

REVIEW ARTICLE

Challenges to student transition in allied health undergraduate education in the Australian rural and remote context: a synthesis of barriers and enablers

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ABSTRACT

Introduction: The optimum supply of an allied health workforce in rural and remote communities is a persistent challenge. Despite previous indicative research and government investment, the primary focus for rural and remote recruitment has been on the medical profession. The consequent shortage of allied health professionals leaves these communities less able to receive appropriate health care. This comprehensive review incorporates a literature analysis while articulating policy and further research implications.

Methods: The objective was to identify drivers to recruitment and retention of an allied health workforce in rural and remote communities. This issue was observed in two parts: identification of barriers and enablers for students accessing allied health undergraduate tertiary education, and barriers and enablers to clinical placement experience in rural and remote communities. A search of empirical literature was conducted together with review of theoretical publications, including public health strategies and policy documents. Database searches of CINAHL, Medline, ERIC, PsychInfo and Scopus were performed. Selection criteria included Australian research in English, full text online, keywords in title or abstract, year of publication 1990 to 2012 and research inclusive of rural and remote context by application of the Australian Standard Geographical Classification (ASGC) Remoteness Structure. Theoretical publications, or grey literature, were identified by broad Google searches utilising a variety of search terms relevant to the review objective. Allied health professions were defined as including audiology, dietetics, occupational therapy, optometry, orthoptics, orthotics and prosthetics, pharmacy, physiotherapy, podiatry, psychology, radiography, social work, speech pathology and Aboriginal and Torres Strait Islander Health Workers.



Results: A total of 28 empirical publications met the selection criteria with a further 22 grey literature texts identified with relevance to the research objective. Patterns of barriers and enablers for rural and remote student transition in the allied health professions were identified in the literature. Recruitment pathways to allied health tertiary studies in rural and remote communities are vague and often interrupted, and the return of graduates is haphazard. Students from rural and remote communities face an assembly of barriers. They often experience secondary education disadvantage with inadequate subject choices, pathways and opportunities. Programs designed to facilitate transition to tertiary study are often limited in their capacity to address cumulative concerns. Students also face financial imposts and are confronted by daunting social isolation, and separation from families and support systems. In regard to clinical placement, the disincentives weigh heavily. The financial burdens of a rural placement offer little inducement. Social isolation associated with a placement far from home is more acutely felt by students when there is inadequate administrative support and consequent disillusionment. Students also lack a frame of reference to pursue a rural placement option, and are often discouraged by the cumulative commitments involved.

Conclusions: Clear and accessible pathways to allied health training for students from rural and remote communities are pivotal to a stronger representation of this cohort among graduates. Similarly, greater representation of rural and remote clinical placements for allied health undergraduate students is an important facilitator. Despite regional coordination and strategies designed to promote a broader range of placement opportunities, the problems remain. This review has consequences for policy and program development for growth of the rural allied health workforce in Australia, as well as identifying knowledge deficits to guide future research endeavours.

Key words: allied health, Australia, education, rural communities, workforce.

Introduction

Access to health care in Australia is recognised as a fundamental human right¹, but limited health service access in non-metropolitan areas remains a significant issue². Rural health services globally experience similar issues with transport, communication, infrastructure and health workforce shortages³. In Australia, a comparison of health indicators between geographic populations reveals higher mortality and poorer health outcomes in non-metropolitan areas⁴. Geographic disproportion in health service provision has chiefly contributed to these well established inequities in health outcomes for rural and remote populations⁵. Improved access to health care in regional areas can be a mechanism to ensure the populations of these communities are as healthy as other Australians⁶, and contribute to sustainable economic development and protection of the natural environment⁷.

Medical practitioners, oral health practitioners, mental health professionals and allied health professionals are substantially

fewer per capita in rural and remote Australia compared to major cities⁸. Issues with recruitment and retention of health practitioners in rural and remote communities are significant contributors to health workforce mal-distribution⁹. Attracting and retaining allied health professionals in rural areas is also a recognised problem internationally¹⁰.

Promoting health professions to rural secondary students and undergraduate rural clinical placements have been suggested as strategies to address workforce shortages^{11,12}. Students originating from rural and remote areas are more likely to return to work in these communities⁸, and rural clinical placements contribute to subsequent rural practice¹². The phenomenon of student transition is a common factor and an important consideration for the success of both these strategies.

Previous research and government investment in rural health workforce development in Australia have largely focused on the medical profession¹³. An assumption of transferability to allied health is not consistent with research findings, with



discipline-specific strategies considered more effective¹⁴. Preliminary investigation revealed a paucity of research quantifying the impact of strategies used to address low distribution of allied health professionals in rural areas. Resources directed at this issue may not be guided by best practice initiatives or evaluated to direct future investment. Recognising these factors, a comprehensive review was undertaken with the following objective:

To identify barriers and enablers from an Australian perspective for rural and remote students accessing allied health undergraduate tertiary education, and allied health undergraduate students participating in rural and remote clinical placements.

Terminology

Within the published literature there is no Australian or international standard definition of allied health¹⁵, nor consensus on which professions constitute the Australian allied health workforce¹⁶. For the purpose of this review, allied health practitioners are defined as tertiary qualified mainstream healthcare providers including audiology, dietetics, occupational therapy, optometry, orthoptics, orthotics and prosthetics, pharmacy, physiotherapy, podiatry, psychology, radiography, social work, speech pathology and Aboriginal and Torres Strait Islander health workers^{15,17}. Allied health professions do not include medical doctors and nurses^{15,17}.

The terms 'rural', 'remote', 'regional', 'country' and 'isolated' have different definitions and connotations across government departments, professional agencies and service providers. For the purpose of this review the terms 'rural' and 'remote' are used throughout. Furthermore, to achieve the review objective a consistent interpretation of 'rural' and 'remote' was required. Several classification systems are utilised in Australia; for the purpose of this review, the Australian Standard Geographical Classification (ASGC) Remoteness Structure was used¹⁸. 'Rural' and 'remote' included inner and outer regional Australia, and remote and very remote Australia¹⁸.

Methods

An initial keyword search of the Cochrane Library was completed in August 2012. One systematic review relevant to the objective of this study was identified, although from an international perspective. Grobler et al. (2009) found no studies that met their inclusion criteria of well-designed research minimising bias and confounding and evaluating interventions to increase the proportion of health professionals in rural areas¹⁹. With an absence of randomised controlled trials¹⁹, an integrative approach to this review was therefore considered appropriate to enable comparison of a range of methodologies²⁰.

It was not the purpose of this study to conduct a systematic review and the findings should not be considered in this context. Rather, a broad review of existing literature is presented to account for professional diversity and to draw on a variety of data sources. A search of the empirical literature was conducted together with review of theoretical publications, including public health strategies and policy documents. Evidence quality grading was not attempted with conclusions subsequently intended as broad policy considerations and research directions.

Electronic database keyword searches of CINAHL, Medline, ERIC, PsychInfo and Scopus were performed in August 2012 using Boolean phrases: 'rural student' AND 'allied health' AND 'tertiary education' OR 'services' OR 'placement' OR 'fieldwork' OR 'support' OR 'transition, as well as 'Indigenous education' OR 'health career promotion'. Selection criteria included Australian research in English, full text available online, keywords in title or abstract, year of publication from 1990 to 2012, and with inclusion of rural contexts and allied health professions.

A single researcher reviewed titles and abstracts for articles with a primary focus relevant to the review objective. Publications not inclusive of allied health disciplines or rural and remote contexts were excluded. No specific restrictions were placed on research design. A total of 28 empirical publications met these selection



criteria. Transcripts were assessed and themes categorised by application of a constant comparative analytic strategy. This was performed by an iterative review of transcripts, thematic analysis and accrual, and identifying recurring key words and summary concepts between transcripts. This material was organised into broad categorical themes with the progression assessed and confirmed by a second researcher.

For theoretical sources, and grey literature including informally published material available in the public sphere, Google searches were performed using a variety of search terms applicable to the review objective. Searches were restricted to the Australian context with a total of 22 grey literature publications included for review. An iterative process was applied with texts selected based on relevance to themes from the empirical literature.

For the purpose of interpretation and presentation of data, a process of thematic analysis was employed. This comprised organising and finalising themes by identification of patterns within selected texts using the process of constant comparison previously indicated. These themes were then described in detail, integrating citations from both empirical and grey literature. Subsequent analysis of themes by interpretation of relevance to the review objective generated opportunities for future policy, program and research initiatives. The report was subsequently condensed with findings presented in the following results and summarising conclusion.

Results

A summary of the empirical publications included for review is provided in Table 1. To align with the two-part study objective, themes arising from the reviewed empirical and theoretical sources were divided into two components. The first component categorises barriers and enablers for rural and remote students accessing allied health undergraduate tertiary education, termed tertiary transition. The second component categorises barriers and enablers for allied health undergraduates participating in rural and remote clinical placements, termed clinical placement transition. These themes are summarised in Table 2.

Interpretation of these results is presented in the following thematic analysis with direct relevance to rural and remote health policy, research and education in Australia.

Tertiary transition

A review of the empirical literature on barriers for rural and remote students accessing allied health undergraduate degrees revealed themes relevant to all rural origin students commencing higher education. These include secondary education disadvantage, financial disadvantage and social dislocation. However, a fourth theme, a lack of consideration of health careers in the first instance, is specific to health disciplines.

Barrier – secondary education disadvantage:

Secondary education disadvantage is a recognised barrier for rural and remote students accessing tertiary education²¹. The combination of rurality and low socioeconomic status generates the greatest educational disadvantage²². Research specific to allied health describes this disadvantage as originating from restricted subject choices, a comparative lack of peer pressure for academic performance, difficulty accessing senior secondary facilities²³, inadequate career counselling with inappropriate subject selection^{23,24} and high tertiary entrance scores relative to perceived academic ability^{22,24}. School completion and academic performance were also cited as barriers^{21,25,26}.

The Bradley Review, a review of Australian higher education commissioned by the Australian Government, cites previous educational performance as a barrier to higher education for students from rural and remote, Aboriginal and Torres Strait Islander and low-socioeconomic backgrounds²⁷. This report highlights the under-representation of rural and remote students in paramedical sciences specifically²⁷. A report commissioned by the Department of Education, Employment and Workplace Relations elaborates on the mechanisms for this trend²⁸. Gale et al. (2010) describe schooling standards as reproducing the structures of inequality, with students from low socioeconomic, rural and remote and Indigenous backgrounds differentially prepared by primary and secondary schooling for higher education²⁸.



Table 1: Summary of empirical publications

Publication author/year	Participants	Study type	Sample	Key findings
Adams et al. (2005) (ref. 58)	Medical, nursing and allied health undergraduate students	Pre- and post-questionnaire	182	Student attitudes to living and working in rural areas are influenced by multiple interrelated factors, in particular negative aspects of isolation and socialisation in rural areas.
Allan et al. (2011) (ref. 50)	Australian and New Zealand university clinic educators, practitioners, administrators, students and patients from health and veterinary disciplines	Qualitative research	Not specified	In rural areas, expanding from hospital and health centre-based clinics to non-traditional settings such as outreach and multidisciplinary clinics is required for clinics to operate effectively for students and communities.
Andersen, Bunda & Walter (2008) (ref. 21)	All areas of Indigenous higher education	Discussion article	Not applicable	Indigenous higher education across all tertiary sectors is university core business. Flexible and adaptive admission and support strategies are required to increase Indigenous student representation.
Barnett et al. (2012) (ref. 51)	Clinical placement coordinators from rural health organisations representing 16 health disciplines	Cross-sectional mixed-method design	51	Rural clinical placements recognised as effective recruitment strategy. Placement capacity could increase with improved intra-organisational communication and planning, accessing opportunities for interprofessional learning and underutilised clinical areas.
Barney, Russell & Clark (1998) (ref. 52)	Undergraduate occupational therapy students on rural clinical placement	Qualitative program evaluation	21	A dedicated rural placement coordinator with targeted funding and supports for financial and social barriers can improve rural placement student numbers and experience.
Buikstra, Eley & Hindmarsh (2007) (ref. 29)	Rural secondary students	Survey, program evaluation	94	Self-interest is a key determinant of career choice for rural secondary students. Health career workshops in secondary school can substantially influence career decisions.
Durey, McNamara & Larsen (2003) (ref. 22)	Rural secondary students	Qualitative research	120	Health career choices by rural secondary students limited by financial cost, geographical isolation, social and cultural isolation, community and family obligation and health career stereotyping.
Eley, Hindmarsh & Buikstra (2007) (ref. 30)	Rural secondary students	Survey, program evaluation	148	Secondary school health careers information contributed to tertiary course selection and demonstrated value on return of investment.
Felton-Busch et al. (2009) (ref. 33)	Rural Aboriginal Health Workers	Qualitative research	9	Rural Aboriginal Health Workers require further infrastructure, support and knowledge of opportunities to pursue further health career studies.
Fraser et al. (2003) (ref. 23)	Rural secondary school career advisers	Cross-sectional survey	22	Collaborative workshops between advisers and rural health practitioners facilitate networks for health career promotion in rural secondary schools.
Jones et al. (2003) (ref. 56)	Senior health managers in rural teaching hospitals coordinating medical, nursing and allied health clinical placements	Cross-sectional survey	17	Accommodation and funding constraints present as significant barriers to increasing the capacity and sustainability of rural clinical placements in health disciplines.
Jones et al. (2011) (ref. 54)	Undergraduate speech pathology students participating in non-traditional rural clinical placement	Case study	Not applicable	Informal program evaluation revealed non-traditional partnership between health and primary education organisations increased opportunity for tertiary rural clinical placement.
Keane et al. (2011) (ref. 43)	Rural practitioners from 21 allied health professions	Descriptive study, cross-sectional survey	1879	Recruitment should target rural high school students with promotion of positive aspects of rural health practice.
Kelly et al. (2009) (ref. 25)	Indigenous rural secondary students	Qualitative research, program evaluation.	25	Culturally relevant health career promotion is pivotal in increasing Indigenous student representation in health sciences.



Table 1: Cont'd

Publication author/year	Participants	Study type	Sample	Key findings
Lyle et al. (2006) (ref. 53)	Broken Hill University Department of Rural Health	Case study	Not applicable	Regional clinical placement coordination with infrastructure and support systems improve rural capacity for clinical placements in health disciplines and the quality of student experience.
Lyle et al. (2007) (ref. 59)	Course coordinators for medical, nursing, dentistry and 9 allied health undergraduate programs	Cross-sectional survey	No specified	Tertiary institutions are likely to improve response to rural health workforce needs by coordinated interdepartmental collaboration and more effectively drawing on existing resources.
McAuliffe & Barnett (2010) (ref. 60)	Final year occupational therapy undergraduate students	Questionnaire	58	Students' perceptions towards rural practice changed over the course of their studies. This was influenced by positive rural placement experience, academic/supervisor attitudes and the overall course program.
McLeod & Barbara (2005) (ref. 61)	Occupational therapy and speech pathology undergraduate students on rural placement	Questionnaire	97	Online chat rooms are a beneficial strategy to encourage peer support for allied health students on rural placement.
Penman et al. (2007) (ref. 24)	Rural secondary students	Survey, program evaluation	14	A workshop program for secondary students was successful in raising awareness of tertiary education and health careers in particular.
Pham et al. (2012) (ref. 26)	Indigenous secondary students, rural community representatives	Qualitative research, program evaluation	12	Tailored primary healthcare education programs can promote health careers to rural Indigenous secondary students.
Playford, Larson & Wheatland (2006) (ref. 12)	Undergraduate students from 12 allied health professions	Longitudinal survey	429	Value and duration of rural clinical placements is significantly associated with rural employment.
Schofield et al. (2009) (ref. 45)	Medical, nursing and allied health undergraduate students participating in rural clinical placement	Survey	121	There are financial disincentives for students to undertake rural placement which are inequitably distributed between health disciplines. Employment schemes or scholarship opportunities for income replacement would alleviate these barriers.
Shannon et al. (2006) (ref. 65)	Rural clinical placement preceptors for medical, nursing, allied health and other disciplines	Questionnaire	145	To ensure sustainability of rural preceptors factors relating to recognition of loss of productivity, communication between educational and host organisations and multidisciplinary approaches need to be considered. Short observational placements enable students to see rural practice in action.
Smith, Brown & Cooper (2009) (ref. 55)	Rural allied health clinical-academic practitioners	Case study	Not applicable	Integrating clinical and academic roles in allied health disciplines for the coordination and provision of rural clinical placement can increase capacity for these placements and quality of the student experience.
Taylor et al. (2009) (ref. 57)	Undergraduate pharmacy students	Longitudinal survey	125	Students from a rural background who undertake a rural degree including rural placement are more likely to express an intention for rural practice.
Turner & Lane (2006) (ref. 46)	Medical, nursing and allied health undergraduate students	Survey	379	Increased funding is required to address barriers to rural clinical placement opportunities for allied health and nursing students. Medical students are well supported and current funding support should remain.
Turner & Scott (2007) (ref. 42)	University rural health clubs	Discussion article	Not applicable	Rural health clubs are student-driven initiatives addressing workforce shortages. Little formal evidence exists for their success.
Williams, D'Amore & McMeeken (2007) (ref. 13)	Physiotherapy	Survey	84	Workforce strategies required to address growing need for rural clinical placements.



Table 2: Summary of review themes

	Barriers	Enablers
Tertiary transition	Secondary education disadvantage	Senior secondary completion/alternative pathways
	Financial disadvantage	Financial incentives
	Social dislocation	Social/cultural/academic transition support
	Health career choices	Health career promotion
Clinical placement transition	Student financial disincentive	Student financial incentives
	Social isolation	Voluntary placements
	Undersupply of placements	Regional coordination/resourcing
	Inadequate administrative/organisational support	Regional development
	Competing commitments/psychological burden	
	Student isolation from learning resources	
	Inadequate knowledge of placements	

Barrier – financial disadvantage: The financial burden of university education was cited in the selected empirical publications as a barrier for rural and remote secondary students considering allied health careers^{21,22,24,29,30}. This was framed as both the additional costs of relocation to urban centres for university²⁹ and higher rates of low socioeconomic status in rural and remote populations contributing to reduced capacity for university education^{21,29}.

The Senate Standing Committee on Rural and Regional Affairs and Transport described the financial cost of relocation as the greatest barrier for rural and remote students attending the tertiary course of their choice³¹. Similarly, the Bradley Review emphasises the additional financial assistance required to ensure these students successfully complete higher education, in comparison to their urban peers²⁷. Furthermore, the National Rural Health Alliance Inc. (NRHA) cites the cost of relocation, accommodation and living expenses as primary barriers for rural and remote students attending undergraduate tertiary education, specifically for health disciplines³².

Barrier – social dislocation: The theme of social dislocation from the empirical literature included separation from family supports and social networks^{24,30,33}, community loyalty and connection to place discouraging relocation for study purposes²², and Indigenous cultural isolation and

alienation in the university environment and health curriculum^{21,26}.

Gale et al. (2010) also detail the intricacies of social and cultural adaptations in the experience of relocation from rural and remote communities to urban centres for higher education purposes²⁸. This process of transition is depicted as presenting the following broad challenges:

- developing skills for independent living
- negotiating unfamiliar transport systems and orientating to large educational institutions
- losing contact with family and longstanding community and peer relationships
- establishing new social networks²⁸.

Barrier – lack of consideration of health careers: The empirical literature describes this phenomenon as the result of the unique characteristics of rural and Indigenous culture, including connection to place, obligation to community and perception of gender norms^{21-23,25,26,33}, insufficient career guidance and promotion of the variety of health careers by educational institutions^{22-26,30}, and insufficient student exposure to local role models from an undersupply of health practitioners in non-metropolitan areas^{21-23,25,30}.



For tertiary education in general, the Bradley Review describes the aspirations of rural and remote students as not inclusive of higher education due to a lack of awareness of the long-term benefits²⁷. Gale et al. (2010) identify origins of inhibitors to higher education aspirations for this student population as:

- limited exposure to information about university courses, and careers requiring a university qualification
- apprehension resulting from inadequate or misinformation on the university experience
- teacher expectations of academic potential expressed through career counselling advice²⁸.

The Bradley Review describes the task of improving equity of representation in higher education of rural and remote students as difficult, with solutions not immediately obvious²⁷. However, this comprehensive review revealed the following practical enabling solutions; with a focus on allied health undergraduate qualifications.

Enabler – secondary completion and alternative pathways: Senior secondary completion with attainment of sufficient academic achievement for admission to allied health qualifications is an essential first step in improving representation of rural and remote students, and particularly Aboriginal and Torres Strait Islander students, in these courses^{21,26}.

A practical solution to barriers to secondary school completion and academic outcomes for rural and remote students is recognition of this disadvantage by higher education institutions through admission policies and alternative pathways²¹. There are currently specific admission quota requirements for rural and remote origin students to qualifications in medicine³⁴. Extending this across allied health would support greater representation of rural origin students in these courses³⁵⁻³⁷. The Bradley Review also describes a range of innovations for recognising disadvantage in tertiary admission processes, ultimately recommending further investigation by the Australian Government to

determine equitable methodologies for university admissions²⁷.

Enabler – financial incentives: Greater financial incentives are recommended in the empirical literature to increase representation of rural and remote origin students completing allied health undergraduate qualifications^{22,24}. The Australian Government introduced legislation in 2011 in response to the Review of Student Income Support Reforms³⁸. This increased the financial support for students from rural areas moving away for tertiary education. This was in addition to income support reforms for tertiary students passed by the Australian Parliament in 2010 in response to recommendations from the Bradley Review, with an emphasis on students from rural areas^{32,39}.

The National Rural Health Alliance (NRHA) and Services for Australian Rural and Remote Allied Health (SARRAH) have welcomed these reforms, but continue to advocate for further enhancements to Commonwealth undergraduate scholarships in allied health disciplines^{32,37}. The NRHA also suggested improved marketing of financial support opportunities for rural and remote students considering higher education in health disciplines³⁵. Subsequently, an advertising campaign was released by the Australian Government in 2011 targeting regional students and their families with information on the Student Income Support Reforms⁴⁰.

Enabler – transition support: The review of empirical literature also elicited a theme of university transition support to enable successful completion of allied health undergraduate qualifications for rural origin students^{21,22}. This theme included remediating strategies for the social and cultural barriers already discussed. For Aboriginal and Torres Strait Islander students in particular, Andersen et al. (2008) describe the potential for universities to take a leadership role in improving tertiary participation and qualification completion rates of this student population²¹. They describe multi-level strategies to create supportive environments for Aboriginal and Torres Strait Islander students and academic



staff, ultimately establishing Indigenous higher education as core university business²¹.

The theoretical literature also advocates for the role and potential benefits of rural health clubs in universities for supporting cultural and academic transition of rural origin students^{35,41}. However, there is an apparent lack of research evaluating these programs, with little formal evidence for their success⁴². In fact, a counter-intuitive research outcome illustrates involvement with rural health clubs is not associated with rural employment¹³.

Enabler – health career promotion: A high proportion of publications from this review describe the potential and proven effectiveness of health career promotion for increasing rural and remote student participation in allied health qualifications^{22-26,29,30,43}. The following are recommendations for characteristics of health career promotion strategies derived from these publications:

- accessible and relevant health career promotion programs inclusive of information on the range of health professions, with sensitivity to social and cultural context in rural Australia^{22,24,30}
- exposure of students to health careers prior to senior secondary school to ensure appropriate subject selection^{24,29,30,43}
- emphasis on cultural safety in health career promotion for Aboriginal and Torres Strait Islander students, emphasising health careers in the context of family and community loyalty and beliefs^{25,26}
- utilising local health practitioners and allied health students as role models for health career promotion, and as ongoing mentors for rural and remote secondary students considering health professions^{22,23}
- improving networking between rural high school career advisors and health professionals, and better resourcing career advisors by schools and higher education institutions for accurate information on allied health undergraduate admissions²³.

This theme is recognised broadly in the theoretical literature. The Bradley Review describes awareness of higher education and an aspiration to participate as core components of increasing tertiary representation of disadvantaged student populations²⁷. Specifically relevant to allied health, the NRHA call for greater representation of health professions as viable career options to rural and remote secondary students^{35,37}. The additional potential of media campaigns to drive greater interest in health professions in rural communities is also discussed⁴⁴.

The NRHA and SARRAH also call for extension of the role of university departments of rural health by provision of allied health programs^{32,37}. This would not only improve visibility of allied health qualifications in rural communities, but also reduce barriers associated with distance from community of origin.

Clinical placement transition

A review of empirical literature on barriers to transition for allied health students accessing rural and remote clinical placements revealed themes consistent with tertiary transition. These include financial disincentive, social isolation and inadequate knowledge of available opportunities. Further barriers included an undersupply of rural placements in allied health, inadequate placement administrative and organisational support, competing family commitments and psychological burden for students, and student isolation from peer and professional support and learning resources. These barriers highlight issues of access to placements, as well as describing potential for positive experiences contributing to future rural practice intention.

Barrier – student financial disincentive: Financial issues are cited in empirical publications as particularly concerning for students considering rural placements. These issues include potential loss of employment earnings, accommodation costs and transportation requirements^{13,45,46}. Schofield et al. (2009) extrapolate this to highlight the risks of a system exposing students to a reduction in earnings, as financial problems frequently contribute to university



withdrawal⁴⁵. Although lost earnings of clinical placement supervisors have been investigated, there is little information on the magnitude of lost earnings for participating students⁴⁵.

Turner and Lane (2006) indicate allied health students receive substantially less travel reimbursement and paid accommodation on rural placement compared to medical students⁴⁶. The financial burden for students undertaking rural clinical placements in allied health is recognised by SARRAH, which currently brokers the Australian Government Department of Health and Aging scholarships for rural clinical placements⁴⁷. Both SARRAH and NRHA advocate for greater investment in this scholarship program to match the incentives provided to medical students⁴⁸.

Barrier – social isolation: Selected empirical publications cite social isolation as contributing to rural clinical placement refusal or placement dissatisfaction^{13,45,46}. Issues of social isolation on rural clinical placement are described in unpublished literature as pertaining to separation from family and friends, and adjustment to rural cultural characteristics⁴⁹.

Barrier – undersupply of rural clinical placements: An undersupply of rural clinical placements is described in the empirical literature as a fundamental barrier to allied health students participating in these attachments^{13,46,50-54}. This is a critical finding as rural allied health clinical placements are an identified means of increasing recruitment to rural areas^{13,45,46,52,53,55-61}.

Suggested mechanisms for this shortfall include:

- limited capacity of rural allied health practitioners to supervise students on placement^{50,51,53,54}
- inadequate funding and poor coordination between sponsoring universities and health organisations^{46,53}
- under-utilisation of non-traditional placement opportunities and inter-sectoral collaboration^{54,55}.

Health Workforce Australia (HWA) describes insufficient infrastructure and human resources as contributing to shortages of clinical placements across all disciplines and geographic locations⁶². In the rural context, this issue

continues despite clear recognition for some years of the undersupply of rural clinical placements in allied health by the NRHA⁶³ and SARRAH⁶⁴.

Barrier – inadequate administrative and organisational support: Challenges with administrative and organisational support for rural clinical placements in allied health are represented in the empirical literature as arising from both the health and higher education sectors^{46,51,53,56,59}. The dual consequence of insufficient placement opportunities and unsatisfactory placement experiences is described^{51,56}. Causal factors suggested include inadequate or unsustainable funding for health and higher education organisations^{52,53,56,59}, and inadequate communication and feedback mechanisms between institutions providing rural placements^{38,43,51,53,59,65}.

Insufficient inter-sectoral collaboration and administrative support are cited by HWA as impacting on growth of clinical placements nationally, irrespective of location⁶². As rural placements are often in competition with urban settings for allied health students^{49,64}, non-metropolitan communities are at a distinct disadvantage. There appears to be debate between higher education institutions and public sector health organisations as to funding and human resource responsibilities for coordination of allied health clinical placements^{63,64}. In the unpublished literature there is also evidence of contention regarding disparity between support for medical student training in rural clinical schools, and the comparatively lesser funding incentives for allied health rural clinical placements^{36,63,64}.

Barrier – competing commitments and psychological burden: Turner and Lane (2006) describe difficulties organising care for dependents and psychological burden for students associated with preparing for clinical placement, as reasons for allied health students refusing a rural attachment⁴⁶. The National Rural Health Student Network (NRHSN) describes the inequitable expectation for many allied health students to organise their own rural clinical placements, in comparison to the coordinated preparation for other disciplines³⁶. This is recognised through



the call for greater emphasis and funding support for rural allied health placement coordinators^{63,64}.

Barrier – student isolation from learning resources:

Barney, Russell and Clark (1998) and McLeod and Barbara (2005) describe isolation from peer and professional support and resources as detracting from the learning outcomes and satisfaction experienced by allied health students on rural clinical placement^{52,61}. Similarly, inadequate access to information technology, teaching resources and simulation devices has been identified by SARRAH as an issue for rural placement supervisors supporting the learning objectives of allied health students⁶⁴.

Barrier – inadequate knowledge of rural clinical placements:

A lack of information on the availability of rural clinical placements was cited by Barney, Russell and Clarke (1998) and Turner and Lane (2006) as a barrier to uptake of these attachments for allied health students^{46,52}. This is an important insight relevant to the task of ensuring exposure of metropolitan-based allied health students to rural practice, as a means of achieving positive attitudes to employment in rural and remote communities.

Health Workforce Australia emphasises the importance of removing barriers to growth and uptake of clinical placements for those professions required to meet the health needs of the Australian population⁶². A shortage of allied health professionals in rural and remote Australia necessitates examination of current and potential enablers for the uptake of rural clinical placements in allied health, given the positive correlation between these experiences and future rural practice. The research publications considered in this study describe the following recommended and proven solutions.

Enabler – student financial incentives: Barney, Russell and Clark (1998) describe strategies to overcome financial barriers to allied health rural placements to improve uptake and perceived quality of placements offered⁵². These include free accommodation and reimbursement of travel costs⁵². Schofield et al. (2009) specifically address issues related to loss of student income⁴⁵. They recommend casual

employment registers, employment transfer programs, or scholarship for income replacement as potential incentives to address wage loss for allied health students on rural clinical placement⁴⁵.

In the theoretical literature SARRAH, the NRHA and the NRHSN have called for increased government commitment to existing scholarship programs for allied health students participating in rural clinical placements^{36,63,64}. Increased scholarship support is proposed as a method of alleviating the impact of travel, accommodation and social isolation issues contributing to reduced uptake or poor experiences of rural clinical placements in allied health⁶⁴.

Enabler – voluntary placements:

Despite ambiguity surrounding some characteristics of rural placements, Playford, Larson and Wheatland (2006) found a strong association between voluntary clinical placements and future rural practice for both nursing and allied health students¹². However, there appears to be contradictory findings as to the ideal characteristics of rural placements to advance future rural practice¹². Further research is suggested to adequately understand what constitutes positive placement experiences with sufficient confidence to make policy recommendations^{12,60}.

Enabler – regional coordination and resourcing:

Regional coordination and investment in infrastructure and support systems is described in the empirical literature as improving both the quality of rural clinical placements and regional capacity for allied health students^{52,53}. Lyle et al. (2006) present a case study of regional clinical placement coordination across all health disciplines⁵³. They detail improved student placement numbers and increased breadth of clinical experience as a result of centralised coordination, streamlined administration and commitment to inter-sectoral collaboration⁵³.

On a broader scale, Barnett et al. (2012) recognise the competition for rural clinical placements across the health disciplines as compromising the quality of student learning and contributing to clinical supervisor burnout⁵¹. To



minimise these negative outcomes, Barnett et al. (2012) advocate for greater collaboration between universities, faculty and health organisations in relation to student placement data, interdisciplinary learning and placement opportunities⁵¹. The authors call for not only regional planning as described by Lyle et al. (2006), but also statewide and national planning efforts to maximise the quality and capacity of rural clinical placements in health⁵³.

The potential for jointly funded teaching positions and inter-professional learning in rural settings to improve rural placement experiences and availability is investigated by Smith, Brown and Cooper (2009)⁵⁵. The authors present a model for multidisciplinary allied health clinical–academic practice⁵⁵. Their case study illustrates the potential for these initiatives to achieve better rural health outcomes by:

- improved collaboration between higher education institutions and local health services
- responsiveness of clinical placements to community needs
- improved rural placement experiences for students
- identifiable career progression for rural health practitioners
- increased research capacity in rural areas, and increased capacity for rural clinical placements⁵⁵.

Further opportunities for increasing availability of rural placements in allied health utilising inter-sectoral collaboration include university outreach clinics⁵⁰ and community-led non-traditional partnerships⁵⁴. Appropriate accommodation options and availability of information technology and telecommunications are also conducive to allied health student uptake of rural clinical placements and subsequent positive experiences^{52,55,56,59,61}.

Embedded in the depiction of these programs is adequate, sustained and appropriately utilised funding. Congruent with research publications, the theoretical literature advocates for increased funding for provision of rural placements in allied health, and greater shared financial investment for inter-sectoral coordination^{63,64}. Increasing the number of joint

clinical–academic allied health preceptors in rural areas is also recognised in the unpublished literature as improving the quality of support for allied health students on rural placement⁶³.

In recognition of the issues with clinical placement coordination in all geographic locations, HWA introduced Integrated Regional Clinical Training Networks⁶⁶. These networks were established with the intention of increasing the availability and quality of clinical placements in the health professions⁶⁷.

Enabler – regional development: Jones et al. (2003) present regional development and promotion of viable communities as fundamental to ensuring rural placements in health disciplines are both available and meaningful⁵⁶. In essence, the retention of services in rural hospitals is required to provide teaching environments for student placements⁵⁶. Beyond the domain of health, the imperative for regional development is recognised at a national level with broader social considerations. For instance, Regional Development Australia is an initiative recognising the importance of strengthening regional communities to ensure their economic, social and environmental sustainability in the future⁶⁸.

Conclusions

This review is intended to assist policy and program development for growth of the rural allied health workforce in Australia, as well as identify knowledge deficits to guide future research endeavours. Although applicability of findings to an international context may be limited, recommendations from this study may engender consideration of allied health student transition support strategies for rural and remote areas globally.

Based on the findings of this review, policy directions for consideration at the national level incorporating Australian Government initiatives to support the recruitment of allied



health practitioners to rural and remote areas in Australia should include:

- pursuit of a standardised national allied health definition and classification of rurality to achieve clarity and equity for professional and student support, and to strengthen workforce data collection methods
 - continued emphasis on regional development in support of viable communities and health services in rural and remote areas
 - policy support for inter-sectoral collaboration through identification of common goals and non-competitive resource allocation for mutually beneficial outcomes in the health and higher education sectors. Specific strategies may include funding opportunities for tertiary education and health organisation collaboratives for rural placement coordinators and clinical/academic supervisors for improved capacity, sustainability and quality of placement experiences
 - ongoing development and evaluation of specific programs in support of secondary education quality and completion in rural and remote areas
 - investigation of equitable tertiary admission processes or alternative pathways for university entrants addressing under-representation of rural origin students, and specifically for allied health disciplines
 - evidence-based and contemporary transition support programs for rural and remote allied health undergraduates, particularly for Aboriginal and Torres Strait Islander students
 - recognition of the role of allied health in contributing to the well-being of rural and remote populations, achieved through parity with medical and nursing financial incentives for rural origin students, and resourcing of rural clinical training.
- health career promotion initiatives based on local identified needs
 - regional coordination of rural clinical placements in allied health
 - further investigation of social and cultural motivations for health career choices by rural origin students
 - development of a valid and reliable measure of the impact of rural clinical placements in allied health
 - investigation of the attributes of rural clinical placements creating positive experiences for participating allied health students.

Relevant to higher education and health sectors at a state jurisdictional level, this comprehensive review has revealed program and research recommendations. These include:

Beyond recognition of social and cultural implications, there appears to be comparatively little formal investigation within empirical or theoretical literature for transition interpretations and experiences of students themselves. Initiatives addressing transition issues for rural and remote origin allied health students or undergraduates on rural clinical placement may not be adequately influenced by the opinions and perspectives of the target population. To achieve meaningful change in representation of allied health practitioners in rural and remote Australia, and ultimately more equitable health outcomes for regional communities, future research should privilege the perspective of these students.

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