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# Health professional students' rural placement satisfaction and rural practice intentions: a national cross-sectional survey

## Abstract

**Objective:** To profile students undertaking placements at University Departments of Rural Health (UDRHs) and investigate factors affecting students' satisfaction and intention to enter rural practice.

**Design:** Cross-sectional survey comprising 21 core questions used by all UDRHs.

**Setting:** Eleven UDRHs across Australia that support students' placements in regional, rural and remote locations.

**Participants:** Medical, nursing and allied health students who participated in UDRH placements between July 2014 and November 2015 and completed the questionnaire.

**Main outcome measures:** Key dependent variables were placement satisfaction and rural practice intention. Descriptive variables were age, gender, Aboriginal and/or Torres Strait Islander (ATSI) background, location of placement, health care discipline, year of study and type and length of placement.

**Results:** A total of 3,328 students responded. The sample was predominantly female (79%), the mean age 26.0 years and 1.8% identified as ATSI. Most placements (69%) were greater than two but less than or equal to 12 weeks, 80% were in Modified Monash 3, 4 or 5 geographical locations. Public hospitals and community health made up 63% of placements. Students satisfied with their placement had 2.33 higher odds of rural practice intention. Those satisfied with Indigenous cultural training, workplace supervision, access to education resources and accommodation had higher odds of overall satisfaction and post-placement rural practice intention.

**Conclusions:** The majority of students were highly satisfied with their placement and the support provided by rural clinicians and the UDRHs. UDRHs are well placed to provide health professional students with highly satisfactory placements that foster rural practice intention.

**Keywords:** Student placement; health workforce; recruitment; retention.

### **What is already known on this subject?**

- There is a need, nationally and internationally, to increase recruitment and retention of health professionals in non-metropolitan areas.
- Educating health professional students in regional, rural and remote locations increases their intention to practice in a non-metropolitan area.
- University Departments of Rural Health (UDRHs) exist under the Multidisciplinary Rural Health Training program to support education of health professional students in rural locations.

### **What this paper adds.**

- This is the first study analysing combined data collected from all eleven UDRHs across Australia.
- The UDRHs support rural and remote student placements that lead to high levels of satisfaction among the vast majority of students.
- Student satisfaction with rural and remote UDRH placements is strongly linked to self-reported intention to enter rural practice.

# Health professional students' rural placement satisfaction and rural practice intentions: a national cross-sectional survey

## Introduction

Health status and outcomes among non-metropolitan Australians are generally worse than residents of major cities for a variety of reasons,<sup>1</sup> among which is maldistribution of health workforce.<sup>2</sup> The shortage of health professionals in rural compared to metropolitan areas is a critical challenge<sup>3-5</sup> for both local communities and government. One response is to train more health professionals in regional, rural and remote locations, with a view to them returning to those areas after they graduate. Previous evidence, predominately from medicine, suggests that exposure to rural practice during training is influential on choosing to work in a rural location,<sup>6-8</sup> even independent of other factors.<sup>6</sup> However, to date there have been no large-scale rural placement studies across medicine, nursing and allied health that involve multiple universities.

In Australia, eleven University Departments of Rural Health (UDRHs) are funded under the Australian Government Department of Health Rural Health Multidisciplinary Training (RHMT) program.<sup>9</sup> The primary purpose is to build rural health workforce capacity by increasing recruitment through improving rural health education experiences for students.<sup>10</sup> The UDRHs work closely with local public, private and non-government organisations that provide health services and offer student placements. Other RHMT objectives include supporting existing rural practitioners with continuing education, focussing on population health, promoting innovative models of health service delivery, and helping address the health disparity between Indigenous and non-Indigenous Australians.<sup>10,11</sup>

As required by agreements with the Government, UDRHs collect evaluative data about students' rural education experiences. Since 2014, all UDRHs have contributed to a national data set and this paper reports on the findings of the aggregation and analysis of that data. Specific aims of the study were to profile the student cohort undertaking UDRH-supported placements and to investigate factors affecting students' satisfaction with rural placements and their self-reported intention to enter rural practice after graduation.

## Methods

The study involved a cross-sectional survey of students who participated in UDRH placements between July 2014 and November 2015. The questionnaire was developed collaboratively by staff members from the UDRHs via the Australian Rural Health Education Network (ARHEN) Student

Survey Working Group (SSWG). The questions are shown in Table 1. Primary ethics clearance for aggregation of combined data was obtained from the University of Newcastle Human Research Ethics Committee, with secondary clearance from university ethics committees associated with each UDRH. It was a condition of ethics approval that comparisons were not made between UDRHs.

At the end of their placement, students were invited to participate in the survey at their respective UDRH. Each UDRH then entered and cleaned their data into a separate Microsoft Excel® spreadsheet, according to a protocol defined by the SSWG. Student identifiers were removed and the location of placement sites were coded for the relevant Modified Monash Model (MMM) geographical classification.<sup>12</sup> Spreadsheets were then submitted to ARHEN where they were anonymised for the names of the UDRHs and data aggregated into a single spreadsheet.

Data were analysed using SAS 9.3 (SAS Institute, Cary, NC, USA). Descriptive statistical analysis was performed for age, gender, Aboriginal and/or Torres Strait Islander background, location of placement, health discipline, year of study, type and length of placement. Responses to items 15 and 17 (Table 1), 'rural practice intention' and 'overall satisfaction' respectively, were key dependent variables for inferential statistical analysis.<sup>13</sup> Comparisons used Chi-square test and Wilcoxon signed-rank test, depending on the data type, with a significance level ( $\alpha$ ) of 0.01. Stepwise logistic regression was performed, with crude analyses calculated for the list of univariate associations. Students who attended multiple sites with different MMM classifications were allocated their highest MMM numerical value. The adjusted regression model for 'rural practice intention' simultaneously included items 1, 3, 4, 7, 8 and 10 to 15 in Table 1, and the adjusted model for 'overall satisfaction' items 2, 4, 8, 10 to 14, 16 and 17.

## Results

A total of 3,328 responses were received, with the number at each UDRH varying between 102 and 531 (mean = 302; median = 259). The UDRHs supplied their response rate for the student evaluation survey outside the study period, which ranged between 23% and 80% (mean = 46%; median = 35%).

The profile of demographic, course-related and placement-related variables is shown in Table 2. The sample was predominantly female (79%), although the gender-mix varied across disciplines, those with the highest proportion of males being paramedicine (50%), podiatry (41%), medicine (40%) and dentistry (38%). The mean age was 26.0 years (range = 18 – 67 years; median = 23.0 years), the distribution being skewed by older respondents, with 12% being 36 years or older. Only 1.8% (n = 61) identified as being of Aboriginal or Torres Strait Islander background.

Students were enrolled at 37 Australian universities, with those through which the UDRHs are funded accounting for 70%. Most respondents (72%) were in second, third or fourth year of their studies. The greatest proportion of placements (65%) were greater than two weeks but less than or equal to three months' duration; however, 25% were less than or equal to two weeks. The main disciplines with placements of less than four weeks were nursing, pharmacy and audiology.

With multiple answers permitted, a total of 3,494 placement locations were given. Six percent of respondents (n = 208) reported being at multiple locations in their placement period, including 4% who spent time at MMM1 (n = 3) or MMM2 (n = 142) locations (Table 2), which are 'Inner Regional' in the Australian Standard Geographic Classification.<sup>14</sup> . Eighty percent were rural locations (MMM 3, 4 or 5) and 16% remote (MMM 6 or 7). Similarly, some students experienced multiple placement settings, with 4,137 settings reported. Combined, public hospitals and community health centres made up 63% of placement settings used.

Students reported high levels of overall satisfaction, 91.8% either strongly agreeing or agreeing with item 15 (Table 1). Items 11 to 14 all showed statistically significant relationships with overall satisfaction ( $p < 0.001$ ; Chi squared). The highest proportion of satisfied respondents was for workplace supervision, 88.8% agreeing or strongly agreeing with item 12. Students who had an interprofessional learning experience while on placement (item 10) also reported higher levels of overall satisfaction ( $p < 0.001$ ). There was no statistically significant relationship between overall satisfaction and placement location ( $p = 0.189$ ; Chi squared) or placement setting ( $p = 0.442$ ).

Post-placement intention to enter rural practice was strongly associated with overall placement satisfaction ( $p < 0.001$ ; Chi squared). Using the Likert scale scores (Table 1), the mean rural practice intention prior to placement (item 16) was 3.51, increasing to 3.74 after placement (item 17) ( $p < 0.001$ ; Wilcoxon Signed Rank Test). The change is illustrated in Figure 1. For those who disagreed or strongly disagreed prior to their placement that they intended entering rural practice (n = 658) or were neutral (n = 703), the mean score increased by 1.01 after placement, from 2.36 to 3.37. For those who indicated a pre-placement rural practice intention (n = 1,668) or neutrality (n = 703) the mean fell marginally, from 3.99 to 3.90.

Logistic regression showed that those satisfied with their placement had 2.33 higher odds of rural practice intention than others (Table 3). Students satisfied with the Indigenous cultural training they received, workplace supervision, access to education resources, and accommodation had higher odds of overall satisfaction and post-placement rural practice intention. Indeed, those satisfied with workplace supervision had almost 15 times higher odds of overall satisfaction and 1.76 times rural practice intention than others. The odds of rural practice intention increased with increasing length

of placement up to 3 months compared with those who had placements greater than 3 months. Also, students who were not of Indigenous background had higher odds of rural practice intention than those who were, although the sample size of the latter was comparatively small.

## **Discussion**

This study reinforces the close link between students' satisfaction with their rural or remote placement experience and their intention to enter rural practice after they graduate.<sup>15</sup> It demonstrates that the vast majority (90%) of students found their UDRH placement satisfying and that placement satisfaction is associated with changes in students' future practice intentions. It is encouraging that, on average, students who were less inclined or equivocal about rural practice before placement showed an increase in rural practice intention score afterwards. At the same time, there was a slight decrease in average post-placement score among those inclined towards rural practice before their placement. That decrease, however, was marginal (-0.09) and well within a single Likert scale step.

No statistically significant relationships were found between either overall satisfaction or rural practice intention and variables such as placement location and setting, or with discipline, year of study, gender, age or other demographic, course-related or placement-related variables. However, strong effects on satisfaction (and thus on rural practice intention) were evident for variables that are readily controllable within the UDRHs, such as the provision of educational resources and accommodation, high quality Indigenous cultural training and interprofessional education and, most strongly, workplace supervision. Supervision practices are vital for the development and consolidation of medical, nursing and allied health students' learning, increasing confidence, reducing stress and improving student outcomes.<sup>16</sup> Considerable efforts have been invested in improving supervision practices.<sup>17-19</sup> This study highlights the association between high quality workplace supervision of health professional students' and decision-making about future practice intentions. Given that 'poor supervision' may impact substantially on this decision-making, this important nexus is worthy of closer examination and further development in order to maximise the outcomes of rural and remote placement experiences on recruitment.

The suggested link between the duration of a regional, rural or remote placement experience and the likelihood of graduates returning to work in a non-metropolitan location also warrants further study. While the results are not definitive, the odds of rural practice intention increased with increasing length of placement. A similar association has been shown elsewhere, with the suggestion

that repeated rural exposure has a positive influence on future rural practice.<sup>15</sup> However, it is not known from this study whether students had more than one non-metropolitan placement in the same or another location. Further investigation is recommended into the effect of duration and frequency of rural exposure and the cumulative effect of multiple rural placements, not only on rural practice intention but also on actual employment in rural health. The 'threshold level' of rural exposure is undefined and may vary between individuals and from one discipline to another, some disciplines having shorter placements than others.<sup>20</sup> These and other important research questions will be targeted in future, longitudinal studies undertaken across the UDRH network, in collaboration with other stakeholder organisations.

The survey has identified some opportunities for development. For example, almost two-thirds of placements were in either public hospitals or publicly funded community health facilities. Other placement sites, such as residential aged care, Aboriginal community controlled organisations and school-based placements seem under-utilised.<sup>21,22</sup> Opportunities to diversify placement settings should be capitalised upon through community engagement and service learning initiatives,<sup>23,24</sup> bringing benefits both to the students and the communities in which they complete their placements.

This study has some limitations. Data concerning the students' UDRHs were not accessible under the conditions of the ethics approval; thus, it was not possible to control for clustering of responses. The potential for this to give rise to artificially low p values is acknowledged. While the overall sample size is large and drawn from various placement locations, survey response rates at some UDRHs were low and the response rates given are not specifically for the survey period; a flaw of coordinating data collection across multiple, geographically dispersed sites. This raises questions of sample bias and generalisability of the findings. Another limitation was that the questionnaire did not include a question about whether students were of 'rural origin' and the sample may be biased by those favourably disposed towards 'rural', as suggested by the high proportion with pre-placement rural practice intentions. Future versions of the questionnaire will ask students to provide information about where they currently live, have lived and where they grew up, as well as what choice they had about their placement location.

## **Conclusion**

There are a number of positive outcomes of this study, not least of which was the large-scale, national collaboration among the UDRHs. The results have implications for further research, policy



and practice related to continuing support for rural placements, optimising potential to increase students' rural practice intentions. It seems clear that an important part of the algorithm for building future rural health workforce capacity is to engage students in well-supported placements that provide high levels of satisfaction. In this context 'satisfaction' has a number of key elements, important among which is high quality placement supervision and mentoring. The UDRHs are well placed to provide direct support to students, as well as supporting placement supervisors in their role.

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**Table 1:** List of the 21 core questions and the type of data generated.

| <b>Question/Statement</b>   | <b>Data Type</b>         |
|---|--------------------------|
| 1. What gender are you?   | Categorical, nominal     |
| 2. How old are you?   | Numerical, continuous    |
| 3. Do you identify as an Aboriginal or Torres Strait Islander?  | Categorical, nominal     |
| 4. In what discipline are you currently studying?   | Categorical, nominal     |
| 5. What University are you currently enrolled at for this course  | Categorical, nominal     |
| 6. What is your current year of study in this course?   | Categorical, ordinal     |
| 7. How long was your placement?   | Categorical, ordinal     |
| 8. What was the main town/community of your placement? If more than one please list all.  | Categorical, nominal     |
| 9. What was your placement type? If more than one please tick multiple boxes.   | Categorical, nominal     |
| 10. Did your placement provide inter-professional learning experience/s.  | Categorical, nominal     |
| 11. I received adequate Indigenous cultural training during my placement?   | Five point Likert scale† |
| 12. I was satisfied with the workplace supervision provided on my placement?  | Five point Likert scale† |
| 13. I received adequate educational resources during my placement.  | Five point Likert scale† |
| 14. I was satisfied with my placement accommodation.  | Five point Likert scale† |
| 15. Overall, I was satisfied with my placement.*  | Five point Likert scale† |
| 16. Prior to this placement I was considering living and working in a regional, rural or remote location following graduation.                                    | Five point Likert scale† |
| 17. This placement has made me reconsider my future and I am now considering living and working in a regional, rural or remote location following my graduation.* | Five point Likert scale† |
| 18. What were the things you most enjoyed about your placement? ‡   | Free text                |
| 19. Briefly describe your experiences of living and working at your placement location. ‡   | Free text                |
| 20. Do you have any suggestions to improve these placements? ‡  | Free text                |
| 21. Do you have any further comments? ‡   | Free text                |

\* Key dependent variables.

† Likert scale scores ranged between 'Strongly Disagree' (= 1) and 'Strongly Agree' (= 5).

‡ Responses analysed qualitatively and reported elsewhere.

**Table 2:** Profile of University Department of Rural Health student survey respondent characteristics.

| <b>DEMOGRAPHIC &amp; COURSE-RELATED VARIABLES</b> | <b>n</b> | <b>%*</b> | <b>PLACEMENT-RELATED VARIABLES</b>            | <b>n</b> | <b>%*</b> |
|---|----------|-----------|---|----------|-----------|
| Female  | 2601     | 78.7      | <b>LOCATION (Multiple answers permitted)‡</b> |          |           |
| Aboriginal or Torres Strait Islander              | 61       | 1.8       | MMM 1 & 2                                     | 145      | 4.2       |
| 16-25 years                                       | 2264     | 68.9      | MMM 3   | 1880     | 53.8      |
| 26-35 years                                       | 633      | 19.3      | MMM 4   | 419      | 12.0      |
| 36-45 years                                       | 225      | 6.9       | MMM 5   | 488      | 14.0      |
| 46+ years   | 163      | 5.0       | MMM 6   | 394      | 11.3      |
|   |          |           | MMM 7   | 168      | 4.8       |
| Dentistry   | 170      | 5.1       |   |          |           |
| Dietetics   | 142      | 4.3       | <b>DURATION</b>                               |          |           |
| Medical Radiation Science                         | 93       | 2.8       | ≤ 1 week                                      | 120      | 3.7       |
| Medicine  | 502      | 15.1      | > 1 week, ≤ 2 weeks                           | 635      | 19.4      |
| Nursing and Midwifery                             | 1274     | 38.4      | > 2 weeks, ≤ 4 weeks                          | 1123     | 34.3      |
| Occupational Therapy                              | 141      | 4.2       | > 4 weeks, ≤ 3 months                         | 1153     | 35.2      |
| Paramedicine                                      | 69       | 2.1       | > 3 month, ≤ 6 months                         | 145      | 4.4       |
| Pharmacy  | 268      | 8.1       | > 6 months                                    | 98       | 3.0       |
| Physiotherapy                                     | 258      | 7.8       |   |          |           |
| Podiatry  | 44       | 1.3       | <b>SETTING (Multiple answers permitted)</b>   |          |           |
| Social Work                                       | 77       | 2.3       | ACCHO§  | 121      | 2.9       |
| Speech Pathology                                  | 148      | 4.5       | Community Health Centre                       | 881      | 21.3      |
| Other†  | 132      | 4.0       | Community Pharmacy                            | 187      | 4.5       |
|   |          |           | Private Hospital                              | 75       | 1.8       |
| Year 1  | 348      | 10.8      | Private Practice                              | 243      | 5.9       |
| Year 2  | 768      | 23.8      | Public Hospital                               | 1726     | 41.7      |
| Year 3  | 802      | 24.8      | Residential Aged Care                         | 237      | 5.7       |
| Year 4  | 766      | 23.7      | Rural Ambulance Service                       | 66       | 1.6       |
| Year 5  | 204      | 6.3       | Rural community                               | 244      | 5.9       |
| Year 6  | 73       | 2.3       | School-based                                  | 145      | 3.5       |
| Graduate Entry/ Masters/ Postgrad                 | 269      | 8.3       | Other   | 212      | 5.1       |

\* Valid percentage, excluding missing responses.

† Includes disciplines of Audiology (n=8), Exercise Physiology (14), Medical Laboratory Science (4), Optometry (20), Oral Health (2), Psychology (33) and various non-specific occupational categories (51).

‡ Modified Monash Model classification categories.<sup>12</sup>

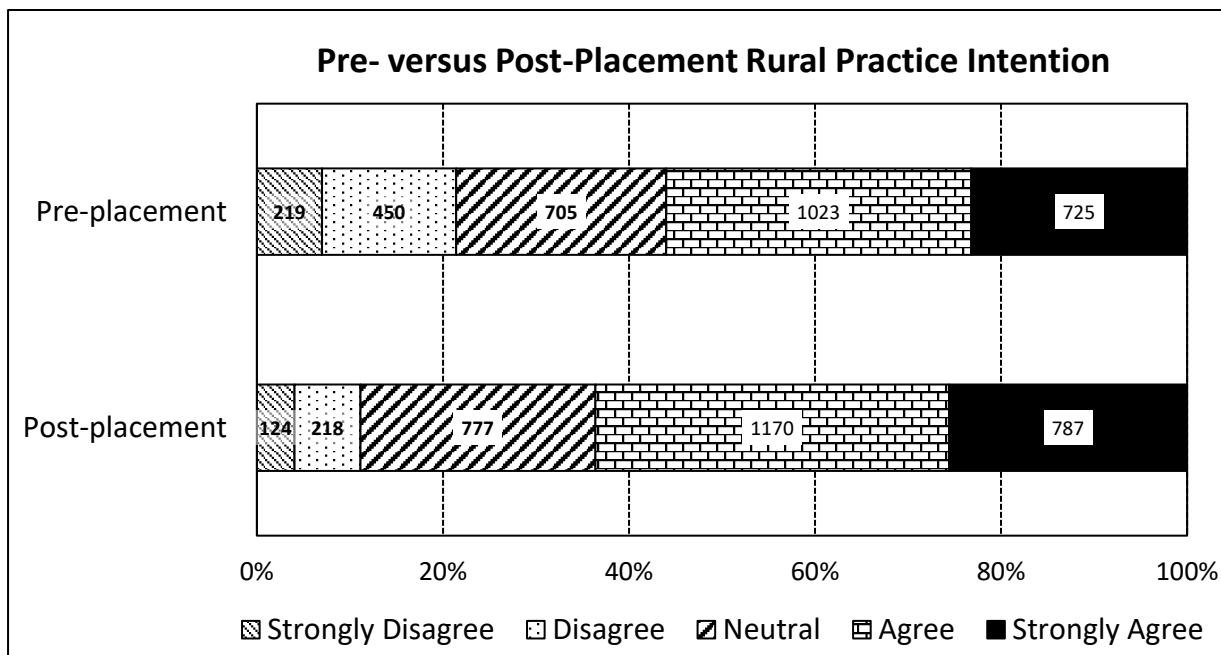
§ Aboriginal Controlled Community Health Organisation.

**Table 3:** Stepwise logistic regression crude and adjusted odds ratios (OR) for placement satisfaction and rural practice intention of respondents.

| VARIABLES  | Crude |                 | Adjusted |                 |
|--|-------|-----------------|----------|-----------------|
|  | OR    | (95% CI)        | OR       | (95% CI)        |
| <b>Associated with Overall Placement Satisfaction</b>          |       |                 |          |                 |
| Indigenous cultural training                                   | 1.87  | (1.44 - 2.43)   | 1.27     | (0.86 - 1.88)*  |
| Work place supervision   | 35.55 | (26.26 - 48.11) | 14.91    | (10.20 - 21.78) |
| Access to education resources                                  | 15.14 | (11.47 - 19.98) | 3.86     | (2.62 - 5.67)   |
| Accommodation  | 4.14  | (3.18 - 5.39)   | 2.74     | (1.88 - 4.01)   |
| Interprofessional learning experience                          | 4.01  | (2.84 - 5.91)   | 2.23     | (1.24 - 3.99)   |
| Post-placement rural practice intention                        | 4.47  | (3.39 - 5.90)   | 2.93     | (1.98 - 4.32)   |
| <b>Associated with Post-Placement Rural Practice Intention</b> |       |                 |          |                 |
| Indigenous cultural training                                   | 1.59  | (1.37 - 1.86)   | 1.38     | (1.17 - 1.64)   |
| Work place supervision   | 3.05  | (2.42 - 3.84)   | 1.76     | (1.29 - 2.42)   |
| Access to education resources                                  | 2.60  | (2.12 - 3.18)   | 1.48     | (1.14 - 1.91)   |
| Accommodation  | 2.04  | (1.71 - 2.44)   | 1.59     | (1.30 - 1.94)   |
| Overall satisfaction   | 4.62  | (3.49 - 6.11)   | 2.33     | (1.62 - 3.36)   |
| Interprofessional learning experience                          | 1.96  | (1.46 - 2.63)   | 1.49     | (1.06 - 2.10)   |
| Aboriginal or Torres Strait Islander (No) †                    | 1.691 | (1.00 - 2.86)   | 1.97     | (1.09 - 3.56)   |
| Length of placement ≤ 2 weeks                                  | 0.550 | (0.40 - 0.76)   | 0.62     | (0.43 - 0.88)   |
| Length of placement > 2 weeks, ≤ 4 weeks                       | 0.627 | (0.46 - 0.86)   | 0.70     | (0.50 - 0.98)   |
| Length of placement > 4 weeks, ≤ 3 months                      | 0.716 | (0.52 - 0.98)   | 0.73     | (0.52 - 1.02)   |
| Length of placement > 3 months                                 | 1.0   | -               | 1.0      | -               |

\* Adjusted OR includes 1.0, therefore Indigenous cultural training is not significant for satisfaction.

† Not being of Indigenous origin appears significant but the Indigenous origin cohort was small.



**Figure 1:** Comparison between responses about rural practice intention before and after placement.