

# Australian rural medical students' perceived readiness for work as a junior doctor: A cross-sectional national survey

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## Abstract

**Objective:** To report self-perceived readiness for work as a junior doctor in a national cohort of rural clinical school students.

**Design:** Cross-sectional study using a self-report questionnaire. Independent variables included 14 individual readiness items related to clinical and professional tasks, sociodemographic data and reported experience of rural clinical school (RCS) training. Participants were 668 medical students (55.3% females) completing a full academic year in rural Australia. Multivariable analysis explored factors associated with overall readiness for work as a junior doctor.

**Findings:** 86% agreed that RCS experience prepared them to undertake the roles and responsibilities of a junior doctor. Self-ratings for specific clinical and professional tasks varied from a mean score of 5.9–8.0 out of 10, and 13 of the 14 items were associated with the outcome ( $p$ -value <0.001, except for performing spirometry). Lowest readiness scores were seen for some aspects including raising concerns about a colleague (mean score 6.1) or responding to workplace bullying (mean score 6.0). Aspects of the RCS experience that were strongly associated with overall readiness included: feeling a valued team-member (OR 9.28, 95%CI 2.43–35.39), feeling well-supported academically (OR 6.64, 95%CI 3.39–13.00), having opportunity for unsupervised but supported clinical practice (OR 4.67, 95%CI 1.45–15.00), having a rural mentor (OR 3.38, 95%CI 1.89–6.06) and having a previous health professional qualification (OR 2.7, 95%CI 1.32–5.54).

**Discussion:** Most RCS students felt ready for work as a junior doctor. Important aspects of RCS experience are likely to include students feeling integrated within the clinical team and having opportunities for authentic clinical roles. There remains a significant challenge for medical school curricula to address professional areas where graduates felt less prepared.

## KEYWORDS

interns, junior doctors, preparedness, rural clinical schools, work readiness

## 1 | INTRODUCTION

In Australia, after medical school, graduates transition to becoming fully registered doctors by undertaking a paid provisional registration year known as internship. Internship is a challenging time, where many graduates experience a decline in confidence and conceal difficulty coping.<sup>1</sup> Graduates then spend a number of years in junior doctor roles (intern and resident) before transitioning to specialist vocational training.

Readiness for work as a junior doctor has been variably described as 'work readiness' or 'preparedness for practice'.<sup>2</sup> For simplicity, we will refer to 'readiness' or 'junior doctor readiness' when describing this attribute. A recent review described readiness as being dependent on students' self-perceptions, their capability to adapt and the influence of the context of undergraduate experience.<sup>2</sup> Self-report remains an important measure of readiness in students and newly graduated interns<sup>2,3</sup> and can potentially identify areas of vulnerability. In Australia, a national survey of interns showed that the majority (74% in 2019) agreed or strongly agreed that their medical education had prepared them for internship.<sup>4</sup> However, a quarter of respondents felt poorly prepared for dealing with workplace issues such as bullying or concern for a colleague, or for providing culturally appropriate care for Aboriginal and Torres Strait Islander patients.<sup>4</sup>

In Australia, at least 25% of students undertake a full year of undergraduate placements in rural and remote areas supported by Rural Clinical Schools (RCS), although in some medical schools, the proportion is higher. Despite this figure, most domestic graduates undertake metropolitan internships due to their relative availability.<sup>5</sup> Junior doctor readiness in RCS students has not been evaluated beyond some small studies in single institutions. Daly et al. interviewed 42 medical students and clinicians in Broken Hill, NSW, and found that aspects of the rural placement enhanced readiness through opportunities for personal development, clinical responsibility and cross-cultural interactions.<sup>6</sup> Another qualitative study involving interviews with 20 junior doctors in Queensland showed that rural placements enhanced perceived readiness for internship in both rural and metropolitan environments.<sup>1</sup> Eley et al. proposed that improved readiness may result from rural students working in smaller teams with increased opportunities to have responsibility for patients, building their confidence and self-efficacy.<sup>1</sup> Similarly, in international settings, it has been well-recognised that on-the-job learning improves readiness; key examples include paid pre-internships in New Zealand (NZ)<sup>7</sup> and shadowing placements in the UK.<sup>8</sup>

### What is already known about this subject

- Surveys of medical students across Australia show that a majority feel prepared for internship; however, their university experiences and location of clinical placements vary considerably (e.g. metropolitan, regional, rural and remote).
- A significant proportion of graduates feel underprepared for challenging professional dilemmas, including dealing with workplace bullying or colleagues in distress.

### What this paper adds

- This cross-sectional study showed that most rural medical students in Australia felt ready for work as a junior doctor.
- Survey data indicated equivalent readiness among students who had undertaken rural versus remote placements. Positive factors associated with readiness included having opportunities for authentic clinical roles and feeling a valued team member in rural clinical placements..

In this study, our primary aim was to report self-perceived junior doctor readiness in a national cohort of RCS students. Our secondary aims were to evaluate the relationship between readiness and students' perceived experiences of the clinical placement, including support, mentorship and clinical placement experience.

## 1.1 | Methods

This study was a cross-sectional study of medical students who undertook longitudinal RCS placements in 2019. The survey used was the annual Federation of Rural Australian Medical Educators (FRAME) survey, which was distributed to 17 medical schools with a RCS program and was voluntarily completed by students within 4 weeks of completing a 12-month rural placement, prior to graduation.

The online survey included questions about demographic information, rural background, previous health qualification, RCS experiences and perceptions of supports. In order to undertake this study, additional survey questions were proposed by authors JP and LW and were included after moderation by an expert FRAME panel (Tables S1 and S2).

## 1.2 | Measurements

### 1.2.1 | Outcome: Overall readiness for work as a junior doctor

The survey asked questions about readiness to become a junior doctor, as well as specific questions about becoming an intern and RCS experience. The primary outcome was the student's response to the following statement: 'Overall, my rural clinical school experience has prepared me sufficiently to undertake the roles and responsibilities of a junior doctor'. This variable was collected using a 5-point Likert scale, ranging from Strongly Disagree to Strongly Agree and reclassified into three groups (Strongly Disagree/Disagree, Neutral or Agree/Strongly Agree).

### 1.2.2 | Independent variables

#### *Readiness for intern tasks*

We assessed the relationship with the main outcome (readiness to become a junior doctor) with 14 items about specific intern tasks/responsibilities. These 14 items were chosen as they were considered to be a meaningful subset of the Australian national intern survey items,<sup>4</sup> allowing comparison with previous Australian studies. We chose to focus on competencies that the cohort generally felt less prepared for/more challenging,<sup>4</sup> and acknowledge that not all clinical competencies were assessed in this study. These items were assessed on a 10-point scale (1—extremely unprepared to 10—extremely ready) that asked 'Following your rural clinical school experience, how ready do you feel ready to work at intern level for the following tasks' (Table S1).

#### *Rural clinical school factors*

Students were asked to rate their agreement with statements related to their self-perceived RCS support (Table S2) [(i) 'I felt academically well supported by my RCS', (ii) 'I had a rural-based clinician as a mentor'] (iii) 'The RCS promoted a commitment to Aboriginal health' and RCS experiences [(i) 'I had to take responsibility and be accountable for patient care', (ii) 'I had the opportunity for unsupervised but supported clinical practice', (iii) 'I felt like a valued member of the team']. Answers to these questions were rated on a 5-point Likert scale, ranging from Strongly Disagree to Strongly Agree. These responses were aggregated into three categories for analysis: Strongly Disagree/Disagree, Neutral or Agree/Strongly Agree.

#### *Rural or remote location of placement*

Students were also asked to rate their agreement with statements about where they spent the majority of their clinical placement, that is mainly in rural 'The majority of my rural/remote placement time was spent in rural areas (RA 2 or RA 3)' or in remote areas 'The majority of my rural/remote placement time was spent in remote areas (RA 4 town <10000 people or RA 5)'.

### 1.2.3 | Covariates for adjustment

Previous studies have identified age and gender as potential variables influencing readiness,<sup>2,4</sup> and these were explored as possible confounders in this paper. Although health qualification and rural background have not been examined, we also included these variables as potential confounders. Students were asked to report whether they had a previous health professional qualification before studying medicine (yes/no). This variable was hypothesised to increase students' confidence working in the clinical setting. Students were asked whether they considered themselves to be from a rural background (yes/no). Rural background is associated with increased rural practice self-efficacy<sup>9</sup> and was hypothesised to correlate with clinical practice self-efficacy and therefore junior doctor readiness.

## 1.3 | Data analysis

For descriptive analyses, the survey outcomes were presented as absolute frequencies, proportions (%), mean scores and standard deviations, depending on the FRAME question. Categorical variables were expressed in percentages (%). Mean scores and standard deviations were presented for individual task readiness items.

For inferential analyses, the outcome was assessed as a binary variable (RCS prepared them to become a junior doctor agree/strongly agree vs strongly disagree/disagree/neutral), with crude associations assessed using Pearson's chi-squared tests. Multivariable logistic regression models were used to determine adjusted odds ratios (AORs) with 95% confidence intervals (CI) for the influence of the independent variables on this primary outcome. All multivariate results were adjusted for age group, gender, rural background and previous health qualification (Model 1). Results for the remoteness of placement and RCS factors were also mutually adjusted for other variables with a  $p$ -value <0.05 in crude analysis (Model 2). All analyses were performed in STATA 17.0 (StataCorp, Texas, USA), weighted to the participation rate within each school, and clustered to the corresponding RCS.

## 1.4 | Ethics approval

Data with the variables of interest was provided following the FRAME protocol approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 4098).

## 2 | RESULTS

### 2.1 | Response rates

Of the 911 medical students enrolled at the 17 RCS, 668 completed the FRAME survey in 2019 (response rate 73.4%).

### 2.2 | Demographic characteristics

More than half of the respondents (Table 1) were less than 24 years of age ( $n=342$ , 53.7%), and a majority were female ( $n=366$ , 55.3%). A small proportion of the cohort reported having a previous health professional qualification ( $n=60$ , 9.1%). Approximately half the cohort reported having a rural background ( $n=298$ , 45.2%).

### 2.3 | Overall readiness for work as a junior doctor

A majority of students (86.4%) agreed or strongly agreed with the statement that their RCS experience prepared

**TABLE 1** Sociodemographic distribution of the sample (unweighted  $N=663^a$ ).

	<i>n (%)<sup>b</sup></i>
Age groups	
≤24 years	342 (53.7)
24–29 years	214 (33.7)
≥30 years	80 (12.6)
Sex	
Male	297 (44.7)
Female	366 (55.3)
Previous health qualification	
No	600 (90.9)
Yes	60 (9.1)
Has a rural background	
No	361 (54.8)
Yes	298 (45.2)

<sup>a</sup>Some variables with missing data.

<sup>b</sup>Weighted counts and proportions.

them to undertake the roles and responsibilities of a junior doctor (Table 3).

### 2.4 | RCS support and experience

Over 80% of participants reported they felt well-supported academically by their RCS, and 74.7% felt that the RCS curriculum promoted understanding of and commitment to Aboriginal and Torres Strait Islander health (Table 2). Over half (55.3%) had a rural-based mentor. A majority of students reported that they had opportunity for unsupervised but supported clinical practice (86.5%), and felt

**TABLE 2** Self-perceived RCS support and experience during the full-year placement (unweighted  $N=663^a$ ).

	<i>n (%)<sup>b</sup></i>
Most of full-year placement was in remote areas	
Strongly disagree/disagree	428 (71.2)
Neutral	58 (9.6)
Agree/strongly agree	116 (19.2)
Felt well-supported academically	
Strongly disagree/disagree	69 (11.2)
Neutral	42 (6.8)
Agree/strongly agree	506 (82.0)
Had a rural-based mentor	
Strongly disagree/disagree	138 (22.5)
Neutral	137 (22.2)
Agree/strongly agree	341 (55.3)
Felt RCS promoted commitment to Aboriginal health	
Strongly disagree/disagree	71 (11.6)
Neutral	83 (13.7)
Agree/strongly agree	454 (74.7)
Had to take responsibility for patient care	
Strongly disagree/disagree	82 (13.5)
Neutral	90 (14.9)
Agree/strongly agree	433 (71.5)
Had opportunity for unsupervised but supported clinical practice	
Strongly disagree/disagree	41 (6.8)
Neutral	41 (6.7)
Agree/strongly agree	523 (86.5)
Felt were a valued member of the team	
Strongly disagree/disagree	45 (7.4)
Neutral	123 (20.3)
Agree/strongly agree	437 (72.3)

Abbreviation: RCS, Rural Clinical School.

<sup>a</sup>Some variables with missing data.

<sup>b</sup>Weighted counts and proportions.

they were a valued member of the team (72.3%), and had to take responsibility for patient care (71.5%). A small proportion of students (19.2%) reported spending most of their clinical placement time in remote areas (defined in the survey as small communities or remote areas with <10 000 residents).

## 2.5 | Comparison of readiness for specific intern tasks with overall readiness

Scores for specific tasks were highest for clinical tasks including completing medical records (mean score 8.0) and performing physical examination (mean score 7.9). Average self-ratings were lowest for performing spirometry (mean score 5.9), responding to bullying in the workplace (mean score 6.0) and raising concerns about a colleague (mean score 6.1) (Table 3). Providing care for Aboriginal and Torres Strait Islanders was ranked in a mid-position (mean score 6.7) in relation to the 14 items. Except for performing a spirometry, all other items scored more highly

in the group agreeing that their RCS prepared them for work as a junior doctor (Table 3;  $p$ -value <0.001).

## 2.6 | Factors associated with overall readiness

Table 4 presents crude and adjusted multivariate analysis of factors associated with the main outcome of students' perceived readiness for work as a junior doctor. In crude analysis, gender, having a previous health qualification, feeling well-supported academically, having a rural-based mentor, and variables related to other RCS experiences were all associated with readiness (Table 4). However, neither age, gender nor rural background was associated with overall readiness after adjustment for other variables (Table 4). In contrast, having a previous health qualification was significantly associated with overall readiness (OR 2.7, 95% CI 1.32–5.54, Table 4).

The aspects of the students' RCS experience that were independently associated with overall readiness in

**TABLE 3** Comparison of readiness to complete specific tasks according to overall junior doctor readiness (unweighted  $N=621$ ).

Readiness to complete task after the full-year RCS placement	Overall mean score <sup>b</sup> (SD)	RCS prepared them to become a junior doctor <sup>a</sup>			$p$ -Value <sup>c</sup>
		Disagree [4.1%] mean (SD)	Neutral [9.5%] mean (SD)	Agree [86.4%] mean (SD)	
a. Perform a focused physical examination	7.9 (1.4)	6.3 (2.1)	6.7 (1.6)	8.1 (1.2)	<0.001
b. Keep accurate and relevant medical records	8.0 (1.5)	6.5 (2.1)	6.7 (1.5)	8.2 (1.3)	<0.001
c. Prescribe medications safely	6.6 (2.0)	4.6 (2.4)	4.8 (1.5)	6.9 (1.8)	<0.001
d. Break bad news to patients and family members	6.9 (1.9)	5.4 (2.5)	5.7 (2.0)	7.1 (1.7)	<0.001
e. Provide basic nutritional care	6.5 (1.9)	4.9 (2.4)	4.9 (1.8)	6.8 (1.8)	<0.001
f. Provide care for Aboriginal and Torres Strait Islanders	6.7 (1.9)	4.6 (2.6)	5.2 (1.6)	7.0 (1.8)	<0.001
g. Perform spirometry	5.9 (2.6)	4.4 (3.0)	4.6 (2.4)	6.1 (2.5)	0.755
h. Recognise the deteriorating patient	7.7 (1.6)	5.9 (2.2)	6.4 (1.7)	7.9 (1.4)	<0.001
i. Cope with uncertainty in the clinical context	7.5 (1.6)	5.8 (2.6)	6.2 (1.6)	7.7 (1.5)	<0.001
j. Report and deal with errors and safety incidents	6.7 (1.9)	5.1 (2.4)	5.5 (1.7)	6.9 (1.9)	<0.001
k. Respond to bullying in the workplace	6.0 (2.1)	4.2 (2.3)	4.7 (1.7)	6.3 (2.1)	<0.001
l. Raise concerns about a colleague	6.1 (2.1)	4.3 (2.5)	4.7 (1.7)	6.3 (2.0)	<0.001
m. Manage your own health, including stress	7.0 (2.0)	5.5 (2.6)	5.4 (1.6)	7.2 (1.9)	<0.001
n. Manage your time and workload effectively	7.2 (1.8)	5.3 (2.3)	5.6 (1.7)	7.4 (1.6)	<0.001

Abbreviation: RCS, Rural Clinical School.

<sup>a</sup>Category 'disagree' also including strongly disagree; category 'agree' also including 'strongly agree'.

<sup>b</sup>On a scale from 1—extremely unprepared, 10—extremely ready.

<sup>c</sup>Wald test of heterogeneity.



TABLE 4 Factors associated with student agreement with overall junior doctor readiness, FRAME 2019.

	RCS prepared them to become a junior doctor				
	Crude results		Adjusted results		
	Agree <sup>a</sup> (%)	<i>p</i> -Value <sup>d</sup>	Odds Ratio	95% CI	<i>p</i> -Value <sup>e</sup>
Age groups					
≤24 years	88.6		Ref		
24–29 years	85.4		0.68	0.35–1.33	
≥30 years	81.1	0.369	0.43	0.18–1.04	0.173 <sup>b</sup>
Sex					
Male	82.0		Ref		
Female	90.1	0.008	1.68	0.98–2.91	0.058 <sup>b</sup>
Previous health qualification					
No	85.6		Ref		
Yes	93.4	0.035	2.70	1.32–5.54	0.009 <sup>b</sup>
Has a rural background					
No	84.7		Ref		
Yes	88.7	0.174	1.63	0.99–2.70	0.053 <sup>b</sup>
Most of full-year placement was in remote areas					
Strongly disagree/disagree	84.7		Ref		
Neutral	89.0		0.90	0.16–4.93	
Agree/strongly agree	91.5	0.239	0.56	0.24–1.27	0.414 <sup>c</sup>
Felt well-supported academically					
Strongly disagree/disagree	65.4		Ref		
Neutral	65.5		1.20	0.39–3.65	
Agree/strongly agree	90.9	<0.001	6.64	3.39–13.00	<0.001 <sup>c</sup>
Had a rural-based mentor					
Strongly disagree/disagree	72.3		Ref		
Neutral	80.2		2.01	1.17–3.48	
Agree/strongly agree	94.2	<0.001	3.38	1.89–6.06	0.002 <sup>c</sup>
Felt RCS promoted commitment to Aboriginal health					
Strongly disagree/disagree	78.0		Ref		
Neutral	70.6		0.82	0.33–2.09	
Agree/strongly agree	90.5	<0.001	1.60	0.71–3.62	0.298 <sup>c</sup>
Had to take responsibility for patient care					
Strongly disagree/disagree	66.5		Ref		
Neutral	75.6		0.75	0.22–2.54	
Agree/strongly agree	92.2	<0.001	2.18	0.91–5.21	0.057 <sup>c</sup>
Had opportunity for unsupervised but supported clinical practice					
Strongly disagree/disagree	46.5		Ref		
Neutral	54.0		1.14	0.31–4.16	
Agree/strongly agree	91.8	<0.001	4.67	1.45–15.00	0.041 <sup>c</sup>
Felt were a valued member of the team					
Strongly disagree/disagree	44.8		Ref		
Neutral	75.6		3.74	1.31–10.75	
Agree/strongly agree	93.5	<0.001	9.28	2.43–35.39	0.012 <sup>c</sup>

Abbreviation: RCS, Rural Clinical School.

<sup>a</sup>Category 'agree' also including 'strongly agree'.<sup>b</sup>Model 1: adjusted for age, sex, previous health qualification, and rural background.  $R^2 = 3.6\%$ , mean VIF 1.38.<sup>c</sup>Model 2: adjusted for age, sex, previous health qualification, rural background and mutually adjusted for RCS experience variables.  $R^2 = 33.1\%$ , mean VIF 6.26.<sup>d</sup>Pearson's  $\chi^2$  test of heterogeneity.<sup>e</sup>Wald test of heterogeneity.

adjusted analysis were; feeling a valued member of the team (OR 9.28, 95% CI 2.43–35.39), feeling well-supported academically (OR 6.64, 95% CI 3.39–13.00), having opportunity for unsupervised but supported clinical practice (OR 4.67, 95% CI 1.45–15.00), and having a rural based clinician as mentor (OR 3.38, 95% CI 1.89–6.06). The factors that were not associated with overall readiness, after adjustment, included students' perception of RCS commitment to Aboriginal and Torres Strait Islander health, and having to take responsibility and be accountable for patient care.

### 3 | DISCUSSION

Our study is the first to describe self-reported readiness for work as a junior doctor among a national cohort of medical students in Australia who had undertaken longitudinal rural clinical placements. Whilst most (86%) students felt their rural education had prepared them for work as a junior doctor, self-ratings for specific intern tasks varied between mean scores of 5.9 to 8.0 out of 10. In multivariable analysis, aspects of the RCS experience that were strongly associated with overall readiness included: feeling a valued team-member, feeling well-supported academically, having opportunity for unsupervised but supported clinical practice, having a rural mentor and having a previous health professional qualification. Our data extend others' and provide insights into junior doctor readiness and undergraduate rural clinical experience from a national perspective.

Our findings indicate that rural students have high levels of self-perceived overall readiness for work as a junior doctor. The result of 86% agreement is higher than that reported among interns surveyed in 2019, 74% of whom agreed that their medical education had prepared them sufficiently.<sup>4</sup> Our findings are strengthened by the national representation of students, with a high overall response rate (73%) from all RCS in Australia, although we acknowledge that this may represent a positive respondent group and participants in our study had not yet commenced internship.

Despite high overall readiness, self-ratings for specific intern tasks varied, with the highest scores for keeping medical records and physical examination, which are essential skills for undertaking patient care as an intern. Low scores were reported for more challenging professional responsibilities, including responding to bullying in the workplace and raising concerns about a colleague. Whilst there may have been some institutional variability, our data are consistent with those from other sources, such as the National Intern Survey<sup>4</sup> and a survey of graduates in a Victorian health service,<sup>10</sup> which reported lower

confidence among interns to deal with complex workplace issues. Regardless of the location of training (i.e. metropolitan or rural), it appears that ethical and professional dilemmas remain a key area requiring further input.

Our results demonstrate that students who have completed a year studying in rural Australia report relatively high readiness for providing care for Aboriginal and Torres Strait Islander people. This is consistent with National Intern Survey data which shows students in regionally based medical schools are more confident with this and that there has been some improvement between 2016 and 2019.<sup>4</sup>

On-the-job learning experiences are recognised as vital elements for improving readiness both in Australia and internationally; key examples include shadowing placements in the UK,<sup>8</sup> paid pre-internships in NZ<sup>7</sup> and extended rural placements in Australia.<sup>6</sup> Our study extends these findings and indicates that rural and remote placements might make a difference to readiness through students' perceptions of their role in the team, and opportunities to engage in work-integrated learning and to take on authentic clinical roles. Such experiences are likely to provide exposure to the informal curriculum and allow clinical learners to experience the day-to-day job of being a doctor.<sup>1,11</sup> In addition, rural placements often have fewer learners per clinical unit, which increases opportunities for students to engage with patients and experienced practitioners.

Most rural students undertake internships in metropolitan hospitals in Australia.<sup>5</sup> Our data suggest that students perceive their rural experience to translate to the anticipated demands of their internship. This re-inforces the idea that rural education provides quality preparation for internships and is consistent with interviews from junior doctors in Queensland who described feeling better prepared for urban internship having had rural clinical experience.<sup>1</sup>

Our results indicate that students with a prior health qualification reported high agreement with feeling ready for work as a junior doctor. Previous experience in clinical settings or working in clinical teams would likely help anticipated readiness, although the question about prior workplace *experience* was not asked specifically. In our study, there was no association between readiness and age group or gender. This finding is consistent with some previous studies<sup>3,12</sup> but not others.<sup>4</sup> For example, in the 2019 National Intern Survey, there was an association between younger age and self-reported readiness, although interpretation is limited by very low response rates for some institutions.<sup>4</sup>

Our findings show that there was no difference in the level of self-perceived junior doctor readiness among students who spent the majority of their placement time

in a remote versus rural location. A significant percentage (19.2%) of students spent most time in remote areas during their placement year. Studies of medical<sup>6</sup> and other health students<sup>13</sup> describe the transformative potential of remote placements, although they also highlight possible adverse influences of social and academic isolation. Our data, although limited to a single outcome measure, appear to support the assertion that readiness is not detrimentally affected by the remote location of clinical placements. Certainly, in remote areas, it is important to include an appropriate student selection process and ensure local capacity and appropriate models of supervision.<sup>6</sup>

Our findings provide support for rural clinical education in preparing students for work as junior doctor and shed light on some key factors. How rural environments contribute to the experience of learners may be multifaceted. Important aspects are likely to include role-modelling and mentorship, as well as being entrusted with opportunities for unsupervised but supported clinical practice, as reflected in the results of our study. It is possible that readiness is positively influenced by learning with rural clinicians who often practice in resource-poor environments, sometimes at the limits of their scope of practice, what Konkin et al. have described as the 'clinical courage' of rural physicians.<sup>14</sup> Other work also highlights the importance of symbiotic relationships between learners and supervisors in longitudinal rural placements,<sup>15</sup> and place-specific cultural and community factors.<sup>14-16</sup>

### 3.1 | Limitations

Our study had several limitations. Our results were derived from the 2019 FRAME survey only. Whilst this limits our conclusions to a cross-section of students, we chose not to include subsequent years as they coincided with the onset of the COVID-19 pandemic, which would have introduced a substantial confounder to our results. In addition, preliminary analysis of the FRAME 2020 dataset revealed a lower response rate (data not shown). We also note that the AMC/MBA National Intern Survey has not been conducted since 2019. We acknowledge that global (including Australian) conditions in medical education have changed since 2019,<sup>17</sup> and undergraduate clinical experience has been affected, potentially influencing readiness levels.

In addition, we did not report separate institutional data from different RCS. Whilst we acknowledge there may have been differences, RCS in Australia operate under consistent Commonwealth Government parameters and most schools incorporate strong guiding principles of

social accountability, community engagement and an Indigenous health focus. Hence, we feel our results are a contemporary reflection of the national rural student cohort in Australia.

Finally, our study focuses on self-report of survey respondents, and we acknowledge that there may not always be alignment between perceived readiness and supervisor-assessed competence.<sup>2</sup>

## 4 | CONCLUSIONS

This study demonstrates that most RCS students felt ready for work as a junior doctor and highlights that some factors might be particularly relevant for building readiness. Important aspects of RCS experience are likely to include students feeling integrated within the team and having the opportunity for authentic clinical roles and responsibilities. There remains a significant challenge for medical school curricula to address areas where students and graduates feel less prepared. Such areas include preparing students to manage ethical and professional dilemmas. Rural clinical school are part of a system that has a responsibility to help address these challenges.

### AUTHOR CONTRIBUTIONS

**Patrick Graham:** Writing – original draft; formal analysis. **James Padley:** Conceptualization; writing – original draft; writing – review and editing; formal analysis. **Susan Williams:** Methodology; writing – review and editing; formal analysis. **David Gonzalez-Chica:** Writing – review and editing; methodology; formal analysis; supervision. **Vivian Isaac:** Writing – review and editing; methodology; formal analysis. **Lucie Walters:** Supervision; writing – review and editing; conceptualization.

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### CONFLICT OF INTEREST STATEMENT

Authors JP, SW, DG-C, VI and LW are affiliated with Rural Clinical Schools in South Australia. Authors LW and VI are members of the FRAME Survey Research Collaborative.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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