | √                     | √                                      |

## Stage 5 – Results: Broad Description of the Literature

Of the 26 published articles selected for review, six pertained to clinical placements, 12 to interprofessional education and eight related more broadly to rural health professional education (see Table 3). ~~Three colour coded areas in the table reflect these groups, with each section commencing~~ with original research articles and is followed by non-research commentary. 18 articles reported on original research and eight were commentary (see Table 2). With the obvious exception of multidisciplinary, interprofessional education literature, all literature was derived from medicine except one article pertaining to allied health (Pillay et al., 2016).

Most research articles related to qualitative or mixed methods studies with a wide variety of interviews, documented reflections, focus groups, document analysis, questionnaires and observation. Many studies do not indicate the size of rural locations although some indicated that they are probably large regional hospitals rather than rural or remote sites, and interprofessional education studies were mostly community-based. Themes were derived from study findings of original research and narrative reports (see Table 3).

Literature largely reports delivery of standardised curriculum in rural places, with no explicit indication as to how rural concepts are being taught or constructed by students as a result of curriculum content, pedagogy and learning assessment. Much of the interprofessional education literature seems to focus on students' understanding of rural environments rather than understanding concepts relevant to interprofessional working. It is not clear whether they are meeting learning objectives relevant to rural practice, interprofessional education or both. The literature identifies rural areas as needing interprofessional education due to fragmented care and limited resources, yet also advocates for interprofessional education to be conducted in rural areas owing to less fragmentation of care. Identity flows across place identity, multiple identities and professional identities related to practice differences and rural as 'place'. Much of the literature mentions the need for students to understand socially accountable health care. However, there is little exploration of how this is taught to students with many placements requiring students to initiate projects, in many cases without guidance, in rural contexts. Therefore, their teaching seems to come predominately from the context rather than from educational factors.

Literature most-closely meeting criteria for examining education processes and specific pedagogy for rural health professionals came from South Africa (van Schalkwyk et al., 2012; Reid et al., 2011; Pillay et al., 2016). Australian literature was dominated by discourse regarding rural clinical schools and clinical placements for medicine. However, one placement focussed on [the](#) impact of rural and remote living on health (Mak & Mifflin, 2012). One Australian article reported on educational elements of a constructively aligned interprofessional education program (Waller et al., 2021). For data extraction, see Table 3.

## Findings

Five themes were derived from the literature, consisting of 'Learning to Think Differently', 'Relationships', 'Health Leadership', 'Curriculum' and 'Placement as Pedagogy'. The first three themes relate to learning from rural contexts and highlight systems, social and practice differences. Curriculum and pedagogy relate to educational aspects such as teaching infrastructure, resources and planning with clinical and interprofessional placements appearing as the key pedagogies for providing rural education.

### **Learning to Think Differently**

Students need to 'hit the ground running' and take responsibility independently owing to limitations of health, human and teaching resources however they mostly feel rewarded by the

challenge. Community proximity allows for a more holistic understanding of the interface between health and social factors. Health professional students and facilitators acknowledge that rural health is predicated upon different systems, structures, regulations (Jackman et al., 2016; Pillay et al., 2016; Yi et al., 2015), economic (Reid et al., 2011), education (Yi et al., 2015) and policy differences (Kitchener, 2013; London & Burton, 2018) that require students to think and understand health differently due to the distinctive health needs, different types of facilities and limited resources (Pillay et al., 2016; Stilp & Reynolds, 2019). The generalist (Jackman et al., 2016), transdisciplinary nature of rural health roles (Pillay et al., 2016) is characterised by overlapping of roles and responsibilities owing to the decreased number and diversity of health roles in rural areas. Students refer to the need to develop “multiple identities” (p. 173) due to missing or overlapping roles that oblige them to take initiative in rural practice contexts (Pillay et al., 2016).

Many students enjoy a sense of autonomy describing opportunities to take initiative and be innovative (Hanson et al., 2020; Morgan et al., 2018; Mpofu et al., 2014; Pillay et al., 2016; Stilp & Reynolds, 2019). Particularly where resources, including human resources are low, students are valued by health professionals (Hanson et al., 2020; Pillay et al., 2016; Stilp & Reynolds, 2019) and the community (Pelham et al., 2016; Pillay et al., 2016) as part of the clinical team. Communities value student presence for providing services that the community would not otherwise receive (Pelham et al., 2016; Pillay et al., 2016; Stilp & Reynolds, 2019). Many students feel that the greater autonomy in rural contexts is an excellent opportunity to learn (Hanson et al., 2020; Morgan et al., 2018; Mpofu et al., 2014; Pillay et al., 2016; Stilp & Reynolds, 2019) however some students found early responsibility and autonomy overwhelming. This was however, also equated with a sense that they are being prepared for the realities of rural practice (Morgan et al., 2018).

Contextual experiences allow students to better understand challenges for rural patients relevant to their living environment (London & Burton, 2018; Mak & Mifflin, 2012; Pillay et al., 2016) and dislocation from family and community (Reed et al., 2021). A Western Australian study placed students with families in both rural and remote settings (Mak & Mifflin, 2012) prior to clinical placements. This led some students to acknowledge an increased understanding of links between psycho-social aspects of rurality and the health of rural residents, however some students failed to make connections between their experience and the placement objectives.

### **Relationships**

Educating health professionals for practice in rural areas is heavily dependent upon good relationships with the community, educators/facilitators and health staff. Relationships with the community are described as pivotal to students feeling welcome and supported (Doolan-Noble et al., 2021; Poulin & Skinner, 2020). Support from health professionals is valued by students (Hanson et al., 2020; Mak & Mifflin, 2012; Martin et al., 2021; Morgan et al., 2018; Mpofu et al., 2014; Puskar et al., 2016; Stilp & Reynolds, 2019; Woodroffe et al., 2012) as were passionate (Morgan et al., 2018; Pillay et al., 2016; Stilp & Reynolds, 2019) and inspirational educators (Morgan et al., 2018; Reid et al., 2011) who are highly influential regarding positive attitudes to rural health, positive placement experiences and a desire to work rurally.

Community support for students is vital (Baral et al., 2016; Doolan-Noble et al., 2021; Greenhill et al., 2015; Lyle & Greenhill, 2018; Mak & Mifflin, 2012; Mpofu et al., 2014) and strong community relationships are also necessary to facilitate education/curriculum (Baral et al., 2016; Lyle & Greenhill, 2018; van Schalkwyk et al., 2012), assessment (Baral et al., 2016; van Schalkwyk et al., 2012), social support for students (Baral et al., 2016; Lyle & Greenhill, 2018; Mak & Mifflin, 2012; van Schalkwyk et al., 2012) and to allow students to understand rural individuals as part of their community and in the context of their home environment (Pillay et al., 2016; Reed et al., 2021).

Students who feel ‘out of their depth’ (Pillay et al., 2016), who did not feel supported, feel like outsiders and feel isolated (Stilp & Reynolds, 2019) are less inclined to regard rural experiences positively.

### **Health Leadership**

Although it is envisaged that health professionals will act as agents of change in improving equity of health outcomes, there is little explicit reference to preparation for advocacy and influencing policy. Learning these leadership skills appears to be largely dependent upon contextual experience of disadvantage, personal initiative and a strong sense of social justice accompanied by personal qualities such as self-reliance, creativity and self-motivation. Social accountability framed discussion across education, clinical placements and interprofessional education literature generally, and specifically regarding Baral et al. (2016), Doolan-Noble et al. (2021), van Schalkwyk et al. (2012) and Reid et al. (2011). Particularly in developing countries, students were positioned to take responsibility for providing services that would otherwise be unavailable, as well as advocating for additional services (Pillay et al., 2016). Placement experiences afford students an authentic understanding of systemic issues and policy influence (Greenhill et al., 2015; Pillay et al., 2016) that position them, particularly in developing countries, as advocates for rural policy (Baral et al., 2016; Greenhill et al., 2015; Pillay et al., 2016), additional resources (Leshabari et al., 2012; Pillay et al., 2016), equity and social justice (Baral et al., 2016; Pillay et al., 2016). Many students play a role in researching health needs (Baral et al., 2016; Greenhill et al., 2015), providing reports on health services (Baral et al., 2016) and implementing health programs (Baral et al., 2016; Doolan-Noble et al., 2021; Mpofu et al., 2014; Pelham et al., 2016; Pillay et al., 2016; Stilp & Reynolds, 2019). Students describe a need to take initiative as there is no-one else to provide services and are critical of short community programs synonymous with poor continuity, sustainability and supervision that has led to a lack of trust from local communities (Mpofu et al., 2014) and missed teaching opportunities (Hanson et al., 2020; Morgan et al., 2018).

Professional identities are tied to a sense of obligation and development of multiple identities due to resource constraints and a need for self-sufficiency (Baral et al., 2016; Jackman et al., 2016; Leshabari et al., 2012; Morgan et al., 2018; Pelham et al., 2016; Pillay et al., 2016; Stilp & Reynolds, 2019). Students take on autonomous roles in health promotion, provision of primary health care and referral of patients (Baral et al., 2016). Other useful rural-specific attributes described by students and facilitators are the capacity to be self-motivated, independent and proactive with a willingness to think creatively (Jackman et al., 2016; Pelham et al., 2016; Pillay et al., 2016; Stilp & Reynolds, 2019).

The extent to which students are exposed to rural communities and able to work independently, be proactive, innovative and have empathy with rural communities is predictive of their ‘fit’ within rural communities and health teams. Rural practitioners have a higher sense of social accountability than urban practitioners with social accountability, personal values and a sense of social justice being more important when recruiting medical students than previously thought (Reid et al., 2011). This position is supported by this review with calls for communities and health professionals to identify potential health professionals early, based on their aptitude and attitude to rural health (Baral et al., 2016; London & Burton, 2018; Pelham et al., 2016), communication skills, sensitivity and compassion towards rural practice (Baral et al., 2016) and empathy for under-resourcing in rural communities (Baral et al., 2016; Mpofu et al., 2014; Stilp & Reynolds, 2019). The chance to observe community values and health needs, drives intention to return and work in rural communities where their care could make meaningful difference (Mpofu et al., 2014; Stilp & Reynolds, 2019; Waller et al., 2021). One student observed, “Here it seems to matter more” (Stilp & Reynolds, 2019, p. 9). Exposure to rural practice is frequently cited to change attitudes to rural health (Baral et al., 2016; London & Burton, 2018; Pelham et al., 2016; Poulin & Skinner, 2020; Stilp & Reynolds, 2019) however, the sentiment towards rural work may be eroded



over time due to exposure to other prospects and the ‘hidden curriculum’ that may preference other opportunities (Reid et al., 2011).

### **Curriculum**

Specific rural curriculum content and assessment are frequently called for in the literature owing to the different knowledge and skills required in rural practice. Specific rural curriculum is hindered by urban-centric development of curriculum (Greenhill et al., 2015; Poulin & Skinner, 2020), ignorance regarding the health needs of rural populations (Yi et al., 2015) and in some countries such as New Zealand, by the lack of specific rural health policy and a lack of medical schools specifically focussed on primary health care and rurality (London & Burton, 2018). The literature highlights a disparate inclusion of rural health content within medical programs (Greenhill et al., 2015) and a need to ruralise curricula for cultural competence (Baral et al., 2016; Greenhill et al., 2015; Pelham et al., 2016; Sen Gupta & Murray, 2011), teaching social determinants of health (Baral et al., 2016; Doolan-Noble et al., 2021; London & Burton, 2018; Poulin & Skinner, 2020), context-specific education (Baral et al., 2016; Hanson et al., 2020; Kitchener, 2013; Lyle & Greenhill, 2018; Mak & Mifflin, 2012; Pillay et al., 2016; Poulin & Skinner, 2020; Reid et al., 2011; Sen Gupta & Murray, 2011; Waller et al., 2021) and rural-specific assessment (Baral et al., 2016; Sen Gupta & Murray, 2011) that reflects the complexity of rural and remote contexts. Likewise, assessments should be linked to learning experiences and social determinants of health (Doolan-Noble et al., 2021) and health professional education should reflect the psycho-social, cultural and economic factors that affect rural-dwellers perceptions of health in order for students to be effective rural health practitioners (Poulin & Skinner, 2020).

The need for curriculum informed by, and aligned with, community needs is frequently advocated (Baral et al., 2016; Greenhill et al., 2015; van Schalkwyk et al., 2012; Waller et al., 2021) and inclusion of community in curriculum design (Baral et al., 2016) and research (Baral et al., 2016; Greenhill et al., 2015; London & Burton, 2018) are also noted, though rarely explored. Increased inclusion of community-based and rural concepts in medical curricula is described by Reid et al. (2011) with Baral et al., (2016) noting that community and population health constitute 25% of the curriculum within Nepal.

Rigorous education is needed to provide students with the self-confidence and proficiency to work with greater autonomy in challenging environments (London & Burton, 2018). This is supported in this review by the volume of references to students needing to quickly accept responsibility (often independently) for management and transfer of patients (Baral et al., 2016; Morgan et al., 2018), management of minor procedures, prescribing medications, delivering babies (Morgan et al., 2018) and early adoption of health leadership roles through advocacy (Baral et al., 2016; Greenhill et al., 2015; London & Burton, 2018; Pillay et al., 2016) and research (Baral et al., 2016; Greenhill et al., 2015; London & Burton, 2018). However, there is scant mention of these concepts being included in curricula to allow students to employ these skills during rural placements. Lack of supervision due to facilitator workload and too few facilitators with designated teaching and supervision time is problematic (Leshabari et al., 2012; Morgan et al., 2018; Mpofu et al., 2014; Puskar et al., 2016; Woodroffe et al., 2012) and contributes to students feeling overwhelmed and failing to gain the most from learning opportunities (Hanson et al., 2020; Morgan et al., 2018). Multiple references to the need for contextualised assessment of student learning relevant to rural health (Kitchener, 2013; London & Burton, 2018; Poulin & Skinner, 2020; Sen Gupta & Murray, 2011; van Schalkwyk et al., 2012; Waller et al., 2021) are made within the literature.

### **Placement as Pedagogy**

The most dominant means of teaching students about rural practice is to situate students in rural areas, mostly for clinical experience via clinical placements and interprofessional education

placements. There is rarely evidence of specifically designed pedagogy that recognises the differences in rural practice environments. Most articles related to rural clinical placements focus on the provision of undergraduate experience of practice in rural settings to afford contextual familiarity and encourage students to return to rural practice (Greenhill et al., 2015; Lyle & Greenhill, 2018; Reid et al., 2011; Sen Gupta & Murray, 2011). Most articles related to clinical placements are descriptions of placement programs or program achievements and do not explicitly state or evaluate links between rural placements and rural health curricula. Interprofessional education literature is focussed on student experience. However, students note differences between placement aims and actual experience that occurs due to lack of equipment and dedicated teaching time (Morgan et al., 2018). Others found it difficult to achieve curricular objectives owing to inter-disciplinary scheduling difficulties (Stilp & Reynolds, 2019). Negative placement experiences result from lack of preparation to manage language, culture, poverty and limited resources (Leshabari et al., 2012; Mpofu et al., 2014; Pillay et al., 2016). Discrepancies exist between training and health service application and between curricula and health system awards and policy (Hu & Yi, 2016; Kitchener, 2013; Yi et al., 2015). Further impinging upon the way rural health is taught is a lack of infrastructure, funding, quarantined teaching time, preparation to provide education (Kitchener, 2013; Morgan et al., 2018; Pillay et al., 2016; Yi et al., 2015) and a need for adequate teaching resources (Kitchener, 2013; London & Burton, 2018; Morgan et al., 2018; Pillay et al., 2016; Puskar et al., 2016; Yi et al., 2015). One study reports greater learning about each other's roles occurring socially rather than in the workplace (Stilp & Reynolds, 2019). Co-located teams are associated with greater collaboration (Martin et al., 2021) and student initiative was found to be the most significant indicator of successful interprofessional education experiences (Jackman et al., 2016) and essential where interprofessional education activities were not planned (Mpofu et al., 2014).

Rural sites are presented as advantageous for learning clinical and interprofessional skills owing to the holistic, cohesive, patient-centred nature of smaller, more integrated systems (Baral et al., 2016; Pillay et al., 2016; Poulin & Skinner, 2020). Smaller rural teams allow for a better experience of interprofessional work due to the limited resources (Martin et al., 2021; Pelham et al., 2016; Pillay et al., 2016; Woodroffe et al., 2012), role blurring and enhanced communication (Poulin & Skinner, 2020). However, professional silos (Martin et al., 2021; Stilp & Reynolds, 2019) and different systems and organisations (Puskar et al., 2016) constituted barriers to communication. Smaller services are valued as “*pathology-rich*” (London & Burton, 2018, p. 326) with fewer students and health professionals to compete for skill development (Greenhill et al., 2015; Hanson et al., 2020). Increased opportunities to observe holistic care or enhanced continuity where care is less fragmented (Greenhill et al., 2015; Jackman et al., 2016; Poulin & Skinner, 2020; Stilp & Reynolds, 2019) are considered to contribute to student learning.

Although many students describe an improvement in understanding population health issues and each other's roles, there were few linkages to how interprofessional education might need to occur differently in rural contexts. Interprofessional education initiatives must suit the context and the community and have a clearly articulated purpose (Doolan-Noble et al., 2021; Poulin & Skinner, 2020), relevance (Waller et al., 2021), reflect the complexity of rural contexts (Poulin & Skinner, 2020) and be linked to specific competencies (Poulin & Skinner, 2020), social determinants of health (Baral et al., 2016; Doolan-Noble et al., 2021; London & Burton, 2018; Poulin & Skinner, 2020) and rural theory (Poulin & Skinner, 2020). Examples of pedagogy such as simulation (Jackman et al., 2016; Mak & Mifflin, 2012; Reed et al., 2021; Woodroffe et al., 2012), online education (Puskar et al., 2016), written and oral reflection or debriefings are used to facilitate student connections between interprofessional collaboration and the provision of care in rural settings (Doolan-Noble et al., 2021; Leshabari et al., 2012; Poulin & Skinner, 2020; Stilp & Reynolds, 2019; Waller et al., 2021; Woodroffe et al., 2012).

## Discussion

There is heavy reliance upon clinical placement and interprofessional education as strategies for familiarising students with rural practice, with little evidence of teaching students *about* rurality and interprofessional education. Hoskins (2012) argues that there is a difference between interprofessional learning via structured activities and interprofessional work that could become synonymous with task and role substitution that was evident in this review. The available literature did refer in places to rural curricula and assessment which suggests that the paucity of health education research may not properly reflect efforts to include rural curricula in health professional education. Therefore, an audit of accreditation documents and subject outlines relevant to rural curriculum content would be useful to properly reflect what rural curriculum content exists.

Advocacy, research, early autonomy and health leadership were significantly represented in the literature. However, there was little evidence of alignment with specific curricula or pedagogies to support these outcomes. The role of distinctive place-based, networked leadership in addressing equity concerns is poorly recognised and often informal leadership roles shoulder responsibility without formal power (Collinge & Gibney, 2010). Rural place-based leadership would strengthen communities in the face of global influence (Horlings et al., 2018). This can be supported by the using critical pedagogies embedded in curricula (Reid, 2011) that prepare students for complexity and responsiveness to the needs of particular 'places' (Ross, 2015).

This review supports a lack of underpinning theory relevant to rural and remote health practice in standardised health curricula (Bourke et al., 2010; Farmer et al., 2012). The relevance of place-based theory is supported by the value attributed to rural background or time spent in rural environments, deemed pivotal to recruitment of health professionals for rural areas. The opportunity to develop a sense of connection consciously and subconsciously between people and places is developed through their lived experience of those places (Bates et al., 2019).

There is a paucity of studies that report educational strategies specific to rural (as distinct from regional) areas, and differentiated strategies specific to remote areas (Reeve et al., 2020). Although differences in rural practice were noted in the literature, there were few connections to variance in teaching methodologies in response to practice differences in rural environments. For example, the increasing prevalence of telehealth in rural health services means that there is a need for more advanced communication skills that requires teaching such as specific methodologies that can compensate for a lack of visual cues (Morony et al., 2018). The current focus on clinical skills has largely replaced knowledge competencies (Hanson et al., 2020) that have a role to play in producing well-rounded graduates who can think holistically and understand the ethical, social, cultural and practice differences relevant to rural practice (Bell et al., 2010).

## Conclusions

This review indicates that there is a heavy reliance upon clinical placement and interprofessional education experiences as a means of delivering rural health 'curriculum'. There is a significant gap evident in research regarding educational design that demonstrates *how* rural health should be taught to best meet the needs of rural health professionals. The review highlights a need for cohesive, foundational educational strategies, rural theory, research and evaluation that provide direction for rural curriculum content, pedagogy and assessment for transformative learning in rural health practice. Although not the only strategy needed, education-based strategies may contribute to health professionals feeling competent, confident and more prepared for rural practice.

## Ethics Approval

This study utilised published data, therefore ethical review was not required.

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