RACGP

National Rural Faculty

New approaches to integrated rural training for medical practitioners

Research component

Executive summary

Learning and skill development is an ongoing, lifelong process for general practitioners (GPs) as they respond to the dynamic and changing needs of the community they work in. Rural and remote communities have diverse and challenging healthcare needs, exacerbated by the burden of distance and social isolation, and require equitable access to essential primary care and general practice services. The GPs who work in these areas need opportunities to acquire and update skillsets in order to meet these needs; they often have the most difficulty accessing training opportunities given their location. The research presented in this report explores issues of access and the important generalist skills needed to meet the needs of rural and remote communities.

This research was conducted in 2013 by The Royal Australian College of General Practitioners (RACGP) National Rural Faculty, as part of the Department of Health (DoH) funded *New approaches to integrated rural training for medical practitioners* (NAIRTMP) project. The NAIRTMP project was embarked in two parts – policy development through the *Investing in rural skills* consultation series and a research project, the findings of which are presented in this report.

The overall project enabled the RACGP to develop policy advice and key directions to inform rural training policy and achieve stronger integration across the system. The NAIRTMP report provides innovative and practical solutions to lifting barriers currently limiting training success and clarifies many areas of rural and remote medicine workforce. This is a comprehensive policy which combines recruitment and retention aims and creates a distinction between the learning stage and time in career. This distinction allows a more targeted policy approach which addresses the needs of both the existing workforce and those at an earlier learning and career stage.

The research component, presented here, aimed to explore the nature and extent of advanced skills in rural general practice, and understand the training and support needs of GPs which would allow them to meet the demands of their rural community. This research fills the gap in current literature by extending beyond the current procedural skills focus and incorporating non-procedural skills as important components of rural general practice. The 1722 survey respondents represent a significant sample of Australia's rural general practice workforce, providing solid evidence to inform future policy development.

The outcomes provide a substantial contribution to inform future policy concerning targeted advanced skills support for rural general practice. Importantly, in prioritising future funding, the research offers clarification on a number of policy contradictions, specifically relating to:

- the current approaches that favour certain skills over others
- helping to define an advanced skill
- clarifying the scope of skills practiced in rural and remote areas
- the barriers and enablers to skill acquisition, application and maintenance.

The findings allow better understanding of the skill requirements of rural GPs, the context in which these skills are utilised, and the supports needed to enable rural GPs to build, develop or refresh skills. It also highlights the commitment of rural and remote GPs who continue to work in their communities on a long-term basis. In order to retain these rural doctors, future workforce and training policy must reflect the needs of rural communities and the profession more closely, and build on the synergies between GPs with varying skillsets to best address rural health service provision. Rural GPs need to have access to opportunities for skill acquisition and maintenance throughout their career as they respond to changes in their community and changes in skill requirement.

A number of recommendations have been developed and provided to DoH from the research findings:

1. Definitions for advanced skills fail to reflect the full scope of skills practised. Skills beyond procedural skills, as identified in the study, must be acknowledged and fully supported in future training and workforce planning strategies.
2. Future workforce positioning by governments must factor the full definition and scope of advanced skills practised in rural and remote Australia, and acknowledge the distinct and separate learning requirements of the practising GP and trainee.
3. Fund further skill acquisition and maintenance support for the existing workforce, taking into account the extended skills identified and prioritised by the profession through the study.
4. Provide a supported pathway for trainees to acquire advanced skills, ensuring flexibility and broad skill choice, thereby empowering the trainee to make informed career decisions.
5. Support further research on the correlation between advanced skills acquisition and retention, both in terms of retention of skill and retention to community, with a particular focus on recognition, motivation and supportive factors. Regulatory and non-regulatory options and impacts, including mandatory ongoing Quality Improvement and Continuing Professional Development (QI&CPD) requirements and remunerative issues, should be explored.

Defining advanced skills in rural general practice: A literature review

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Abstract

Background: The skill requirements of rural general practitioners (GPs) fluctuate as their circumstances and patient needs of their community change. In order to meet these changing needs, GPs often seek opportunities for training and skill development through advanced rural skills training across a broad range of areas. However, workforce and training policies only support a narrow range of skills, without due consideration for the full range of skills sought to address unmet patient need in rural and remote communities. This paper aims to identify and appraise existing definitions of advanced skills in rural general practice and determine the extent of procedural bias in current research and policy.

Method: A literature review of research and policy related to advanced skills was conducted, including peer-reviewed and grey literature.

Findings: The absence of a comprehensive explanation or clearly defined parameters for advanced skills signifies a lack of understanding of the training and skill requirements of rural GPs. This is also evident in research and policy, which are inherently focused narrowly on procedural skills. The full range of advanced skills sought by rural GPs to address patient needs in their community should be acknowledged and embedded in future research and policy development.

Introduction

Smaller rural and remote communities do not have the population size or the accessibility to sustain specialist services, often leaving a service deficit in many areas.[1] It is within this context that rural GPs often practise advanced skills as part of their comprehensive care to meet the needs of the patients in their community. However, there is no agreed or peer-recognised definition of an advanced skill and very little clarity around what accurately constitutes an advanced skill, and as a result funding and support priorities are inadequate and somewhat misdirected.

This paper explores current definitions of advanced rural skills in the literature and highlights the lack of clarity and consistency in language, as well as the need to broaden current definitions to reflect the full range of advanced skills practised in rural general practice.

Method

A literature review of procedural and non-procedural advanced rural skills was conducted through the RACGP John Murtagh Library. Search terms included: advanced rural skill, general practice advanced skill, procedural GP, non-procedural advanced skill, rural general practice. Articles included were relevant to Australian general practice, and offered some form of definition around the aforementioned search terms. Definitions were also identified through a Google search.

Results

Defining advanced skills

There is a distinct shortage of literature offering a definition for an advanced skill, with existing descriptions narrowly focused on procedural skills or the GP-proceduralist. The GP-proceduralist has historically embodied what it meant to have an advanced skill general practice. A study of the landscape of GP procedural practice,[2] defines GP-proceduralist as a 'highly trained cohort of GPs that have historically provided anaesthetics, obstetric, surgical and other routine and emergency procedural interventions for patients in local communities'.[2] It also acknowledges and utilises the definition of GP-proceduralist offered by Dunbabin 2002,[3] which distinguishes between GPs who perform minor procedures and those who perform more advanced procedural work, defining the clinical parameters by which each procedural advanced skill area is determined.[3] Robinson et al. noted the useful but competing definitions of general practice and procedural medicine.[2]

These definitions give no recognition to GPs with non-procedural or knowledge-based advanced skills extending beyond surgical, maternal and emergency care. These existing definitions are becoming increasingly inaccurate as the broader advanced skill areas relevant to rural general practice are being increasingly recognised. However, a broader skillset is somewhat recognised through advanced rural skills training (ARST), which facilitates the acquisition of both practical and knowledge based advanced skills relevant to rural general practice. Allan & Schaefer 2005 explain that topic choices for

ARST are defined by the nature of rural general practice, which involves more emergency, procedural and community based care than an equivalent based practice in an urban setting.[4–6] According to McKenzie et al ARST is a platform to broaden skills beyond the normal scope of general practice training, in areas both procedural and non-procedural.[7]

The availability of both procedural (anaesthetics, obstetrics, emergency and surgery) and non-procedural (Aboriginal and Torres Strait Islander Health, paediatrics, adult internal medicine, mental health, population health, palliative care) ARST is evidence of the professional recognition of the breadth of skills sought by GPs to meet the needs of rural and remote communities. However, this training is ad hoc, and those acquiring the skills needed in their community do so within a health system that does not recognise or value all of these advanced skills.

Advanced skills research

Advanced skill and general practice research agendas have also predominantly focused on procedural advanced skills, despite the need for research into the use of advanced skills in areas of growing global concern such as chronic disease and mental health. Glazebrook & Harrison 2006 identified obstacles to the maintenance of advanced procedural skills by rural GPs, many of which would undoubtedly be applicable to the maintenance of non-procedural skills as well, including lack of opportunity, expense, access to locum relief and funding, lack of flexible delivery options for education, access to training, time constraints, credentialing and recognition issues, family obstacles and medico-legal issues.[1]

Acknowledging the service deficits in rural areas encourages broader understanding around the need for advanced skills in rural general practice. Research by Pegram et al. 2005 describes the current patterns, problems and solutions to the provision of specialist services in rural and remote areas, strongly emphasising the importance of GPs gaining procedural advanced skills to address service deficits.[8] Acknowledgement is also given to the service gaps left by non-procedural specialties (such as psychiatry and paediatrics).[8] Issues around access equity arise from these service gaps, with rural GPs having little choice but to provide the best care they can with the skillset they have acquired, transferring responsibility of care out of the local community if service requirements cannot be met safely.

The narrow perception of advanced skills is also evident in recent research undertaken to measure advanced skill attainment. Datasets such as the NSW Rural Doctors Network research *Procedural medicine in rural and Remote NSW*' and the Rural Health Workforce Australia *Minimum data set* report in 2012 are heavily focused on procedural skills (the latter includes the provision of Aboriginal health services as well).[9,10] There has been no equivalent research undertaken on the full range of advanced skills required by the general practice workforce in Australia. The RACGP research *Acquisition, practise and maintenance of advanced skills: addressing patient need in rural general practice* clarifies that the scope of skills has broadened, highlighting the need to guide stakeholders toward a more realistic view of general practice advanced skills that extend beyond hospital-based and procedural-skill services.

Structural constraints

Policies and criteria for remuneration and recognition of advanced skills are ad hoc, characterised by jurisdictional complications and competing interests. Some advanced skills carry a remunerative imperative, as well as agreed requirements for ongoing maintenance of professional standards. These operational requirements impose a responsive definition of advanced skills within the sector that is not consistent with that understood by the general practice profession.

The issue is deeply embedded in the value and recognition of some advanced skills over others. Recognition is needed for GPs addressing unmet patient needs in their local context, acknowledging a broader range of skills that is required to achieve this level of service delivery.

However, caution must be taken to ensure that this recognition is not tied to remuneration or imposed ongoing professional maintenance standards, given that the suitability of this model is not consistent across the skillset and could act as a deterrent rather than an enabler. A skill-acquisition pathway is required for practising rural GPs which provides flexible and ongoing support for the use and maintenance of advanced skills. This includes supports for those who wish to upskill to meet a need in their community.

Support for advanced skill acquisition and maintenance

Two programs are currently available to support GPs in the acquisition and maintenance of procedural advanced skills; however, this support does not extend to non-procedural skills. The Rural Procedural Grants Program (RPGP) supports rural GPs in maintaining procedural skills, and the General Practitioner Procedural Training Support Program (GPPTSP) supports GPs in attaining procedural skills in obstetrics or anaesthetics only.[11,12] GPs require flexibility and support to adapt and acquire skills as the needs of their community change, and this limited support does not enable responsiveness. This is a significant policy gap and a much broader approach to training and support for rural GPs is required.

Proposed definition

The development of an advanced skill definition must acknowledge the full range of skills needed by rural communities. The proposed definition below reflects the nature of health needs in rural communities and the strong imperative for rural GPs to advance their skills by virtue of the context in which they work, characterised by substantial medical need, access barriers and support deficits

Proposed definition of advanced skills:

Advanced skills are the additional practice and knowledge-based skills sought by GPs to enable them to address patient needs in their community. Advanced skills training facilitates the lifelong learning requirements of a GP as they seek to acquire new skills. There is an imperative for GPs to develop and acquire new skills throughout their careers in rural Australia. The unequal distribution of health outcomes, health services and medical workforce has great impact in these areas and the GP must be able to respond to frequently changing community needs.

Conclusion

The review of current literature around advanced rural skills highlights that there is no accepted, consistent or comprehensive definition of an advanced skill, demonstrating the narrow focus toward procedural skills. Without a definition that reflects the context in which advanced skills are required and represents the full range of skills needed in rural communities, these narrow definitions facilitate the bias in research toward procedural skills, the ad hoc approach to skill recognition and the inequitable distribution of available funding for non-procedural training.

There is undeniable value in patient access to procedural advanced skills in their rural and remote communities, without which emergency and maternity services and various other essential services would not be available locally. The issue lies in the absence of recognition that these are not the only additional skills required to address patient need in rural communities. Recognition of the broader range of generalist skills required by rural GPs to provide continuing, comprehensive, patient-centred holistic care in a rural context is increasing. Research and policies to support skill acquisition and maintenance must also expand to align more closely with the advanced skill areas acquired and practised in rural communities in response to patient need.

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Acquisition, practise and maintenance of advanced skills: addressing patient need in rural general practice

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Abstract

Background: General practitioners (GPs) acquire advanced skills in order to address patient demand or particular health needs in rural communities. Current training and support is targeted toward the acquisition and maintenance of procedural skills, with no equitable strategies supporting rural GPs looking to acquire or maintain non-procedural skills. The range of advanced skills requires clarification to ensure that investment in advanced skill acquisition encompasses the broad range of skills required to address needs in rural communities.

Method: The qualitative and quantitative results from a targeted survey of rural GPs are reported. Free-response survey questions were analysed for major themes.

Participants: RACGP National Rural Faculty members, excluding students and members living overseas (n=8277).

Results: Twenty per cent (1722) of surveys were completed, with participants reporting a range of demographic characteristics. The data highlights the low rates of procedural skill practise and the prominence of non-procedural advanced skills in addressing the needs of rural communities. The training and support requirements of rural GPs were identified, including the barriers to and enablers for advanced skill acquisition, practise and maintenance.

Conclusion: This research shows that the range of advanced skills needed to address patient-driven health needs in rural communities extends well beyond procedural, highlighting the prominence of non-procedural skills and the need to extend training and support approaches to reflect these findings. The lack of opportunity to acquire and maintain advanced skills, and concerns around skill maintenance for the existing workforce need to be addressed in any future workforce planning, with targeted strategies to support both skill acquisition and maintenance for the current and future workforce.

Introduction

General practice functions at the centre of an effective primary healthcare system, providing person-centred, continuing, comprehensive and coordinated holistic healthcare to individuals and families in their communities.[1] The delivery of general practice in a rural or remote context offers its own diversity in terms of community demographics and infrastructure, disease distribution, geographic challenges and patient-access barriers, clinical variety, professional skill and responsibility and workforce requirements. Geographic isolation and access to services also contribute to poorer health outcomes for rural and remote communities.[2] For many rural populations access to specialist services in regional centres or cities comes at significant expense, including time away from work and family, transport costs and dependence upon transport availability. Each community is unique and presents a challenging setting for those providing healthcare and working to improve health outcomes.

The workforce shortage of doctors in all specialties outside of metropolitan areas is well documented.[3–5] Social dislocation and professional isolation are cited as disincentives to recruitment and retention of doctors for rural and remote communities,[6] and many communities do not have the population to sustain specialist services.[7] While technology is being applied to break down barriers to specialist care through telehealth and e-health developments, rural and remote populations still require access to local procedural and non-procedural secondary care services (such as emergency care) within their community.

GPs manage undifferentiated presentations and may encounter almost any condition, acute or chronic, in their daily practice. However, for rural GPs this is likely to occur in an environment where specialist support is not immediately available.[8] They are often engaged in work that requires a high level of confidence and competence across broad skill areas, such as emergency care and on call services, given they are the only available workforce. Therefore the crucial determinants of requisite skills rest in the context in which GPs are providing care, and the health needs of the community in which they work. Rural GPs require the skills, confidence and resilience to provide care for a broad range of illnesses in settings with varying levels of available resources, equipment and facilities and to work independently where less specialist support is available.[7,9]

Skill requirements fluctuate throughout the career of a rural GP as they respond to the changing needs of their community (such as change in disease profile), upskill for remuneration imperative, ensure practice

viability, adapt to changes in government policy and environment (such as rural hospital closures), or change in areas of interest. GPs may respond to the changes by acquisition of advanced skills. Advanced rural skills training (ARST) is the mechanism by which rural GPs may extend their expertise in a particular area and enhance their capacity to provide secondary-level care to their community. These skills encompass knowledge as well as physical and practical capabilities, undertaken in both procedural and non-procedural skill areas. However current policy and training approaches are predominantly focused toward procedural skill acquisition and maintenance. Clarification is needed of the skills required by the profession to service rural and remote communities to ensure the areas of the highest need for a particular community profile are prioritised, and accurately reflect the nature and the context of rural general practice.

The ability to acquire, practise and maintain advanced skills is crucial to securing a resilient, multi-skilled general practice workforce which is confident and competent to meet location specific service gaps and address the challenges presented by rural general practice. Insufficient opportunity to acquire these skills and the concerns around skill maintenance in rural areas are well documented.[7,10] There needs to be a broader approach to training for both existing and future rural doctors in order to address the maldistribution of the rural health workforce. Key outcomes from this research will inform future policy concerning targeted supports for advanced skills in rural general practice.

Aim

To identify barriers to and enablers for rural GPs to acquire and maintain advanced skills; and to clarify the range of advanced skills currently being acquired and practised by rural GPs in order to meet the needs of their community.

Method

A cross-sectional survey of Australian rural GPs was conducted, with a cohort of 8277 sourced through the RACGP National Rural Faculty membership database. The Dillman protocol was adapted and applied to this research survey in order to maximise the survey response rate. The multiple choice and free-response survey questions were emailed to the entire cohort, allowing 2 weeks for participants to respond.[11] Data to assign the ASGC-RA (2006) based on a responder's current postcode was sourced from the Australian Bureau of Statistics. Chi-squared tests were used to assess whether questionnaire responses varied by age group, state and ASGC-RA. Ethics approval for the research was granted by the RACGP National Research and Evaluation Ethics Committee, noting that this approval is not an endorsement of any product associated with the research.

Results

Demographics

Of the 8277 NRF members invited to participate in the survey, 1722 completed surveys were submitted within the 2 week period (response rate 20.8%). The age distribution of participants was found to be broadly similar when compared with that of the GP workforce nationally.[12] Outer regional, remote and very remote locations were over-represented in the questionnaire responses, compared with the distribution of locations in the NRF membership (*Table 1*). The distribution of states was generally similar between survey respondents and the NRF membership; however, members from the Northern Territory and Western Australia were slightly over represented in the survey responses.

Table 1: Demographics of survey respondents

ASGC-RA (2006)	Survey respondents		NRF Membership		GP workforce data[1]	
	n	**(%)**	**n**	**(%)**	**n**	**(%)**
Major cities of Australia	287	(16.8)	3406	(33.3)	19420	(66.9)
Inner Regional Australia	594	(34.8)	3781	(37.0)	5747	(19.8)
Outer Regional Australia	579	(33.9)	2331	(22.8)	2642	(9.1)
Remote Australia	142	(8.3)	352	(3.4)	661	(2.3)
Very remote Australia	104	(6.1)	346	(3.4)	541	(1.9)
State[A]	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**
Australian Capital Territory	18	(1.0)	97	(1.0)	440	(1.5)
New South Wales	435	(25.3)	2691	(26.8)	8998	(31.0)
Northern Territory	76	(4.4)	212	(2.1)	479	(1.7)
Queensland	426	(24.7)	2622	(26.1)	6199	(21.4)
South Australia	128	(7.4)	761	(7.5)	2348	(8.1)
Tasmania	82	(4.8)	457	(4.6)	770	(2.7)
Victoria	414	(24.0)	2243	(22.3)	7033	(24.2)
Western Australia	223	(13.0)	956	(9.5)	2744	(9.5)

[A] Respondents can record more than one state in order to capture GPs working in multiple locations

The majority of participants (83.9%) graduated between 1980 and 2009, and when asked to identify the qualifications participants held, the most commonly reported was the FRACGP (64.1%) followed by registrars in training (18.5%). Approximately 10% held a FACRRM, 6.5% a FRACGP/FARGP and 16.4% of participants also held a DRANZCOG. One-third (30.7%) of participants provided additional qualifications in various areas, including obstetrics and gynaecology, anaesthetics, child health, public health, tropical medicine, musculoskeletal medicine and dermatology. Several respondents indicated they had passed AMC exams, but it is unclear as to whether this was an additional qualification, or their progression to date. More than half (51.7%) of the participants identified as international medical graduates.

Participants were asked to choose the best description of their current role in the workforce and were able to select only one answer. Forty-four per cent identified themselves as a GP, and 27.4% as a rural GP. Less common responses included GP/VMO Proceduralist (8.4%), GP rural generalist (5.9%), rural locum (2.9%), district medical officer (2.1%), GP registrar (2.0%), educator (1.2%) and academic (0.9%).

Participants worked in a variety of practice settings (see *Table 2*). Although 69.0% had been in that role less than 5 years, more than half (50.9%) of the cohort indicated that they intend to remain in rural general practice for 5 or more years (29.0% of these for more than 10 years). One-quarter of participants indicated that they did not have an advanced skill.

Table 2: Practice setting

Practice setting[A]	n	(%)
Rural general practice	791	(46.0)
Regional general practice	457	(26.6)
District hospital	281	(16.4)
Urban general practice	199	(11.6)
Aboriginal community controlled health service	138	(8.0)
Remote general practice	125	(7.3)
District health service	47	(2.7)
Private hospital	38	(2.2)
Royal Flying Doctors Service	31	(1.8)
Rural Clinical School	29	(1.7)
Tertiary education sector	26	(1.5)
Government health department	22	(1.3)

[A] Respondents can select more than one answer

Skills acquisition and use

Participants were asked to provide each of the advanced skills they had acquired and those currently being used in their practice (*Table 3*). In terms of skill attainment, emergency medicine (38.7%) was the most commonly acquired skill, followed closely by mental health (31.1%), chronic disease management (27.6%), obstetrics (26.2%), paediatrics (24.0%), small town rural general practice (23.8%), Aboriginal and Torres Strait Islander health (23.0%), palliative care (20.1%) and aged care (19.3%). Common responses in the 'other' field for skill acquired and currently in use include dermatology/skin cancer medicine, drug and alcohol management and sexual/women's health. The most commonly practised skills followed a similar pattern, though the non-procedural skill areas were more prominent (*Table 3*).

Practice rates can be derived from the data presented in *Table 3*. Obstetrics and anaesthetics have the highest rates of non-practice (40.1% and 41% respectively). Most non-procedural skills (excluding tropical disease medicine) had low non-practice rates, or practice rates that exceed that of skill acquisition.

Skill acquisition and current practice data was stratified by state (*Appendix 1.1* & *Appendix 1.2*). Most notably, South Australia had more GP-proceduralists in comparison with other states, also reporting higher rates of current procedural skill use. *Table 3* shows the advanced skills with current usage percentages >20%, stratified by state. In five states (ACT, NSW, QLD, TAS and VIC) mental health is the leading skill used in rural general practice, and its most prevalent use is in the NT (42.9%). Aboriginal and Torres Strait Islander health (55.6%) and chronic disease management (44.4%) are the most commonly used skills overall in the NT. Emergency medicine is most commonly used in SA (58.5%) and WA (40.3%) followed by paediatrics (33.1% and 32.3% respectively) and mental health (33.1% and 29.9% respectively).

Table 3: Skill acquisition and current skill use

Advanced skill[A]	Acquired	Current use	States in which usage is >20%
	n (%)	n (%)	
Mental health	535 (31.1)	591 (34.5)	All
Emergency medicine	666 (38.7)	557 (33.6)	All, except ACT
Chronic disease management	474 (27.6)	516 (30.1)	All, except ACT
Paediatrics	412 (24.0)	468 (27.3)	All
Aged care	332 (19.3)	382 (22.3)	NSW, VIC, SA & WA
Small town rural general practice	409 (23.8)	365 (21.3)	NSW, VIC, WA & SA
Aboriginal & Torres Strait Islander health	396 (23.0)	354 (20.6)	NSW, NT, QLD, WA
Palliative care	345 (20.1)	352 (20.5)	NSW, NT, VIC, SA & WA
Internal medicine	278 (16.2)	344 (20.1)	NSW, NT, QLD, SA, TAS, WA
Obstetrics	451 (26.2)	270 (15.7)	SA & NT
Public health	174 (10.1)	175 (10.2)	NT
Anaesthetics	261 (15.2)	154 (9.0)	None
Surgery	164 (9.5)	154 (9.0)	None
Defence health	39 (2.3)	27 (6.1)	None
Tropical diseases	132 (7.7)	93 (5.4)	None
Refugee health	62 (3.6)	51 (3.0)	None
N/A (don't have advanced skill)	458 (26.6)	437 (25.0)	

[A] Respondents can select more than one answer

Skill acquisition and current practice data was stratified by ASGC-RA classification system and age. Procedural skill areas showed an increase in prevalence associated with remoteness, though remote participants (RA-4) were least likely to be practising their acquired surgical skills. Overall those in more remote areas reported they had acquired more skills (P<0.05), particularly skills in Aboriginal and Torres Strait Islander health, emergency medicine, tropical diseases, chronic disease management, public health and obstetrics skills. All areas (with the exception of defence and refugee health) showed a significant increase in acquisition associated with the age of the doctor, indicating that older GPs had generally acquired more skills. Younger respondents were more likely to indicate a desire to acquire a new skill.

New skills acquisition to meet a community need

Participants were asked to select skills they would acquire in order to meet a need in their rural community, with the ability to make multiple selections and enter free text (*Table 4*). Emergency medicine was the most prevalent response (28.3%), followed by palliative care (24.2%), paediatrics (22.4%) mental health (22.3%), aged care (19.1%) and chronic disease management (18.5%). Twenty-one percent of respondents indicated they would not acquire a new skill, though 42.1% of these were aged 60 and over. Stratified by ASGC-RA, data (*Appendix 1.3*) indicated that very remote areas (RA-5) had most demand for emergency, anaesthetics and obstetric skills. Demand increased with rurality for many of the non- procedural skills, with the exception of palliative care, which was more relevant to inner and outer regional areas (RA2 and RA3).

State-based analysis showed few statistically significant differences between states, with the exception of tropical disease medicine, which was reported most commonly by Queensland participants. Further skill-specific analysis can be found below.

Table 4: New skill acquisition

Skill acquisition to meet a need in respondents' community[A]	n	(%)
Emergency medicine	484	(28.3)
Palliative care	414	(24.2)
Paediatrics	384	(22.4)
Mental health	382	(22.3)
Aged care	326	(19.1)
Chronic disease management	317	(18.5)
Obstetrics	285	(16.7)
Anaesthetics	269	(15.7)
Aboriginal and Torres Strait Islander health	249	(14.6)
Internal medicine	232	(13.6)
Surgery	215	(12.6)
Public health	173	(10.1)
Small town rural general practice	158	(9.2)
Refugee health	128	(7.5)
Tropical diseases	117	(6.8)
Defence health	37	(2.2)
Dermatology	24	(1.4)
None	350	(20.5)

[A] Respondents can select more than one answer

Training and support requirements – practising, maintaining and regaining competence in advanced skills

Ninety-three percent of participants with an advanced skill indicated they intend to continue to apply their skills in a rural community. In order to undertake new skill acquisition, participants indicated they would require a range of supports including training opportunity (76.6%) and financial incentives (60.2%). The need for study leave increased with rurality though this was not statistically significant (P=0.07); study leave was required most commonly by the 30-39 year age group (45.0%, P=0.0002). Free text responses included time, financial support and locum relief.

The survey asked participants to identify the supports they require to maintain and regain competence (for those no longer practising) in their advanced skills (*Table 5*) The most commonly reported supports required across both groups were training opportunity (62.1% for skill maintenance; 21.1% for regaining competence) and financial incentive (46.4% and 14.2% respectively); skill competence training also commonly required for regaining competence (17.0%). Data stratified by age indicated that financial incentive and certification are required least commonly in the oldest (60+) and youngest (18–29) age groups.

Table 5: Acquiring, maintaining and regaining competence in advanced skills

Support needed to acquire a new rural skill[A]	n	(%)
Training opportunity	1293	(76.6)
Financial incentive	1017	(60.2)
Professional support	768	(45.5)
Study leave	657	(38.9)
Supervisor	469	(27.8)
Other	207	(12.1)
Supports required to maintain skill[A]	**n**	**(%)**
Training opportunity	1065	(62.1)
Financial incentive	795	(46.4)
Professional support	732	(42.7)
Study leave	619	(36.1)
Supervision	277	(16.2)
Locum support	272	(15.9)
Not applicable	436	(25.4)
Support required to regain competence in advanced rural skill[A]	**n**	**(%)**
N/A (I am using my skill, or I haven't acquired an advanced rural skill)	1050	(61.6)
Training opportunity	360	(21.1)
Skill competence training	290	(17.0)
Financial incentive	242	(14.2)
Certification	163	(9.6)
Position in hospital	156	(9.2)
Opportunity in clinic	151	(8.9)
Sub-specialty training	138	(8.1)
Study leave	133	(7.8)
Correct skill mix in the community	104	(6.1)

[A] Respondents can select more than one answer

Support requirements for skill maintenance generally increased with rurality, however this pattern was not present in all regaining competence data (see *Appendix 1.4*). The need for training opportunity to regain competence increased with rurality, and the need for positions in hospitals and opportunities in clinics decreased with rurality. Study leave was most commonly required for skill maintenance by those in remote areas, RA-4 (10.6%) and RA-5 (10.7%).

In examining skill maintenance data by state, few differences are observed in support requirements. However, South Australian and Northern Territory participants indicate a strong need for several support areas including training opportunity (72%; 71.4%), financial incentive (55.1%; 46.0%), professional support (56.8%; 41.3%) and study leave (44.1%; 55.6%). Support requirements for regaining skill competence were similar between the states. Those in the Northern Territory were most likely to require study leave to regain competence, whereas those in Tasmania were most likely to require opportunity in clinic to regain competence. Both Tasmania and the Northern Territory had significantly higher study leave requirements than other states (15.4% and 17.5% respectively; P=0.04).

Competing factors were identified for the ability of participants to practise advanced skills (*Table 6*). Skill maintenance (41.3%), service demand (25.1%) and lack of remuneration (21.0%) were the most common factors impacting on skill utilization. Those in more rural areas were generally more likely to report competing factors for their ability to practise skills. Lack of career pathway, credentialing arrangements, lack of inter-professional team and skill-maintenance issues were significant competing factors for RA-5 participants when compared with other ASGC-RA classification regions. Hospital

infrastructure is most problematic in remote Australia (RA-4). Older persons were more likely to report skill maintenance, lack of remuneration and credentialing arrangements as competing factors for their ability to practise skills. Lack of career pathway was more of an issue for younger respondents (18–39 years).

Table 6: Competing factors

Competing factors impact on ability to practise skills[A]	n	(%)
Skill maintenance	707	(41.3)
Service demand	430	(25.1)
Lack of remuneration	360	(21.0)
Hospital infrastructure	300	(17.5)
Credentialing arrangements	275	(16.1)
Lack of professional recognition	274	(16.0)
Lack of inter-professional team	219	(12.8)
Clinic infrastructure	201	(11.7)
Specialist completion	176	(10.3)
Lack of career pathway	176	(10.3)
Other (eg. family commitments, time constraints, insurance, bureaucracy and government policy, Medicare)	120	(7.0)
Not applicable	571	(33.4)

[A] Respondents can select more than one answer

There were few clear differences in competing factors for the ability to practise skills between states. Exceptions were skill maintenance, which was reported highest in the Northern Territory (54.8%) and South Australia (50.9%), and credentialing arrangements, which were least likely to be reported in Victoria (11.6%) and Tasmania (6.9%) and most problematic in Western Australia (21.0%) and ACT (23.1%). The Northern Territory was least likely to report lack of remuneration as a barrier (11.3%). Lack of career pathway was more commonly reported as an issue in the ACT (15.4%) and the Northern Territory (16.1%).

Skills in focus

Mental health

Mental health is the leading advanced skill currently **used** in rural general practice in five states (ACT, NSW, QLD, TAS and VIC), the second highest in South Australia and third highest in Western Australia and the Northern Territory. It had the highest rates of current use overall (34.5% of respondents), and has been **acquired** by 31.1% of respondents. There is little difference in the prevalence of skill use between ASGC-RA, and all states demonstrated significant skill use with the Northern Territory having the highest prevalence (42.9%). Mental health advanced skills would be acquired by 22.3% of respondents as a new skill to meet community needs. Though prominent in all geographic areas and states, it was reported highest by remote participants (RA-4: 27%) and those in the Northern Territory (27%).

Emergency medicine

Approximately 60% of respondents indicated that emergency medicine is relevant in rural general practice. However, only 38.7% have **acquired** it and 33.6% currently **using** it. More than 16% of those with the skill are not currently using it. It is the most acquired skill and second highest current use prevalence, with usage rates above 20% in all states with the exception of the ACT. It is the leading advanced skill in South Australia (58%) and Western Australia (40.3%), second highest skill in New South Wales and Victoria, and third highest in Queensland and Tasmania. Current use of emergency medicine advanced skills increased significantly with remoteness, from 32.7% in inner regional (RA-2) to 51.9% in very remote (RA-5).

More than 28% indicated they would acquire that skill to meet a community need, most commonly in remote Australia (RA-4) and in ACT, NT & WA.

Chronic disease management

Advanced skills in the management of chronic disease are currently **used** by 30% of survey respondents, though 27.6% indicated that they have **acquired** the advanced skill. As the third highest utilised skill, it is reportedly used by more than 20% of respondents across all states with the exception of the ACT. Remote and very remote GPs (RA-4 & RA-5) demonstrated significantly higher usage of this skill (33.8 and 46.2%; P=0.004). Current skill usage is above 20% in all states with the exception of the ACT. The Northern Territory, Tasmania, New South Wales and Queensland have the most prevalent use of chronic disease management advanced skills.

Nineteen per cent of respondents indicated they would acquire chronic disease management advanced skills to address a need in their community, and this response was consistent across ASGC-RA and all states (except ACT). The Northern Territory had the highest desire for new skill acquisition in this area (23.8%).

Paediatrics

Paediatric advanced skills are the fourth highest used skill overall, increasing steadily with remoteness, most notably in very remote areas (40.4%; P=0.03). Twenty-

four per cent of respondents indicated they have **acquired** the skill, however current **usage** rates exceed this number (27.3%). Rates of current use are well above 20% across all states, significantly higher in the Northern Territory, South Australia, Western Australia and New South Wales (P=0.02). It is the second most prevalent skill currently used in South Australia and Western Australia. Survey respondents identified paediatrics as the third highest ranking skill they would acquire to meet a need in their community (22.4%). There were no statistically significant differences across ASGC-RA. When compared with other age groups, the 30–39 year old age group indicated paediatrics more commonly (P<0.0001). Respondents from the ACT, Northern Territory, South Australia and Victoria were most likely to acquire paediatrics as a new skill.

Aged care

More that one-fifth (22.3%) of participants are currently **using** advanced skills in aged care, which is slightly more than the reported skill **acquisition** (19.3%). It is currently used by more than 20% of respondents in New South Wales, Victoria, Western Australia and South Australia. Approximately 19% of respondents indicated they would acquire aged care as an advanced skill to address a community need, with no notable differences in this data between ASGC-RA. Tasmania and Victoria showed statistically significant rates of responses for acquiring aged care as a new skill (31.9% and 23.2% respectively).

Small town rural general practice

Small town rural general practice is an entirely knowledge-based advanced skill, **acquired** by 23.8% of respondents and currently **used** by 21.3%. Expectedly, use and acquisition of this skill is significantly more prevalent in the more remote areas of Australia (RA-4 and RA-5). Participants from New South Wales, South Australia, Victoria and Western Australia indicated current usage rates above 20%, highest in South Australia (28.0%). No statistically significant difference in acquisition is evident between states. This particular skill was less favourable in new skill acquisition, with 9.2% of respondents indicating they would acquire it to meet a community need. This response rate was steady across ASGC-RA and states.

Aboriginal and Torres Strait Islander Health

More than one fifth (20.6%) of respondents indicated they are currently **using** advanced skills in Aboriginal and Torres Strait Islander health, with 23.0% having **acquired** the skill. Current usage increased significantly with remoteness, from 13.7% in inner regional areas (RA-2) to 56.7% in very remote areas (RA-5). Skill acquisition patterns were similar, although there was a higher proportion of respondents from major cities (RA-1) who had acquired the skill than are currently using. The skill was most commonly acquired and used in the Northern Territory, Queensland, Western Australia and New South Wales (all usage rates >20%). It was reported as the most commonly used skill in the Northern Territory, and the third most commonly used skill in Western Australia.

In order to meet the needs of their community, 14.6% of respondents indicated they would acquire this as a new skill. The likelihood of this increased with rurality, though not significantly. Across the states there was no significant difference noted, however Tasmania had the lowest new skill acquisition response (6.9%) for this particular advanced skill.

Palliative care

Palliative care advanced skills have been **acquired** by 21.0% of survey respondents, and are currently **used** by 20.5% of respondents; almost all who have acquired the skill are currently using it in practice. Notably, current use and acquisition by participants in major cities (RA-1) are reported less commonly, but rates are similar across the rural areas. No statistically significant differences were visible across the states in skill use or acquisition.

Despite its relatively lower acquisition and usage, palliative care advanced skills were the second highest reported new skill-acquisition with 24.2% of respondents indicating they would acquire this new skill to meet a community need. This was reported most commonly by participants located in inner and outer regional areas (RA-2 25.1% and RA-3 25.7%). It was the highest skill acquisition area for inner regional participants (RA-2). Current **usage** rates of >20% were reported by participants in New South Wales, the Northern Territory, Victoria, South Australia and Western Australia. The ACT (38.5%), Tasmania (33.3%) andVictoria (27.1%) were most likely to report a desire to **acquire** this new skill to address a community need. The Northern Territory was least likely (17.5%).

Internal medicine

Advanced skills in internal medicine had been **acquired** by 16.2% of respondents, but were reported by 20.1% of respondents as being **used** currently. More than 20% of respondents from New South Wales, the Northern Territory, Queensland, South Australia, Tasmania and Western Australia all reported that they are using the skill currently. The likelihood of internal medicine skill use increased with remoteness (P=0.01), and this trend was also evident for skill acquisition, though not statistically significant. There was no statistically significant difference in usage between states, though New South Wales (23.4%) and the Northern Territory (22.2%) had

the highest reported rates of use. New South Wales (17.5%), South Australia (17.0%) and Western Australia (17.8%) had the highest number of participants who had acquired the skill.

Approximately 14% of survey respondents indicated they would acquire new internal medicine advanced skills in order to meet a need in their community, and this response was similar across ASGC-RA, though slightly more prominent in remote Australia (RA-4 17%). The ACT had the highest response in this area, with 23.1% of respondents from this Territory indicating they would acquire the skill. South Australia (17.1%) and the Northern Territory were the next highest response rates (15.9%).

Obstetrics

Although **acquisition** of obstetric advanced skills is relatively high (26.2% overall), there is a significant disparity in rates of **current use** with only 15.7% of respondents indicating current use, meaning that approximately 40% of those with the skill are **not currently practising** it. The use and acquisition of obstetric skills increases significantly with remoteness (P=0.0002; P=0.04 respectively). South Australia and the Northern Territory are the only states demonstrating current skill use above 20%. South Australia has a significantly higher number of GP-obstetricians than other states (37.3%).

In acquiring a new skill to meet a community need, 16.7% of respondents indicated they would seek obstetrics as an advanced skill. There was no obvious trend associated with remoteness here, though inner regional participants (RA-2) had the lowest response (12.5%). It was the third highest-ranking skill in very remote areas (RA-5), equal with chronic disease management for new skill acquisition. The ACT had the highest interest in acquiring this skill (23.1%).

Public health

Ten per cent of respondents indicated they had **acquired** and were **using** advanced skills in public health. The Northern Territory respondents (30.2%) were most likely to have acquired this skill, with Western Australian respondents (7.5%) least likely. Ten per cent of respondents also indicated they would acquire public health advanced skills to address a need in their community, and this response was similar across ASGC-RA and states (though most prevalent in the Northern Territory at 14.3%).

Anaesthetics

Advanced skills in anaesthetics were reportedly **acquired** by 15.2% of respondents; however only 9.0% of respondents indicated that they were **using** the skill, meaning that approximately 40% of those who had acquired the skill were **not currently practicing** anaesthetics. The acquisition and use of anaesthetic skills was highest in very remote areas (RA-5). South Australia had the highest reported skill use (17.0%) and skill acquisition (26.3%), with the smaller state and Territory, Tasmania and ACT, reporting no use of anaesthetics advanced skills. Eight per cent of GPs in Tasmania had reportedly acquired the skill. Of the respondents from Western Australia, 20.8% had acquired advanced skills in anaesthetics, but only 11.9% were reported to be currently using that skill.

In order to address the need of a rural community, 15.7% of respondents indicated they would acquire the anaesthetic advanced skillset. This response was most prevalent in very remote (RA-5 25%) and remote (RA-4 22.0%), and significantly lower in inner regional areas (12.4%). Anaesthetic advanced skills were reported as the second highest skill to acquire for respondents from very remote areas (RA-5) to meet a community need. There were no statistically significant differences across states, though Tasmania had a notably lower response rate than other states.

Surgery

Although the proportion of those still practising surgical advanced skills is among the highest of all skills, the rate of acquisition and current use are relatively low. Respondents from remote areas (RA-4) had lower practice rates than other ASGC-RA. Skill use increased steadily with remoteness, however this pattern was not visible in the skill acquisition data. Surgical skills were more likely to be currently in use by respondents from South Australia (13.6%), New South Wales (10.4%) and Victoria (9.1%). Skill acquisition numbers varied more significantly (P=0.05) between states than those for current skill usage.

Thirteen per cent of respondents indicated that they would acquire surgical skills to meet a community need, with no significant variance between ASGC-RA or states. The Northern Territory respondents were most likely to report acquiring surgery as a new advanced skill.

Defence health

Approximately 2% of respondents had **acquired** advanced skills in defence health; however the skill is currently being **used** by 6.1% of respondents. There were no statistically significant differences in current use between ASGC-RA or states, though the Northern Territory had a notably higher rate of use than other states (6.4%). Two per cent of respondents indicated they would acquire a new advanced skill in defence health.

Tropical diseases

Tropical disease medicine advanced skills were being **used** currently by 5.4% of survey respondents, having been **acquired** by 7.7%. Expectedly the most remote areas of Australia (RA-5 and RA-4) had significantly higher rates of acquisition (22.1% and 9.9% respectively; P<0.0001) and use (18.3% and 9.2% respectively; P<0.0001) than other areas. The Northern Territory had a significantly higher number of respondents with this advanced skill (20.6%) and currently practising (19.1%).

In order to meet the needs of rural communities, 6.8% of respondents indicated they would acquire this skill. This was most commonly reported from participants in remote areas (RA-4 and RA-5), and significantly more commonly reported from Queensland respondents (11.9%; P<0.0001).

Refugee health

Refugee health was reported as the least commonly acquired and currently used advanced skill area. These advanced skills have been **acquired** by 3.6% of survey respondents, and are **used** currently by 3.0%. There were no statistically significant differences in skill acquisition between ASGC-RA; however the skill is used significantly more by respondents working in major cities (RA-1) and very remote areas (RA-5). Tasmanian and Western Australian respondents reported significantly higher skill acquisition rates (8.2% and 6.4% respectively) than other states; though this pattern was not evident in data around the current use of the advanced skill. Eight per cent of respondents indicated they would acquire refugee health advanced skills to meet a need in their community. This trend steadily declined with remoteness, and was consistently reported across states.

Discussion

The research provides insight into the current extent of advanced skills in rural general practice, demonstrating the relatively low acquisition and application of procedural skills and the strong demand for non-procedural skills in rural and remote communities. The broad range of skills identified and prioritised by the profession extend well beyond procedural skills, confirming the prominent role of non-procedural skills in addressing the health needs of rural and remote communities.

Mental health and chronic disease management were among the top three advanced skills acquired and practised currently in rural general practice, reflecting the significant demand for both of these skill areas in rural and remote Australia. Emergency medicine skills are often a core requirement for GPs providing care in rural communities, and the importance of skill competence in this area is reflected in the results. There are many respondents not currently practising their emergency medicine skill (16.4%); a result not surprising given the strong reliance on health budgets to retain hospital infrastructure, and the reality of budget decisions which result in rural hospital closures and/or downgrade in services. However, the most significant loss of skillset is for the GP-anaesthetist and GP-obstetrician groups, and while it is beyond the scope of this research to understand why this loss has occurred, the findings are consistent with other literature noting the decline of procedural services in rural Australia.[13]

The ability to acquire and maintain advanced skills is vital to ensure a resilient, multi-skilled general practice workforce capable of responding to the changing healthcare needs of rural communities. Rural GPs must be supported to upskill via access to training opportunities and professional support. However, the results of this research indicate that the lifelong learning and changing learning needs of rural GPs are not adequately recognised or supported.

The need for certain skill-acquisition and maintenance supports were stronger in particular geographic areas of states, however, overall the results indicate that the broad range of supports identified are strongly needed by all rural GPs. Upskilling opportunities are effective workforce drivers and it is clear, from this research, that upskilling opportunities must extend beyond the current procedural focus and reflect the health needs of rural communities. Also specific, targeted strategies are required to re-engage GPs not currently practising their acquired skills, particularly those with the procedural skillset.

Despite current structural barriers and inadequate support, respondents have demonstrated a strong commitment to address rural community needs with 93% of respondents intending to continue to apply their advanced skills rurally. Intentions of participants to remain in rural general practice for substantial lengths of time (more than half intending to stay 5 or more years) highlight that along with pre-vocational and early vocational training opportunities, the existing rural GP workforce should be supported to access training. The lack of opportunity to acquire and maintain advanced skills, and concerns around skill maintenance for the existing workforce, are reinforced by this research.

Plans for future rural general practice workforce should consider the implications of imposing workforce adages on the profession. Whether it is to gain support for a specific workforce approach or skill intervention to address workforce maldistribution, pushing workforce descriptors in order to fit within certain policy goals is not a realistic strategy. Our study demonstrates a strong preference for the terms general practitioner and rural general practitioner. The possible reluctance of research participants to identify as a GP-rural generalist may

be reflective of the low number of program graduates coming through the system and the fact it is a relatively new workforce policy intervention. However, it is clear the majority does not embrace the term.

Limitations

Varied interpretations of what constitutes an advanced skill were evident from the free-response answers, and parameters for advanced skills were not defined for the purposes of this survey. However, this reinforces the need for an agreed understanding and is not believed to have skewed results significantly. More remote GPs may have less internet connectivity and therefore less access to the online survey, however, this cohort (RA-5) was well represented in the research. The accuracy of the RAGCP National Rural Faculty membership database is not known, however the survey appears to be representative.

Conclusion

In terms of future policy setting, the research provides clarity of the key policy factors that impact advanced skill acquisition, which will assist governments in program design. In prioritising spending, the research again provides direction in terms of the most needed skills as identified and prioritised by the profession. Further focus is required to develop and support GPs to acquire and maintain the leading skill areas which will address community need. To harness the full advanced skillset held by rural GPs, the underutilisation of some skill areas must be addressed.

As reflected in the definition, rural GPs who are practising advanced skills are already responding to perceived needs in their local community, driven by patient demand for particular services. However, additional work is required to define community need, and to measure that need. Through this research, policy-makers can now more accurately and effectively target strategies to address advanced skills for the rural health workforce and consequently improve health outcomes for rural and remote communities.

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This research has been extracted from the RACGP publication *New approaches to integrated rural training for medical practitioners: final report* (2014).

Appendices

4.5 Appendices

1.1 Advanced skill acquisition by state																	
Advanced rural skills competencies:	ACT		NSW		NT		QLD		SA		TAS		VIC		WA		p-values
Which rural skills have you acquired?	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	
Aboriginal and Torres Strait Islander health	2	(15.4)	98	(23.5)	38	(60.3)	91	(22.1)	16	(13.6)	18	(24.7)	68	(16.8)	58	(28.7)	<0.0001
Internal medicine	0		73	(17.5)	10	(15.9)	68	(16.6)	20	(17.0)	9	(12.3)	60	(14.8)	36	(17.8)	0.67
Mental Health	3	(23.1)	129	(30.9)	21	(33.3)	128	(31.1)	33	(28.0)	24	(32.9)	136	(33.5)	54	(26.7)	0.77
Paediatrics	2	(15.4)	113	(27.1)	21	(33.3)	86	(20.9)	33	(28.0)	14	(19.2)	80	(19.7)	60	(29.7)	0.01
Small town rural general practice	4	(30.8)	89	(21.3)	16	(25.4)	98	(23.8)	35	(29.7)	16	(21.9)	98	(24.1)	49	(24.3)	0.75
Anaesthetics	0		68	(16.3)	8	(12.7)	51	(12.4)	31	(26.3)	6	(8.2)	53	(13.1)	42	(20.8)	0.0005
Emergency medicine	3	(23.1)	172	(41.3)	23	(36.5)	125	(30.4)	72	(61.0)	32	(43.8)	139	(34.2)	91	(45.1)	<0.0001
Obstetrics	3	(23.1)	104	(24.9)	18	(28.6)	91	(22.1)	44	(37.3)	17	(23.3)	115	(28.3)	55	(27.2)	0.07
Surgery	1	(7.7)	47	(11.3)	2	(3.2)	39	(9.5)	18	(15.3)	6	(8.2)	40	(9.9)	10	(5.0)	0.05
Palliative care	1	(7.7)	80	(19.2)	16	(25.4)	79	(19.2)	22	(18.6)	17	(23.3)	80	(19.7)	46	(22.8)	0.74
Aged care	1	(7.7)	86	(20.6)	13	(20.6)	75	(18.3)	21	(17.8)	12	(16.4)	81	(20.0)	39	(19.3)	0.91
Tropical diseases	2	(15.4)	26	(6.2)	13	(20.6)	47	(11.4)	3	(2.5)	4	(5.5)	19	(4.7)	17	(8.4)	<0.0001
Chronic disease management	2	(15.4)	110	(26.4)	30	(47.6)	112	(27.3)	27	(22.9)	26	(35.6)	111	(27.3)	51	(25.3)	0.01
Refugee Health	0		14	(3.4)	1	(1.6)	8	(2.0)	3	(2.5)	6	(8.2)	17	(4.2)	13	(6.4)	0.05
Defence	0		10	(2.4)	4	(6.4)	13	(3.2)	2	(1.7)	0		6	(1.5)	4	(2.0)	0.22
Public health	1	(7.7)	45	(10.8)	19	(30.2)	37	(9.0)	9	(7.6)	7	(9.6)	36	(8.9)	19	(9.4)	<0.0001
Not applicable	3	(23.1)	102	(24.5)	13	(20.6)	134	(32.6)	24	(20.3)	17	(23.3)	110	(27.1)	53	(26.2)	0.08

1.2 Advanced skills currently used by state																	
Advanced rural skills competencies:	ACT		NSW		NT		QLD		SA		TAS		VIC		WA		p-values
Which skills are you currently using?	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	
Aboriginal and Torres Strait Islander health	2	(15.4)	94	(22.7)	35	(55.6)	86	(20.9)	13	(11.)	12	(16.7)	51	(12.6)	57	(28.4)	<0.0001
Internal medicine	1	(7.7)	97	(23.4)	14	(22.2)	82	(20.)	25	(21.2)	9	(12.5)	72	(17.8)	42	(20.9)	0.31
Mental Health	5	(38.5)	146	(35.2)	27	(42.9)	132	(32.1)	39	(33.1)	24	(33.3)	151	(37.3)	60	(29.9)	0.47
Paediatrics	3	(23.1)	127	(30.6)	22	(34.9)	89	(21.7)	39	(33.1)	16	(22.2)	104	(25.7)	65	(32.3)	0.02
Small town rural general practice	2	(15.4)	89	(21.5)	12	(19.1)	80	(19.5)	33	(28.0)	12	(16.7)	91	(22.5)	42	(20.9)	0.57
Anaesthetics	0		36	(8.7)	3	(4.8)	33	(8.0)	20	(17.0)	0		37	(9.1)	24	(11.9)	0.003
Emergency medicine	1	(7.7)	141	(34.0)	25	(39.7)	109	(26.5)	69	(58.5)	21	(29.2)	122	(30.1)	81	(40.3)	<0.0001
Obstetrics	1	(7.7)	70	(16.9)	14	(22.2)	54	(13.1)	25	(21.2)	5	(6.9)	68	(16.8)	30	(14.9)	0.09
Surgery	1	(7.7)	43	(10.4)	4	(6.4)	36	(8.8)	16	(13.6)	6	(8.3)	37	(9.1)	11	(5.5)	0.37
Palliative care	2	(15.4)	86	(20.7)	13	(20.6)	72	(17.5)	25	(21.2)	14	(19.4)	92	(22.7)	44	(21.9)	0.78
Aged care	1	(7.7)	98	(23.6)	12	(19.1)	79	(19.2)	27	(22.9)	13	(18.1)	99	(24.4)	49	(24.4)	0.43
Tropical diseases	1	(7.7)	15	(3.6)	12	(19.1)	38	(9.3)	3	(2.5)	2	(2.8)	9	(2.2)	13	(6.5)	<0.0001
Chronic disease management	2	(15.4)	128	(30.8)	28	(44.4)	126	(30.7)	27	(22.9)	26	(36.1)	120	(29.6)	55	(27.4)	0.08
Refugee Health	1	(7.7)	9	(2.2)	2	(3.2)	9	(2.2)	1	(0.9)	4	(5.6)	16	(4.0)	8	(4.0)	0.29
Defence	0		8	(1.9)	4	(6.4)	8	(2.0)	1	(0.9)	0		3	(0.7)	3	(1.5)	0.06
Public health	1	(7.7)	39	(9.4)	19	(30.2)	40	(9.7)	13	(11.0)	7	(9.7)	38	(9.4)	15	(7.5)	<0.0001

1.3 New skill acquisition to meet a need in community, by ASGC-RA Classification System											
	Major Cities of Australia		Inner Regional Australia		Outer Regional Australia		Remote Australia		Very Remote Australia		p-values
Which skill would you acquire to meet a need in your community	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	
Aboriginal and Torres Strait Islander health	39	(13.7)	80	(13.6)	80	(13.9)	27	(19.1)	22	(21.2)	0.15
Internal medicine	36	(12.6)	79	(13.4)	75	(13.0)	24	(17.0)	17	(16.3)	0.65
Mental Health	71	(24.9)	135	(22.9)	120	(20.9)	38	(27.0)	16	(15.4)	0.16
Paediatrics	67	(23.5)	129	(21.9)	132	(23.0)	34	(24.1)	20	(19.2)	0.88
Small town rural general practice	28	(9.8)	54	(9.2)	52	(9.0)	14	(9.9)	9	(8.7)	0.99
Anaesthetics	46	(16.1)	73	(12.4)	88	(15.3)	31	(22.0)	26	(25.0)	0.003
Emergency medicine	94	(33.0)	148	(25.1)	154	(26.8)	52	(36.9)	32	(30.8)	0.02
Obstetrics	54	(18.9)	74	(12.5)	100	(17.4)	30	(21.3)	23	(22.1)	0.01
Surgery	33	(11.6)	77	(13.1)	76	(13.2)	14	(9.9)	12	(11.5)	0.81
Palliative care	63	(22.1)	148	(25.1)	148	(25.7)	31	(22.0)	21	(20.2)	0.57
Aged care	50	(17.5)	114	(19.3)	122	(21.2)	24	(17.0)	13	(12.5)	0.24
Tropical diseases	19	(6.7)	29	(4.9)	38	(6.6)	17	(12.1)	14	(13.5)	0.002
Chronic disease management	50	(17.5)	109	(18.5)	109	(19.0)	26	(18.4)	23	(22.1)	0.89
Refugee Health	28	(9.8)	44	(7.5)	42	(7.3)	8	(5.7)	5	(4.8)	0.40
Defence	8	(2.8)	8	(1.4)	15	(2.6)	4	(2.8)	2	(1.9)	0.52
Public Health	25	(8.8)	64	(10.8)	55	(9.6)	17	(12.1)	11	(10.6)	0.79
None	62	(21.8)	130	(22.0)	121	(21.0)	22	(15.6)	13	(12.5)	0.12

1.4 Support requirements for skill maintenance and regaining competency, by ASGC-RA Classification System

	Major Cities of Australia		Inner Regional Australia		Outer Regional Australia		Remote Australia		Very Remote Australia		p-values
Support required to regain competency in advanced rural skills	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	
Not applicable (I am using my skill, or I haven't acquired an advanced rural skill)	162	(56.6)	381	(64.8)	363	(63.7)	82	(58.2)	56	(54.4)	0.05
Training opportunity	65	(22.7)	106	(18.0)	121	(21.2)	39	(27.7)	26	(25.2)	0.08
Skill competency training	49	(17.1)	92	(15.6)	91	(16.0)	31	(22.0)	21	(20.4)	0.34
Sub-specialty training	30	(10.5)	43	(7.3)	45	(7.9)	13	(9.2)	6	(5.8)	0.45
Certification	26	(9.1)	48	(8.2)	57	(10.0)	16	(11.3)	14	(13.6)	0.41
Opportunity in clinic	35	(12.2)	55	(9.4)	44	(7.7)	13	(9.2)	3	(2.9)	0.05
Position in hospital	29	(10.1)	62	(10.5)	47	(8.2)	10	(7.1)	8	(7.8)	0.53
Financial incentive	42	(14.7)	84	(14.3)	73	(12.8)	25	(17.7)	16	(15.5)	0.63
Correct skill mix in the community	18	(6.3)	32	(5.4)	36	(6.3)	9	(6.4)	9	(8.7)	0.78
Study leave	20	(7.0)	40	(6.8)	46	(8.1)	15	(10.6)	11	(10.7)	0.42
	Major Cities of Australia		Inner Regional Australia		Outer Regional Australia		Remote Australia		Very Remote Australia		p-values
Supports required to maintain skills	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	
Training opportunity	148	(51.6)	365	(61.9)	362	(62.8)	101	(71.1)	76	(73.1)	<0.0001
Financial incentive	101	(35.2)	265	(44.9)	282	(49.0)	80	(56.3)	57	(54.8)	<0.0001
Locum support	36	(12.5)	82	(13.9)	91	(15.8)	36	(25.4)	25	(24.0)	0.0008
Supervision	44	(15.3)	98	(16.6)	91	(15.8)	21	(14.8)	20	(19.2)	0.88
Professional support	95	(33.1)	244	(41.4)	268	(46.5)	69	(48.6)	51	(49.0)	0.001
Study leave	80	(27.9)	192	(32.5)	222	(38.5)	61	(43.0)	62	(59.6)	<0.0001
Not applicable	97	(33.8)	153	(25.9)	144	(25.0)	26	(18.3)	15	(14.4)	0.0003