

ORIGINAL RESEARCH

Outcomes of rural generalist internship training in Victoria, Australia

AUTHORS



Belinda G O'Sullivan¹ BPhysio (Hons), MPH (Hons), Grad Dip App Epi, PhD, Adjunct Associated Professor *



Shane Boyer² Bachelor Health Sci, GAICD, Adv Dip Bus Management, Statewide Coordinator



Angela Stratton³ BMed, FACRRM, DRANZCOG (Adv.), Grad Cert Clin Teach, Statewide Clinical Lead



Matthew R McGrail⁴ BSc (Hons), GradDip IT, PhD, Associate Professor



Jacque Phillips⁵ Executive MPA, CEO Nathalia, Cobram, Numurkah Health



Julie Faoro⁶ BAsC, Adv Dip Bus Management, Cert IV Training and Assessment, Prof Cert in Health Systems Management, CEO Postgraduate Medical Council of Victoria

CORRESPONDENCE

*Dr Belinda G O'Sullivan belinda.osullivan@monash.edu

AFFILIATIONS

¹ School of Rural Health, Monash University, PO Box 666, Bendigo, Vic. 3550, Australia; Rural Clinical School, Faculty of Medicine, University of Queensland, Locked Bag 9009, Toowoomba, Qld 4350, Australia; and Victorian Rural Generalist Training Program, Department of Health, Victoria, Australia

^{2, 3, 5} Victorian Rural Generalist Training Program, Department of Health, Victoria, Australia

⁴ Rural Clinical School, Faculty of Medicine, University of Queensland, Locked Bag 9009, Toowoomba, Qld 4350, Australia

⁶ Postgraduate Medical Council of Victoria, Level 8, 533 Little Lonsdale St, Melbourne, Vic. 3000, Australia

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ABSTRACT:

Introduction: Victoria, Australia commenced its first Rural Community Internship Training program in 2012 to support the development of rural generalist (RG) doctors. These general practitioners have additional skills to work at a broad scope to deliver the range of primary care and additional specialist services that communities need. Unlike most internships, which are wholly hospital-based and delivered mostly within larger metropolitan and regional centres, this RG internship training model involves completing general practice experience in smaller rural communities working with RGs and visiting specialists. This study aimed to explore the characteristics and satisfaction of doctors who participate in RG internship training in Victoria and their workforce outcomes.

Methods: Between October and November 2021, a retrospective 10-minute anonymous survey invitation was sent to all contactable interns ($n=222$) who had completed/were completing the RG internship training (2012–2021). The survey was co-designed with RG internship managers and other stakeholders of a statewide evaluation advisory group, informed by the latest evidence regarding RG medicine and rural training predictors, and outcomes of interest. Participants completed the survey using Microsoft Forms, with three invitations circulated to an up-to-date email address maintained by the internship program. Collected data were analysed descriptively, by subgroup, to explore training pathway outcomes by region, training stage and specialty choice. Workforce distribution outcomes were defined in line with objectives of the program and predetermined indicators of RG scope. Results were compared with the benchmarks of rural workforce training outcomes in Australia using recent research.

Keywords:

Australia, general practice, interns, rural doctors, rural generalist, Victoria.

Results: There were 59 participants (27% response rate); 81% were in postgraduate years 3–7. Respondents included 54% male, 17% rurally bonded, 39% of rural origin, 34% having had more than 3 months rural undergraduate training and 48% doing RG training where they previously did undergraduate training. All were satisfied/very satisfied with the RG training and 61% were working in general practice (excluding the prevocational group). Overall, 40% were currently working in the same rural region as their internship (including three who were currently interns), 56% continued to complete some prevocational training in the same region as their RG internship, while 20% had gone on to be currently based in smaller rural communities (Modified Monash Model locations 4–7) and 44% to be working part-time in smaller rural communities. Overall, 42% self-identified as working as an RG and nearly all (97%) met at least one of the key indicators of extended (RG) scope. In all areas the RG internship outcomes were better than the national benchmarks from published evidence about rural training.

Conclusion: This study provides evidence from doctors up to 9 years after completing their RG internship. Compared with industry benchmarks, the RG internships attract rurally intended and rurally experienced doctors who may be likely to remain in the same rural region as their undergraduate rural medical training and continue their postgraduate training in the same region. They were all satisfied with RG internship training, had high propensity to follow a general practice career and work at broad scope in smaller communities. Importantly, they intended to stay in the region where they trained. This suggests RG internship programs are a positive intervention for promoting an RG workforce.

FULL ARTICLE:

Introduction

It has been a decade since the Victorian Department of Health invested in its first Rural Community Internship Training (RCIT) Program. The RCIT Program aims to support the development of rural generalist (RG) doctors. Such doctors are GPs who practise in team-based care in rural communities, and who have skills to work at a broad scope to deliver the range of primary care and additional specialist services that the community needs. This provides more comprehensive care in rural communities that have limited access to individual specialists. Internship is the first year after graduating medicine when doctors complete specific terms in order to achieve general registration for independent work. The RCIT involves a year of accredited internship training delivered in smaller rural communities (<50 000 population), where new graduate doctors can undertake up to 20 weeks general practice experience working with qualified RGs and visiting specialists, at broad scope¹. In the remaining terms, the doctors complete core internship requirements of 8 weeks of emergency medicine, 10 weeks in general medicine and another 10 weeks in surgery², by rotating into nearby larger regional health services. This results in at least 47 weeks of full-time equivalent service that interns require for eligibility of general registration. It is a different model from most standard internships, which are wholly hospital-based

and delivered mostly in larger metropolitan and regional centres by rotating around hospital departments². After doctors complete the RCIT Program, they are eligible for the next step in the RG training pathway or to change training directions.

Victoria's RCIT Program commenced in the Hume region in north-eastern Victoria as the 'Murray to the Mountains' program in 2012, initiated by Dr Jack Best and funded by the Victorian Department of Health^{3,4}. Based on its success, the department expanded it to Victoria's four other rural regions in 2015. Hence, by 2015 the RCIT Program was available in not just the Hume, but also the Loddon Mallee, Grampians, Barwon South West and Gippsland⁵. In 2019, with minimal changes, the program was incorporated as the foundation year of Victoria's RG training program (VRGP) and retitled the rural generalist year 1 (RG1)⁶. It has thus become a critical point in Victoria's longitudinal RG training model, which aims to attract interested doctors to undertake up to 6 years of postgraduate training (RG1–RG6). The VRGP aims for RG-focused doctors to complete a specialist general practice fellowship along with additional advanced skills training, to work as a qualified RG in Victoria's smaller rural communities, where there are few other specialists⁷. Despite the significance of the RG1 year (encompassing the former RCIT) for achieving the goals of the VRGP, the characteristics of the newly graduating doctors attracted

to this training and the workforce outcomes are yet to be reviewed.

Newly graduating doctors wanting to pursue the RCIT or RG1 internship (hereafter called RG internship) need to apply as part of the state-managed Victorian intern matching system. They do this after completing a direct application to the relevant RG internship program. Places are capped and applications are competitive. Generally, selection is prioritised around the doctor's rural background, their connection to the region and their demonstrated commitment to practising in rural areas to deliver high quality medical services⁷.

The rest of the mainstream matching intern process did not specifically allocate doctors with rural interests to rural places. However, the Victorian Rural Preferential Allocation (VRPA) process was introduced for the 2021 internship intake, to increase the capacity for domestic medical students to get preferred rural internships, beyond those with interests in the RCIT⁸. This is because the VRPA places candidates who have completed high school in Australia, and undertaken undergraduate rural medical training, in a separate first priority round for a rural internship place they want, which occurs before the main intern match. This was introduced following evidence identifying that Victoria's broader rural internships were being filled by international students (with no prior rural training experience) or many domestic students with low preference of the allocated position rurally⁹.

Each rural region in Victoria has had full autonomy to design its own locally responsive RG internship program, but there have been points of commonality (Table 1). These have included the option of 10–20 weeks general practice experience, supervised during that term by GPs who work at wider scope with on-call and use advanced skills (except Barwon South West, for which the RG internship was wholly hospital based until 2017). The programs are all based in a setting where there are limited other specialists. Each program has had its own manager and director of clinical training, along with some administrative support. The program staff have played the role of case-managing trainees, facilitating high quality supervised learning across practices and hospitals and overseeing internship training requirements (including providing a program of off-the-job learning opportunities). The Hume is the largest

program (growing from five positions in 2012 to 15 per year since 2017, compared with the maintenance of five positions in all other regions). This relates to its RG training capacity and longevity.

When it comes to considering how well this program is delivering on RG workforce goals, it needs to be clear that the Victorian context is unique for attracting and retaining RG doctors. Victoria has a devolved health service governance model and is smaller than other mainland Australian states, with five major regional centres that continue to grow their specialist workforce capacity. Across the state, Victoria has 300 hospitals and health services inclusive of a large number of smaller independent rural hospital services spanning many towns and communities in five rural regions¹⁰. These hospitals and health services are governed by independent boards of directors, who may choose to engage in RG workforce development or not¹¹. In doing so, the boards weigh up strategy, risk and compliance issues.

The predominant RG employment model in rural Victoria encompasses doctors employed in a private general practice or Aboriginal Community Controlled Health Organisation (ACCHO), who additionally attend hospitals as a visiting medical officer (VMO) model, and often across more than one health service⁶. There is currently no state award for RGs in Victoria to provide for RG salaries in hospital or VMO roles, but RGs are free to negotiate their contracts with independent health services. Delivering RG training in the Victorian context depends on extensive coordination of independent entities relative to the interest of RG-focused doctors. This includes managing multiple employment and training needs in the face of changing health service, training and doctors' priorities. With this context in mind, the longitudinal outcomes of RG internships are likely to rely on whether the program is able to effectively select and harness strong RG career interest in a junior doctor and work to coordinate a pathway for the doctor to continue in RG work and in the region.

This study aimed to explore the characteristics and satisfaction of newly graduating doctors who participate in RG internship training in Victoria and the workforce outcomes of this training in terms of rural work, in the same or another region, in general practice and/or at broad scope.

Table 1: Design of the rural generalist internship program in each rural region^{3,4,12}

Rural region	Base location (rurality) [†]	RG internship (encompassing RCIT and RG1)
Hume	Nathalia, Cobram, Numurkah (MMM 5)	Started in 2012 (Murray to Mountains (refs 3, 4)); 5 RG interns (2012–2013), 10 interns (2014–2016) and 15 interns per year since 2017 involving 20 weeks of general practice term in various towns supervised by RGs and visiting specialists
Gippsland	Bairnsdale (MMM 4)	Started in 2015: 5 RG interns involving 20 weeks of general practice term in various towns supervised by RGs doing procedures in clinic and hospital
Barwon South West	Warrnambool (MMM 3)	Started in 2015: 5 RG interns involving 10 weeks of general practice term in Warrnambool with GP with special interest (no on-call) since 2017 (hospital based before that)
Loddon Mallee	Echuca (MMM 4)	Started in 2015: 5 RG interns (involving 10 weeks of general practice term in Echuca supervised by RGs (GPO or GPA and emergency on-call))
Grampians	Ararat (MMM 5)	Started in 2015: 5 RG interns involving 10 weeks of general practice term in various towns supervised by RGs (GPO and GPA)

[†] MMM 3 population 15 000–50 000; MMM 4 population 5000–15 000; MMM 5 population <5000 (and not 'remote') (ref. 12). GPA, general practitioner anaesthetics. GPO, general practitioner obstetrics. MMM, Modified Monash Model. RCIT, Rural Community Internship Training. RG, rural generalist.

Methods

This study was developed in consultation with the Victorian Department of Health, a statewide evaluation advisory group, the VRGP regional networks and coordinating unit and clinical leads, the Postgraduate Medical Council of Victoria, VRGP Program staff, a health service executive team of participating organisations along with RG supervisors and trainees.

It was nested within a broader VRGP Program evaluation and a program logic that was agreed by a statewide Evaluation Advisory Group, chaired by the Victorian Department of Health. A simplified evaluation theory was applied based on the work of Funnell and Rogers¹³. It followed that if the RG internship program is known and considered to be attractive to soon-to-graduate doctors, and medical students apply for the program and find it meets their expectations and they complete the program, then they will show skills and capabilities to work at RG scope and to maintain rural work interests specific to the area where they trained. Based on this logic, a survey was designed to assess the characteristics of doctors attracted to RG internship training, their satisfaction with the training quality and development of skills aligned with the work of an RG, pursuit of general practice careers and whether they proceeded to stay and work in smaller rural areas and/or the same rural regions, at broader scope.

Participants and data collection

Between October and November 2021, a retrospective 10-minute anonymous survey invitation was sent to all contactable interns ($n=222$) who had completed/were completing the RG internship training between 2012 and 2021, from up-to-date email contact lists held by RG internship managers. The survey was co-designed with RG internship program managers and the statewide evaluation advisory group, and informed by the latest evidence regarding RG medicine and rural training predictors and outcomes of interest^{3,4,9,14-18}. The survey was also designed to test the key research questions. It was circulated, with study information, directly to doctors who had completed the RG internship or indirectly via the RG internship manager in one region (at their request). Invitations were sent by blind copy email with three reminders. Participants completed the survey using Microsoft Forms, which was deemed the most accessible format relative to the email networks used by the trainee group (many gmail-based personal email addresses) (Appendix I). Informed consent was recorded. A control group was not available for this study as the statewide evaluation advisory group had determined that contact details for non-RCIT/RG1 rural interns backdated for this study period were inaccurate. As such, comparative benchmarks were drawn from best-practice state or national data or data from other RG training programs.

Analyses

The data were analysed descriptively, by subgroup, to explore pathway outcomes by region, training stage and specialty choice.

Depending on the indicators, some analyses were limited to doctors at particular training stages and those who reported their region of RG internship ($n=6$ reported missing). The RG scope was defined in line with the recommendations of a national evaluation working group, which was chaired by the lead evaluator in 2018–19. This working group reported to the Taskforce for the National Rural Generalist Training Pathway, which informed national policy advice to the Commonwealth Minister for Health. This group had determined that measuring RGs was best achieved by using a range of indicators of RG scope, including rural distribution, servicing more rural areas as a prevocational doctor or GP, being rostered onto an emergency department (ED) roster, engaging in on-call and after-hours components to work, having hospital admitting rights, working in towns with few other specialists, practising or training in additional skills/maintain continuous professional development (CPD), working in multiple settings across the community or self-identifying as an RG¹². A core set of more specific criteria were further applied to explore RG scope. Self-identity as an RG was used given that the RG workforce is becoming more well known and embedded in training curriculums¹⁹. Rural areas were defined as Modified Monash Model (MMM) 2–7 in line with Australian policy, with further stratification to explore distribution to smaller communities (<15 000 population delineated as MMM 4–7)¹². Quantitative analyses used Stata SE v15.1 for Windows (StataCorp, <https://www.stata.com> [<https://www.stata.com>]), with descriptive statistics of counts and proportions used to present patterns among respondents.

Ethics approval

Ethics approval for this study was obtained from Monash University's Human Research Ethics Committee (Project ID # 2021_30309).

Results

The survey achieved a 27% response rate; 59 doctors from different regions responded (Table 2). Most (81%) participants were between postgraduate years 3–7 and only three were completing the RCIT year at the time of the survey. There was a slight male bias in respondents, which was less than found in other literature about practising RGs in Australia²⁰. A higher proportion (85%) of respondents were Australian-citizen locally trained doctors, compared with Victorian intern data suggesting that 24% of rural interns were international medical students⁹. Slightly fewer were rurally bonded compared with studies of early career doctors working rurally in Victoria²¹. A higher proportion had previous undergraduate rural training of longer duration than comparator cohorts^{15,21}. A higher proportion (39%) were from a rural background compared with other benchmarks (30–34%)^{15,21} (Table 2). Most respondents were from the Hume region (42%).

Table 2: Respondent characteristics of participants in the rural generalist internship (n=59)^{9,15,20-22}

Characteristic	n	%	Benchmark
Sex			
Male	32	54	National medical workforce research based on the MABEL survey (Australia) including doctors who responded between 2008–2017 identified that those with different RG qualifications included 75–83% (FACCRM qualified) and 50–65% (FRACGP–FARGP) males (ref. 20)
Female	27	46	
Medical training			
Australian at Australian medical school	50	85	Research based on administrative data about all Victorian interns 2013–2016 showed the proportion of rural interns who completed medical training as international medical students was 24% (ref. 9)
International student or medical school outside of Australia	9	15	
Rurally bonded			
Yes	10	17	Research based on Monash University medical program graduates for 2008–2016 (up to 9 years after graduation) identified that 21% were rurally bonded medical students (ref. 21)
No	49	83	
Rural undergraduate training experience			
Yes <12 weeks	17	29	National medical workforce research based on the MABEL survey (Australia) including doctors who were in a 2017 cross-section indicated 39% (currently working in rural or metropolitan areas) had done ≥3 months rural training (ref. 15). Research based on Monash University medical program graduates from 2008–2016 (up to 9 years after graduation) identified 42% who had done more than 6 weeks and up to 2 years rural training during their undergraduate training (ref. 21)
Yes, 3–12 months	10	17	
Yes, one academic year or more	22	37	
No	10	17	
Rural background[†]			
Yes	23	39	National medical workforce research based on the MABEL survey (Australia) including doctors who were in a 2017 cross-section indicated that 34% of Australian doctors currently working rurally have a rural background (ref. 15). Research based on Monash University medical program graduates for 2008–2016 (up to 9 years after graduation) identified 30% had a rural background (ref. 21) Percentage of rural background students enrolled in the Queensland Rural Generalist Program from a report on that program was estimated to be 29% (ref. 22)
No	36	61	
Partner's rural background[†]			
Yes	29	49	No comparator data
No	20	34	
N/A (single)	10	17	
Region where RG internship completed			
Hume	25	42	Not applicable
Loddon Mallee	8	14	
Grampians	9	15	
Barwon South west	2	3	
Gippsland	9	15	
Unknown	6	10	
Training stage			
Prevocational	18	31	Not applicable
Registrar	26	44	
Fellows	15	25	

[†] ≥6 years of experience in rural area up to age 18 years. FACCRM, Fellow of Australian College of Rural and Remote Medicine. FARGP, Fellowship in Advanced Rural General Practice. FRACGP, Fellow of Royal Australian College of General Practitioners. MABEL, Medicine in Australia: Balancing Employment and Life. N/A, not applicable. RG, rural generalist.

Table 3 indicates the results relating to satisfaction and retention. On most benchmarks of rural workforce development in Australia, the RG internship achieved better outcomes. Overall 48% returned to the region where they had done undergraduate training compared with 25%, as indicated from national studies²³.

Although there was no comparator data, a high proportion (56%) remained in their RG internship region for further prevocational training, and 40% (excluding three current interns) were currently working in the same region where they did their RG internship. Excluding current interns, the cohort also showed signs of being distributed to smaller towns, although there was no comparator data. The uptake of general practice training/fellowship was high

at 61% (25/41, after excluding prevocational doctors not yet enrolled in specialty training) compared with comparator data suggesting uptake of general practice of up to 36% and only 9% uptake of rural general practice²⁴.

Satisfaction with RG1 training was complete (100%). Satisfaction with specific training quality indicators was also positive (Table 3) except for a few results suggesting that around one in five needed to negotiate their own training post (22%), and only 1 in 10 (11%) agreeing that it was easy to find a partner in rural areas. One in four (25%) agreed that in rural areas there is a low chance of burnout (suggesting 75% viewed the chance of burnout was probable).

Table 3: Satisfaction with rural generalist internships and workforce outcomes²²⁻²⁷

Characteristic	n	%	Benchmark
Return to same region to do RG internship as where did rural undergraduate training (any length of previous training time)	21	48	National medical workforce research based on the MABEL survey (Australia) including doctors who were in a 2017 cross-section indicates that of all Australian doctors working in rural regions, 25% had done a period of rural training in the same region (ref. 23).
Satisfaction with RG1 training [†]	59	100	Satisfaction with the Queensland Rural Generalist Program, which was based on a survey of 77 participants indicated 86% overall feeling extremely satisfied/satisfied (ref. 22).
Stay in region of RG1 training in prevocational years (excluding current interns)	28	56	No comparator data
Currently working in same region as RG1 (excluding current interns)	20	40	
Currently work in any rural Victorian region (excluding current interns)	26	46	National medical workforce research based on the MABEL survey (Australia) including doctors who responded to the survey between 2008 and 2017 identified that of followed GPs in Australia there was 11–18% turnover per year in MMM 4–7 areas (highest in more remote locations) (ref. 25)
Currently based in MMM 4–7 community (excluding current interns)	11	20	The National Medical Workforce Survey data of Australia indicates that 11% of GPs work in an MMM 4–7 location (ref. 26)
Working some time in MMM 4–7 community (excluding current interns)	24	44	
Uptake of general practice			
Yes (enrolled or completed GP fellowship)	25	61	National medical workforce research based on the MABEL survey (Australia) including doctors who responded to the survey general practice 2008–2013 estimates that 26–36% of establishing career doctors in Australia who graduated since 2000 have taken up general practice (ref. 24). Further the same research identified that only 9% of all graduates since 2000 are working as rural GPs (ref. 24). The level of interest in general practice amongst Australian medical students was estimated to be 16% of the general cohort of 2020 medical school leavers in the Medical Student Outcomes Database (ref. 27)
Other speciality	16	39	
Agreement[†]			
My skills suit the demands of my job	56	95	No comparator data
I feel supported to pursue my career goals	49	83	
I have sound understanding of rural medicine	37	66	
At some point, I needed to negotiate my own training post (yes)	11	22	
In rural areas, my partner can easily find work	30	63	A survey of 77 participants of the Queensland Rural Generalist Program also identified partner and children as being the most major factors influencing their decision to consider leaving rural practice (35% of 77 respondents were unsure about continuing to work rurally) (ref. 22)
I had good access to social opportunities	43	80	No comparator data
It is easy to find a partner in rural areas	5	11	
There is strong collegiality in rural healthcare teams	48	86	
The range of work in rural practice suits me	52	95	
I have suitable clinical responsibility in rural areas	47	84	
The clinical team is a suitable sized in rural	48	87	
I am satisfied with the frequency of being rostered on in rural areas	35	69	
I am satisfied with on-call required in rural areas	25	58	
There is a low chance of burnout in rural practice	14	25	

[†] Responses that were not applicable were recoded as 'missing'; 'agreement' was defined as either 'strongly agree' or 'agree', compared with 'neutral', 'disagree' and 'strongly disagree' responses. MABEL, Medicine in Australia: Balancing Employment and Life. MMM, Modified Monash Model. RG, rural generalist.

Table 4 indicates the scope of work and RG identity of RG internship participants. Overall, 42% self-identified as an RG. A higher proportion indicated current or plans to maintain CPD at additional specialist scope (92%), and 68% planned to work rurally in a setting where there are limited other specialists. Around one in four (26%) had hospital admitting rights and 8% worked in aged

care, and 90% worked at least partially in hospital or health services other than private consulting rooms. Nearly all (97%) met at least one of the key indicators of extended (RG) scope and 80% met more specific criteria including working in ED and on after-hours rosters, with hospital admitting rights, servicing towns with few other specialists and self-identifying as an RG.

Table 4: Scope of work, rural generalist identity among participants in the rural generalist internship

Characteristic	n	%	Benchmark
Self-identify as a rural generalist	25	42	No comparator data
Plan to maintain CPD points in area of additional specialist skill [†]	48	92	
Plan to work rurally in locations where limited other specialists	38	68	
Rostered onto emergency department	32	54	
Working on regular after-hours roster	31	52	
Hospital admitting rights	11	26	
Working in hospital or health service other than private consulting rooms	53	90	
Working in aged care settings	5	8	
Servicing a town where few other specialists	13	22	
At least one measure of extended scope (other than self-identify as rural generalist) [‡]	47	80	

[†] The range of additional specialties the cohort was interested in was broad; the three most common areas of rural generalist additional skills for the rural-based cohort were emergency medicine ($n=10/37$), obstetrics (delivery) ($n=5/37$), paediatrics ($n=3/37$) and mental health ($n=3/37$).

[‡] Included rostered onto emergency department, work on regular after-hours roster, hospital admitting rights, servicing a town where few other specialists or self-identify as a rural generalist. This was highest for the group currently working in general practice (92%), the working rurally (89%) and 100% of 16/59 doctors working in general practice in MMM 3–7. CPD, continuing professional development. MMM, Modified Monash Model.

Discussion

This research fulfils its purpose of exploring the characteristics and outcomes of doctors who participated in RG internships in Victoria. Although a small cohort, they are a critical one to understand with respect to shaping RG training and workforce policies. The research indicates the outcomes of RG-focused internship training, up to 9 years (with around 69% of the cohort having commenced or completed specialty training at the point of data collection). It informs the ongoing development of the VRGP longitudinal training pathway⁷. It also supports the evidence base for developing the national RG pathway²⁸. The primary finding is that the program's attractiveness and its training outcomes are better than national benchmarks for attracting and retaining a workforce in rural communities, and for retaining doctors longitudinally through training in the same region. This suggests that RG-focused internship training where doctors have access to program coordination staff and enable general practice RG supervision and RG scope of work in general practice is helpful for growing the rural workforce.

The RG internship tended to attract relatively equal proportions of male and female RGs compared with other research, noting that females are likely to be less attracted to rural work, even though they more likely take up rural training opportunities during medical school¹⁵. It suggests that RG internships may suit the needs and interests of female doctors, including considering children and partner needs²⁹. A framework to help rural pathways to be more responsive to the needs of female doctors was recently published³⁰. The RG internship also attracted a higher proportion of Australian-citizen doctors who trained at Australian medical schools, of rural background and rural undergraduate training experience in the same region. This suggests that RG internships may play a role in strengthening the capacity to attract rural-background, rural-intentioned doctors to continue to work rurally in the early postgraduate years – what is called end-to-end rural training models. The updated WHO recommendations in 2021 reiterated the 2010 global evidence supporting that training health workforce using a 'grow your own' approach is critical to drive better retention rates³¹.

There may be some variability between the attractiveness of different RG Internship programs that were studied, but this was not possible to tease out from the available data. The findings are weighted to the longest standing and largest RG internship program, called Murray to Mountains, in the Hume rural region, which had already shown positive early results of retaining doctors into their second postgraduate year^{3,4}. However, the combined results hint that the selection criteria used to recruit doctors into the RG internship programs overall are achieving the program's purpose (based on the characteristics of this sample, of whom a large proportion have a rural background). It may be a model that other postgraduate specialist training could adopt given non-general practice colleges show limited consistency in their rural-focused selection policies³².

Other findings suggest that the RG internship program has some capacity to attract and retain doctors in the same region beyond the RG internship period. This is a period when rural retention is typically challenged due to the difficulties in accessing relevant specialist training pathways. The results of this study suggest that RG internship participants commonly stay in the same region for further prevocational work and ongoing specialist training, well above national benchmarks. For example, the best quality national research about this, which was unbiased to institution or funding body, showed that of Australian doctors currently working rurally, 25% had done a period of rural training in the same region²³. However, the rates in this study were approximately double: 48% of RG internship doctors remained in the same region for further prevocational work and 40% currently worked in the same region. There are also very high levels of satisfaction with the RG internship training provided, which may relate to the positive results on doctors remaining in the same region. This suggests that RG internship training that has administration and case management support for the doctors, along with RG-focused supervised learning opportunities, may give good connections to a networked regional training system. The results are more remarkable in the Victorian context where training and employment need to be negotiated with independent health services whose board and executive teams may or may not choose to support RG models.

The results hint that the RG scope of work relative to training needs may be difficult to negotiate: around one in five of the RG internship participants indicated that they needed to negotiate their own training posts. There is no comparable data against which to assess this, but while training posts are not systematised in Victoria between general practices and the hospitals, there is going to be a need for more expenditure on coordination of staff, and dependence on individual doctors and their willingness to negotiate the RG training system. The nationally funded coordination units that have been implemented in each state and territory to support RG training are hence important⁶.

The final point of discussion is that the RG internship training shows better outcomes than industry benchmarks with regard to developing a GP workforce that works rurally at broad scope. Overall, nearly two in three participants enrolled in or had completed their fellowship were on the general practice pathway and 42% of the total cohort identifies as an RG. The intention of the doctors to maintain a wide scope, connection to rural areas and work in distributed sites where there are few specialists suggests the RG internship may assist to build the type of workforce that Australia is trying to promote under its new National Medical Workforce Strategy (2021–2023)³³. Many of the doctors responding to the survey identified that they feel that they have the skills for the job and good variability of work, and they enjoy the collegiality of rural practice. However, potential retention pressures noted were non-professional issues, related to partners, and professional issues like the perceived risk of professional burnout. If these two issues were specifically addressed, then the sense is that RG workforce retention may be further enhanced in the Victorian context. This may rely on attention to selecting people who have partners, whose partners can find work in rural areas³⁴. Fostering sustainable models of rural health care is also likely to substantially address concerns of burnout, and these form a major thrust of current Australian government policy and research, however they rely on co-planning with state governments given that RGs also support hospital (state-government) caseload³⁵⁻³⁷. In Victoria, the procedural caseload of rural hospitals and visiting medical officer (VMO) services are considered to be reducing over time, which threatens the potential to retain RGs who go through the VRGP^{1,38}.

The study has some major limitations. It was done in the Victorian context, which is unique in that the rural health services are all independent and there is no RG award, with RGs mostly working on fee-for-service contracts as VMOs, which they have to negotiate at each health service. The survey only had 59 respondents, which limited the capacity for multivariate analysis or any comparisons between regions. However, the response rate was reasonable, particularly given that the survey was done during the

COVID-19 pandemic. There was no comparison group for the study, due to the lack of up-to-date administrative data to contact other rural interns who weren't part of the RG internship training, but this research used a range of published sources to provide a sense of how the RG internship program's outcomes are tracking. Further, this is the first research to build in measures of RG scope of work, to provide a starting point for other studies to explore how to measure the RG workforce. More research is warranted about this and the outcomes of RG training programs to objectively inform RG training design, but this will require specific investment in postgraduate workforce tracking methods.

Conclusion

This research is the first to explore the outcomes of an RG internship program in the Victorian context. The findings positively suggest that the RG internships attract rurally intentioned and rurally experienced doctors. The doctors have a satisfying training experience, many remain in the same rural region as their rural undergraduate and rural internship training, and they complete postgraduate training in the same region. They also often follow a general practice career and work at broad scope, including hospital roles and intending to stay in that region, which are better outcomes than demonstrated in the wider literature about rural workforce development. This suggests RG internship programs are likely to be a positive intervention for promoting an RG workforce and their design might contribute to informing the ongoing development of RG training programs.

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Conflicts of interest

BOS was funded for this research by the VRGP; SB and AS were directly employed by the VRGP. SB and JP were involved in the internship training model in the Hume region. BOS, SB, AS and JP live and work in the regions under study.

REFERENCES:

- 1 O'Sullivan B, Taylor C, Martin P, Lodding M, Bilardi G, Dix L. *Supervision Roadmap: rural generalist training in Victoria*. Bendigo: General Practice Supervisors Australia, 2021.
- 2 Medical Board of Australia. *Interns: Australian and New Zealand medical graduates undertaking an accredited internship in Australia Canberra*. 2021. Available: [web link](#) (Accessed 27 September 2022).
- 3 Best J, Boyer S, DeLacy C, Phillips J, Welch T, McColl G. Murray to the Mountains intern training program: involvement of small health services. *Medical Journal of Australia* 2014; **200(7)**: 378-380. DOI link, PMID:24794659
- 4 Best J, Phillips J, Welch T, Bouer S, DeLacy C, McColl G. The Murray to the Mountains Intern Training Program. *Medical Journal of Australia* 2015; **203(6)**: 249. DOI link, PMID:26377288
- 5 Cohen D. *Evaluation of the Rural Community Intern Training (RCIT) Program*. Melbourne: Darcy Associates Consulting Services, 2019.

- 6** Victorian Department of Health and Human Services. *Victorian Rural Generalist Program: Program Management Framework*. Melbourne: Victorian Department of Health and Human Services, 2019.
- 7** Victorian Department of Health. *Advance your career with the Victorian Rural Generalist Program Melbourne*. 2022. Available: [web link](#) (Accessed 27 September 2022).
- 8** Postgraduate Medical Council of Victoria. 2021. *Victorian Preferential Rural Allocation*. Melbourne: Postgraduate Medical Council of Victoria, 2020.
- 9** McGrail M, O'Sullivan B, Russell D, Rahman M. Exploring preference for, and uptake of, rural medical internships, a key issue for supporting rural training pathways. *BMC Health Services Research* 2020; **20(1)**: 930. DOI link, PMID:33032604
- 10** Victorian Department of Health. *Hospitals & health services*. 2021. Available: [web link](#) (Accessed 27 September 2022).
- 11** Victorian Department of Health. *The Victorian Health Services Governance Handbook: a resource for Victorian health services and their boards*. Melbourne: Victorian Department of Health, 2012.
- 12** Australian Government Department of Health. *The Modified Monash Model*. 2016. Available: [web link](#) (Accessed 27 September 2022).
- 13** Funnell SC, Rogers PJ. *Purposeful Program Theory: effective use of theories of change and logic models*. San Francisco: Jossey-Bass, 2011.
- 14** McGrail M, O'Sullivan B, Russell D. Rural work and specialty choices of international students graduating from Australian medical schools: implications for policy. *International Journal of Environmental Research and Public Health* 2019; **16**: 5056. DOI link, PMID:31835846
- 15** O'Sullivan B, McGrail M. Effective dimensions of rural undergraduate training and value of national training policies for encouraging rural work. *Medical Education* 2020; **54(4)**: 364-374. DOI link, PMID:32227376
- 16** McGrail MR, Russell DJ, O'Sullivan BG. Family effects on the rurality of GP's work location: a longitudinal panel study. *Human Resources for Health* 2017; **15**: 75. DOI link, PMID:29052504
- 17** Russell D, McGrail M. How does the workload and work activities of procedural GPs compare to non-procedural GPs? *Australian Journal of Rural Health* 2016; **25(4)**: 219-226. DOI link, PMID:27600557
- 18** McGrail M, O'Sullivan B, Russell D. Rural training pathways: the return rate of doctors to work in the same region as their basic medical training. *Human Resources for Health* 2018; **16**: 56. DOI link, PMID:30348164
- 19** Australian College of Rural and Remote Medicine. *Rural generalist curriculum*. Brisbane: Australian College of Rural and Remote Medicine, 2020.
- 20** McGrail M, O'Sullivan B. Faculties to support general practitioners working rurally at broader scope: a national cross-sectional study of their value. *International Journal of Environmental Research and Public Health* 2020; **17**: 4652. DOI link, PMID:32605246
- 21** O'Sullivan B, McGrail M, Russell D, Walker J, Chambers H, Major L, et al. Duration and setting of rural immersion during the medical degree relates to rural work outcomes. *Medical Education* 2018; **52(8)**: 803-815. DOI link, PMID:29676022
- 22** Ernst and Young. *Evaluation and investigative study of the Queensland Rural Generalist Program*. Brisbane: Queensland Health Office of Rural and Remote Health, 2013.
- 23** McGrail MR, O'Sullivan BG. Increasing doctors working in specific rural regions through selection from and training in the same region: national evidence from Australia. *Human Resources for Health* 2021; **19(1)**: 132. DOI link, PMID:34715868
- 24** McGrail MR, Russell DJ. Australia's rural medical workforce: supply from its medical schools against career stage, gender and rural-origin. *Australian Journal of Rural Health* 2017; **25(5)**: 298-305. DOI link, PMID:27869335
- 25** McGrail MR, Humphreys JS. Geographical mobility of general practitioners in rural Australia. *Medical Journal of Australia* 2015; **203(2)**: 92-97. DOI link, PMID:26175249
- 26** Australian Government Department of Health. *General Practice workforce providing primary care services in Australia*. 2022. Available: [web link](#) (Accessed 27 September 2022.).
- 27** Medical Deans. *Medical schools outcomes database: national data report responses from final year students at Australian Medical Schools*. Sydney: Medical Deans, 2021.
- 28** National Rural Health Commissioner's Office. *National Rural Generalist Taskforce advice on the development of the National Rural Generalist Pathway*. Canberra: Australian Government Department of Health, 2018.
- 29** McGrail MR, O'Sullivan BG, Russell DJ. *Are practice locations associated with GPs having school-age children and working spouses?* Cairns: 14th National Rural Health Conference, 2017.
- 30** O'Sullivan B, McGrail M, May J. Responsive policies needed to secure rural supply from increasing female doctors: a perspective. *International Journal of Health Planning and Management* 2021; **37(1)**: 4-49. DOI link, PMID:34655110
- 31** World Health Organization. Retention of the health workforce in rural and remote areas: a systematic review. *Human Resources for Health Observer Series No. 25*. Geneva: World Health Organization, 2020.
- 32** McGrail M, O'Sullivan B, Gurney T. Critically reviewing the policies used by colleges to select doctors for specialty training: a kink in the rural pathway. *Australian Journal of Rural Health* 2021; **29**: 272-283. DOI link, PMID:33792997
- 33** Australian Government Department of Health. *National Medical Workforce Strategy 2021-2031*. Canberra: Department of Health, 2021.
- 34** Paynter JA, O'Sullivan BG. Preferences and pathways of the next generation of rural doctors. *Australian Journal of Rural Health* 2020; **28(3)**: 309-310. DOI link, PMID:32476190
- 35** Wakerman J, Humphreys JS, Wells R, Kuipers P, Entwistle P, Jones J. Primary health care delivery models in rural and remote Australia – a systematic review. *BMC Health Services Research* 2008; **8(8)**: 276. DOI link, PMID:19114003
- 36** Wakerman J, Humphreys JS, Wells R, Entwistle P, Kuipers P, Jones J. The features of effective primary health care models in rural and remote Australia: a case study analysis. *Medical Journal of Australia* 2009; **191(2)**: 88-91. DOI link, PMID:19619093
- 37** Kaufman BG, Thomas SR, Randolph RK, Perry JR, Thompson KW, Holmes GM, et al. The rising rate of rural hospital closures. *The Journal of Rural Health* 2016; **32(1)**: 35-43. DOI link, PMID:26171848

38 Robinson M, Slaney GM, Jones GI, Robinson JB. GP proceduralists: 'the hidden heart' of rural and regional health in

Australia. *Rural and Remote Health* 2010; **10**: 1402. DOI link

Appendix I: Rural Community Internship Training (RCIT) Outcomes Survey

Consent

1. After reading the explanatory statement, do you consent to this survey?
 - Yes
 - No

Your background

2. What is your gender?
 - Male
 - Female
3. What is your current residency status?
 - Australian citizen
 - Permanent resident
 - Temporary resident
4. For how many years did you live in a rural area up until the age you left secondary school? (if none, write 0)

5. Please indicate the main RURAL area where you lived up until school leaving age? What is the name of the town and the state it was in?
 - Name of town
 - State/territory name
 - Not applicable
6. Do you currently have a partner/spouse?
 - Yes
 - No
7. For how many years did your partner/spouse live in a rural area up until the age he/she left secondary school? (if none, write 0) _____
8. Please indicate the main RURAL area where partner/spouse lived up until school leaving age? What is the name of the town and the state it was in?
 - Name of town
 - State/territory name
 - Not applicable
9. What is your partner/spouse's employment status? (Please tick)
 - Employed
 - Looking for paid employment
 - Currently not looking for paid employment
 - None of the above
 - Not applicable
10. Do you have any dependent children? (Please tick all that apply)
 - Yes, secondary school
 - Yes, primary school
 - Yes, preschool aged or younger
 - No

Your basic medical training

11. In what year did you complete your basic medical degree?
 - Yyyy
12. Did you participate in rural placements as part of your basic medical degree?
 - Yes
 - No
13. Where did you undertake RURAL placements? If applicable, please list up to THREE locations?
14. How long did you spend in the first location you listed?
 - <12 weeks
 - 3-12 months
 - >1 university year
 - Not applicable
15. How long did you spend in the second location you listed?
 - <12 weeks
 - 3-12 months
 - >1 university year
 - Not applicable
16. How long did you spend in the third location you listed?
 - <12 weeks
 - 3-12 months
 - >1 university year
 - Not applicable
17. Were any of these placements in the following regions?
 - Hume
 - Loddon Mallee
 - Gippsland
 - Grampians
 - Barwon South west
 - Other
18. Where did you complete your basic medical degree?
 - A medical school in Australia as an Australian citizen or permanent resident
 - A medical school in Australia as an international student (citizen of a country outside of Australia and New Zealand) or non-permanent resident
 - A medical school in another country (Specify in text))

19. Were you on a Rural Bonded scholarship?
- Yes
 - No

Prevocational and vocational training

20. In which region/s did you train in as an intern?
- Hume
 - Loddon Mallee
 - Gippsland
 - Grampians
 - Barwon Southwest
 - Other
 - Not applicable
21. When did you commence your internship?
- Yyyy
22. When commencing your internship, were you employed on a two-year contract?
- Yes
 - No
 - Can't recall
23. Did you work in a rural location after internship and before commencing fellowship training?
- Yes, in general practice
 - Yes, in hospital
 - No
 - Can't recall
 - Not applicable
24. In which regions did you work over this period (tick all that apply)
- Hume
 - Loddon Mallee
 - Gippsland
 - Grampians
 - Barwon Southwest
 - Othergeneral practice
 - Not applicable
25. Did you do any fellowship training in a rural location?
- Yes, >12 months
 - Yes, <12 months
 - No
 - Not applicable
26. In which regions did you do your fellowship training (tick all that apply)
- Hume
 - Loddon Mallee
 - Gippsland
 - Grampians
 - Barwon Southwest
 - Othergeneral practice
 - Not applicable
27. Which qualifications are you currently enrolled in? (More than one)
- FACRRM
 - FRACGP
 - FRACGP-FARGP
 - DTMH
 - Dip Rural General Practice
 - JCCA
 - DRANZCOG – DipObs
 - DRANZCOG - AdvDipObs
 - DipSurg
 - DipPaeds
 - MPH
 - MHA
 - Cert EM
 - Non GP specialty
 - Other
 - Nil of the above
28. Which qualifications have you completed? (More than one)
- FACRRM
 - FRACGP
 - FRACGP-FARGP
 - DTMH
 - Dip Rural General Practice
 - JCCA
 - DRANZCOG – DipObs
 - DRANZCOG - AdvDipObs
 - DipSurg
 - DipPaeds
 - MPH
 - MHA
 - Cert EM
 - Non GP specialty
 - Other
 - Nil of the above
29. Did you access funding for advanced skills consolidation?
- Yes
 - No

- Not applicable
 - Not sure
30. At any point have you negotiated your own accredited training post with a health service?
- Yes
 - No
 - Not applicable

Your current work

31. Are you currently working clinically?
- Yes, full time
 - Yes, part time
 - No
32. Where is your main CURRENT location of practice?general practice
33. In which region are you based? (tick all that apply)
- Hume
 - Loddon Mallee
 - Gippsland
 - Grampians
 - Barwon Southwest
 - Other
 - Not applicable
34. Where is your current MOST REMOTE location of practice?
35. In which region is this based? (tick all that apply)
- Hume
 - Loddon Mallee
 - Gippsland
 - Grampians
 - Barwon Southwest
 - Other
 - Not applicable
36. Are you currently subject to restrictions on your location of practice?
- Yes, I am required to work in an Area of need or District of Workforce shortage
 - No but I used to be, fulfilled year (YYYY)
 - No, never have been
37. In which settings do you regularly practice? (More than one)
- Aboriginal Medical Service
 - Royal Flying Doctors Service or other retrieval service
 - Private consulting rooms
 - Nursing home/ aged care
 - Hospital or health service
 - Other, please state
38. Do you provide rostered emergency services in an Emergency Department, Urgent Care Centre or as part of a first responder network?
- Yes
 - No
39. Are you on a regular emergency after hours' roster?
- Yes
 - No
40. Do you regularly provide specific (advanced skills based) services in a hospital or other community setting?
- Yes
 - No
- Mental health
 - Anaesthetics
 - Dermatology
 - Emergency medicine
 - General practice
 - Geriatrics
 - Indigenous health
 - Obstetrics (deliveries)
 - Operative surgery
 - Palliative medicine
 - Paediatrics
 - Other non-GP specialty
 - Other
 - Not applicable
42. Do you have credentials for hospital admitting rights?
- Yes
 - No
 - Not applicable
43. Do you maintain CPD points in any of the following? (More than one)
- Adolescent health
 - Adult internal medicine
 - Mental health
 - Anaesthetics
 - Dermatology
 - Emergency medicine
 - General practice – RACGP
 - General practice – ACRRM
 - Geriatrics

- Indigenous health
 - Obstetrics (deliveries)
 - Operative surgery
 - Palliative medicine
 - Paediatrics
 - Other non-GP specialty
 - Other
 - Not applicable
44. Do you provide any services in any towns that have no local non-GP specialists?
- Yes
 - No
45. Do you consider yourself to be a rural generalist or rural generalist trainee?
- Yes
 - No
46. Please indicate the degree to which you agree or disagree with the following statements (6-point scale *Strongly disagree:1; disagree:2; neutral:3; Agree:4; Strongly agree:5; Not applicable:6*)
- My skills suit the demands of my current employment
 - I feel satisfied with my work as a doctor
 - The RCIT program was/is a positive experience
 - I feel supported to pursue my learning and career goals
 - I have a personal connection to the location where I work
 - I have developed a sound understanding of rural medicine
 - I enjoy the location where I live
 - I plan to continue working in this area of medicine
 - I plan to continue working in this location
 - I plan to maintain my current credentials
 - I plan to maintain CPD points in the areas that I am qualified
 - I plan to train in more skills areas
 - I plan to work in a regional centre where I have access to other specialists
 - I plan to work in a rural area with limited access to other specialists
47. Please indicate the degree to which you agree or disagree with the following statements. In rural areas
- My partner can easily find work
 - It is easy to find a partner
 - My children can access good schools/childcare
 - I can get the vocational training I need
 - I am satisfied with the scope of work
 - I am satisfied with the frequency of being rostered on
 - I enjoy the collegiality of the healthcare team
 - I like the size of the medical team
 - I enjoy the level of clinical responsibility
 - The range of work suits me
 - I am satisfied with the on-call work required
 - I like community social opportunities
 - I have a low chance of burnout from the workload
 - There are ample chances to maintain my skills
 - I have good social connections
 - I have good professional support
 - I enjoy the general practice and hospital parts of the job
48. If circumstances had been different, would you have pursued a career in rural generalist medicine?
- Yes
 - No
 - Not sure
 - Not applicable

Thank you for completing this survey.