Malcolm Moore, Sarath Burgis-Kasthala, Amanda Barnard, Sally Hall, Stuart Marks

Background and objectives
Rural clinical schools (RCSs) help address Australia’s rural workforce shortfall, but they require an investment by rural clinicians and communities. Our objective was to determine the location of RCS graduates as one measure of the effectiveness of RCSs.

Method
This cross-sectional study obtained work location data for Australian National University Medical School (ANUMS) graduates and analysed both RCS and non-RCS data.

Results
The percentage of graduates working in rural areas after their fifth postgraduate year (PGY6–11: 34.7%) was significantly greater than that of graduates in PGY1–5 (15.2%, \(P < 0.001\)).

Discussion
Many graduates who trained in rural sites spend time in cities before returning to work in rural areas. This is encouraging for rural clinicians and communities, but it can take time for graduates to return.

THE DEVELOPMENT of the rural medical workforce is a continuing challenge; Australia continues to rely on internationally trained medical graduates.\(^1\) It is widely accepted that being of rural origin and spending extended time studying in a rural location are predictors of future rural work location.\(^2\,4\) This has prompted the establishment of extended rural student training placements in many countries;\(^5\) in Australia, extended placements are managed by rural clinical schools (RCSs).\(^6\)

The Australian National University Medical School (ANUMS), including its RCS, was established in Canberra in 2004. In third year, 25% of the cohort is selected, through a competitive process, to spend the whole year in a rural town as part of the ‘rural stream’. All other students have a six-week placement in rural general practice, supervised by the RCS. The program relies on rural clinicians to supervise and support the students, with general practitioners (GPs) in key roles.

Placing medical students in rural sites places extra burden on their rural supervisors. Rural doctors supervising students have been found to be partly motivated by an obligation to the ‘next generation’.\(^7\) Supervisors have reported succession planning (69%) and a responsibility for future healthcare of their community (82%) as motivators.\(^8\) Therefore, it is important for the retention of supervisors that they see students and trainees returning.

The first ANUMS students graduated more than a decade ago. We have studied the practice location of graduates as one measure of the RCS’s effectiveness.

Method
We obtained location data for graduating years 2007–17 from the Australian Health Practitioner Regulation Agency (AHPRA) website and publicly available practice websites. The data were analysed using Microsoft Excel for descriptive statistics and SPSS v23 for the chi-square test of independence. Rurality was classified using the Australian Standard Geographical Classification – Remoteness Areas (ASGC-RA) index, currently used for the RCS program: RA1 for large metropolitan centres and RA2–5 for increasing rurality or remoteness.\(^9\)

Ethics approval was obtained from the Australian National University Human Research Ethics Committee (protocol 2015/561).

Results
There were 965 ANUMS graduates from 2007–17; 59.1% were female and 40.9% were male. This included 215 rural stream graduates with similar gender percentages (59.5% female, 40.5% male). Location data were found for 915 (94.8%) graduates: 66 of 708 non–rural stream graduates (9.3%) are currently working in RA2–5 locations, compared with 51 of 207 rural stream graduates (24.6%).

Table 1 shows the number of graduates working outside RA1 by postgraduate year (PGY). The percentage of graduates working in rural areas was highest in the later postgraduate years – PGY6 and above. More than twice as many rural stream graduates were working in RA2–5 locations in PGY6–11 (34.7%) than in PGY1–5 (16.1%; \(\chi^2 = 10.73, P < 0.001\)). The same trend was found for non–rural

But it may take time
stream graduates: 12.9% and 5.4% respectively ($\chi^2 = 11.89, P < 0.0006$).

Eighteen of the 116 ANUMS graduates working in rural areas (11 from the rural stream) had returned to work within the ANUMS placement region: 15 (83%) are in PGY6–11. These included a majority of GPs (procedural and non-procedural), a surgeon and an anaesthetist. Of these, eight rural stream graduates had returned to the town in which they studied during their rural year.

**Discussion**

Many ANUMS graduates were working in rural areas, and over 14% of these areas were in the ANUMS placement region. The highest proportion of rurally based doctors was found in the later postgraduate years (PGY6–11), where over 50% of some rural stream cohorts were working in rural areas. While a significantly larger percentage of rural stream graduates was working in rural areas, the absolute number of non–rural stream graduates was higher, and seven of these were in the ANUMS region. These findings support the ANUMS practice of providing all students with rural experience, both as a motivation and a preparation for rural practice.

We know that rural origin and student placement are important in influencing location decisions. We also know that issues such as partner’s employment, family and lack of training positions are potential barriers to rural practice. However, we do not fully understand the choices that lead our graduates along a variety of pathways to rural practice, including a mix of rural and urban training. More qualitative research is underway to improve our understanding of these pathways.

Unpublished ANUMS RCS research found that 80% of rural stream graduates reported either an intention to work or interest in working in rural areas. The location results confirm that many of these graduates are continuing in metropolitan practice after PGY2–3, when more rural training options have become available. The RCS is working with other bodies, through its Regional Training Hub, on several strategies. These include strengthening rural supervision capacity, increasing training places, and mentoring and information provision.

**Limitations**

These data are limited by small rural stream cohort numbers that are affected by movements of a few individuals. This is a cross-sectional study and susceptible to the effects of changed training environments, variation in student cohorts and local factors.

**Conclusion**

The ANUMS RCS has been operating for a decade and can now obtain meaningful tracking data for rural stream graduates. The results indicate that many graduates are following their stated rural intention, possibly strategically planning their training pathway. The current Department of Health initiatives are timely in assisting the RCS to further develop its mentoring and support of doctors after graduation – and potentially reduce or remove several of the barriers to rural practice.

<table>
<thead>
<tr>
<th>Table 1. Current geographical remoteness per postgraduate year cohort (2018)</th>
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<tbody>
<tr>
<td><strong>Rural stream students</strong></td>
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<tr>
<td><strong>PGY1</strong></td>
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<tr>
<td>RA1</td>
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<td>RA2</td>
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<td>RA3</td>
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<tr>
<td><strong>Non–rural stream students</strong></td>
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<tr>
<td><strong>RA1</strong></td>
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<tr>
<td>RA2–5</td>
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<td><strong>Total</strong></td>
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*Location not found or left Australia
PGY, postgraduate year; RA, remoteness area
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Authors

Malcolm Moore MBBS, FRACGP, MIH, SFHEA, Associate Professor, Rural Health, ANU Medical School Rural Clinical School, ACT. Malcolm.Moore@anu.edu.au

Sarath Burgis-Kasthala MBChB, MRCGP, FRACGP, MMed, DTM&H, Lecturer, ANU Medical School Rural Clinical School, ACT

Amanda Barnard BA, BMed, FRACGP, Associate Dean, ANU Medical School Rural Clinical School, ACT

Sally Hall RN, GradCert, Clin Man, Research Manager, ANU Medical School Rural Clinical School, ACT

Stuart Marks BSocSc, MCHAM, Research Assistant, ANU Medical School Rural Clinical School, ACT

Authors

Malcolm Moore MBBS, FRACGP, MIH, SFHEA, Associate Professor, Rural Health, ANU Medical School Rural Clinical School, ACT. Malcolm.Moore@anu.edu.au

Sarath Burgis-Kasthala MBChB, MRCGP, FRACGP, MMed, DTM&H, Lecturer, ANU Medical School Rural Clinical School, ACT

Amanda Barnard BA, BMed, FRACGP, Associate Dean, ANU Medical School Rural Clinical School, ACT

Sally Hall RN, GradCert, Clin Man, Research Manager, ANU Medical School Rural Clinical School, ACT

Stuart Marks BSocSc, MCHAM, Research Assistant, ANU Medical School Rural Clinical School, ACT

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