Royal Australasian College of Surgeons

Rural surgical curriculum e-learning

Phase 1: Needs analysis

28 June 2024

CONTRIBUTORS

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ABBREVIATIONS

AoNZ	Aotearoa New Zealand
ASPS	Australian Society of Plastic Surgery
IMG	International medical graduate
MM	Modified Monash classification
RACS	Royal Australasian College of Surgeons
RSS	Rural Surgical Section
RUFUS	Rural-focused urban surgeon
Rural	regional, rural and remote
SET	Surgical Education and Training
STP	Specialist Training Program

INTRODUCTION

The Australian Government National Medical Workforce Strategy strives to address workforce maldistribution and improve services to rural communities.[1] The 3 strongest factors for growing the rural workforce are a student or Trainee of rural origin, rural medical school experience, and positive early-career rural work experience.[2] The World Health Organization recommends an aligned rural curriculum to realise the full benefit of rural work experience.[3]

Background

The Royal Australasian College of Surgeons (RACS) Rural Health Equity Strategy (2020) includes development of a rural curriculum as a key action.[4-6] The strategy covers all non-metropolitan centres, including regional, rural and remote locations (MM2–MM7 as defined by the Modified Monash [MM] model).[7] Implementation of the strategy is overseen by the Rural Health Equity Steering Committee, chaired by RACS President, Associate Professor Kerin Fielding.

The RACS Rural Curriculum Project is an activity fully funded by the Australian Government Specialist Training Program (STP). Development of the rural-facing surgical curriculum framework received input from Trainees, rural and urban surgeons, and external educational specialists. A review of the literature, combined with input from subject-matter experts, identified the ways in which rural surgical practice differs from urban practice in the context of the RACS Surgical Competence and Performance Guide.[8] The greatest difference encompassed the non-technical skills of judgment and clinical decision-making, specifically an understanding of the rural context, rural contextual decision-making and rural-focused urban surgical skills (RUFUS). RUFUS surgeons care for non-metropolitan patients through in-reach, outreach, telehealth and the design of surgical systems, and they provide peer support to rural surgeons.

The RACS surgical curriculum framework report (2022) is now available.[6]

E-learning curriculum

During an evaluation of the framework, several recommendations were identified as a result of feedback from the Rural Health Equity Action Committee, and comments by rural surgical Trainees, including:[9]

Recommendation 7: Develop a specialty-specific online module, incorporating specialty-specific case studies to allow practice with the decision-making chart and online templates (taking no longer than 20 hours to complete) regarding the rural context.

The next phase of the RACS Rural Curriculum Project will be to develop a learning experience, expected to be a 20-hour online course with individual and collaborative learning, for completion within a 6- to 12-month rural surgical education and training (SET) rotation or during an urban rotation for Trainees engaged in RUFUS activities. The module will focus on non-technical skills, as technical skills were considered to be similar in urban and rural contexts. It will be available to all training committees and Trainees as an optional addition to existing curricula. The module will be relevant to Trainees doing rural work experience and to urban Trainees caring for rural patients through in-reach, outreach and telehealth.

In future, each of the 9 surgical specialties may collaborate to co-develop technical skills modules. For example, Trainees in General Surgery may be able to gain extended scope of practice in other surgical specialties. The Neurosurgical Society of Australia's guide to management of acute neurotrauma in rural and remote locations is a longstanding example of a surgical speciality supporting its rural health peers to improve the care of rural people.[10]

Aims of this research

In May 2023, RACS received approval from the Australian Government Department of Health and Aged Care to undertake further research, funded as an STP support project, to investigate the needs and perceptions of the users of the rural curriculum, prior to developing the e-learning modules.

This report describes a survey undertaken to understand the needs and requirements of rural surgeons and Trainees regarding the development of a rural surgical curriculum e-learning module.

As part of this project, RACS also undertook a literature review of asynchronous e-learning for non-technical skills to further inform the next steps of developing an e-learning module. This review is provided as a separate report (E-learning for non-technical skills in surgery: a rapid literature review).

METHODOLOGY

Survey questions and platform

Survey questions were developed with input from a senior RACS Fellow with extensive rural surgery experience (Dr Bridget Clancy, Chair, Rural Surgical Section Committee; Vice Chair, Rural Health Equity Steering Committee). The questions were designed to collect background information about the participant such as training status and specialty; main training or practice setting and experience of any rural surgical activity; familiarity with current RACS rural heath equity activities and opinions of current and proposed non-professional skills training; opinions on the content of the proposed curriculum; and any interest in assisting in the ongoing work. The questions were uploaded to SurveyMonkey and underwent testing and user feedback.[11] The final survey was 5 pages and estimated to take about 5 minutes to complete (Appendix A).

The survey was distributed as a link to the SurveyMonkey website. The invitation contained background information and a contact for further information (Appendix B). There was no follow-up communication.

This research was undertaken as a quality assurance exercise to collect input from consumers. All feedback was voluntary and de-identified. There was no need for ethics approval.

Survey target population

The target population for the survey was RACS Fellows, Trainees and specialist international medical graduates (SIMGs) with an interest in rural surgery or rural training. Recipients were encouraged to forward the survey to their rural colleagues. The survey was also circulated through a number of broader College- and specialty-wide platforms, so respondents with no rural experience were also able to respond. Where possible, the survey was targeted to Australian participants, but responses from Aotearoa New Zealand (AoNZ) were not excluded.

The survey was circulated via the following channels:

- RACS Fax Mentis (fortnightly College-wide newsletter, 27 March 2024 edition)
- RACS Rural Surgery Section (RSS)
    - committee, email to all members
    - newsletter (March 2024 edition)
- RACS Trainee's Association (RACSTA)
    - rural representative
- RACS Rural Health Equity Steering Committee, email to all members
- RACS Rural Health Equity Advisory Group, email to all members
- RACS SIMG Committee, email to all members
- RACS Academy of Surgical Educators, email to all members
- Australian Orthopaedic Association (AOA) rural surgeons, email to all members
- General Surgeons Australia (GSA) Rural Training Committee, email to all members
- Australian Society of Plastic Surgeons (ASPS), email to all members
- Urological Society of Australia and New Zealand (USANZ), newsletter

The survey was sent as an email or as part of a newsletter (Appendix B).

A minimum of 30 participants was considered appropriate to provide a sample for review.

The survey was live between 14 March to 10 April 2024.

Survey data cleaning and analysis

The raw survey dataset was exported, reviewed and standardised to allow for analysis. This included simplifying titles, grouping responses to allow for dichotomous analysis and amending the dataset to allow for incomplete responses.

Specific data cleaning procedures were undertaken:

1. Variable titles were shortened or renamed to improve the accessibility of the dataset. For example, the variable representing question 7 ‘as a rural Trainee or surgeon, what was the level of preparation that the SET curriculum provided for your work in rural settings?’ was simplified to ‘level of preparation provided by SET’.
2. Some specific variables were recoded into new variables to reduce the complexity of the analysis. For example, for all analysis and reporting, the multiple levels of rurality (MM classification 2 to 7) were dichotomised into the singular binary variable ‘rural’ to indicate if the participant was involved in any form of rural work or if the participant exclusively worked in an urban setting.
3. Certain participants (n = 6) were removed from the dataset due to incomplete responses (e.g. participants who only provided their surgical specialties without answering the questions regarding their rural practice, or provided no further response). This included 1 external committee member, 2 general surgeons, and 3 plastic and reconstructive surgeons. Additionally, some participants exited the survey partway (n = 2) or skipped some questions (n = 1). Their responses were included in the survey analysis where possible. Specifically, one plastic and reconstructive surgeon answered until Q7 and then quit (data were included in findings); one answered until Q8 and quit (data were included in findings); one orthopaedic surgeon skipped many questions throughout (all available data were included).
4. Three respondents (two postgraduate doctors and a service registrar) who responded ‘other’ in terms of their training status were classified as Trainees for the purposes of the survey.
5. Three respondents who responded ‘other’ in terms of the location of their surgical practice or training were confirmed to be rural based on the additional information they provided.

Survey analysis and reporting

Relevant variables were compared using contingency tables and column graphs.

The primary analysis was to investigate patterns of response for rural compared to urban-based respondents, and to compare surgeon and Trainee responses.

Identifiable responses (email contacts) were removed from the analysis and will be provided separately to relevant personnel engaged in developing the e-learning modules.

SURVEY RESULTS

Overall responses

In total, there were 114 responses to the survey, including 97 surgeons and 11 Trainees (Figure 1). All questions were completed by 102 survey participants. A total of 60 participants had experience in rural settings, while 48 worked exclusively in urban areas.

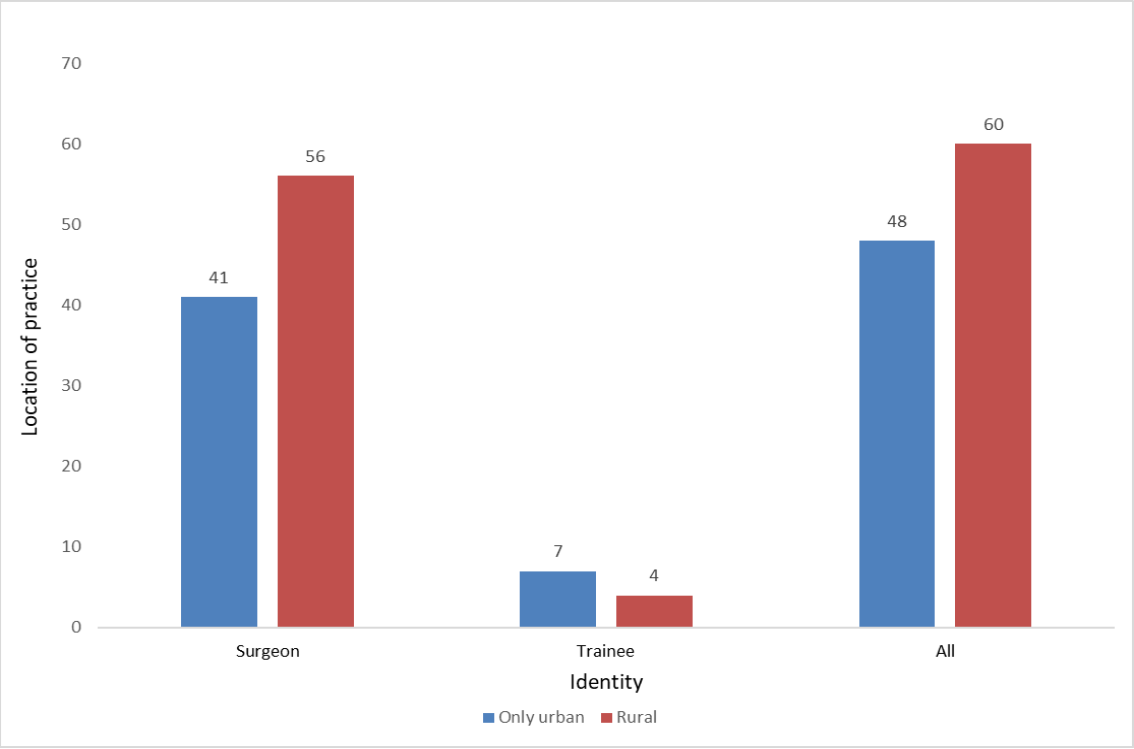
Analysis of survey responses

Who responded to the survey?

Question 1: What is the training status of the respondent?

Question 1 received 108 responses, with the majority of participants being surgeons (n = 97) and the remainder Trainees (n = 11). Across all responses a larger proportion of participants reported having worked in a rural, regional or remote location (n = 60) compared to those who only worked in urban settings (n = 48). Surgeons were slightly more likely to work in a rural setting than an urban setting (56 rural vs 41 urban), whereas Trainees were more likely to work in an exclusively urban setting (4 rural vs 7 urban). The distribution of surgeon and Trainee locations is illustrated in Figure 1.

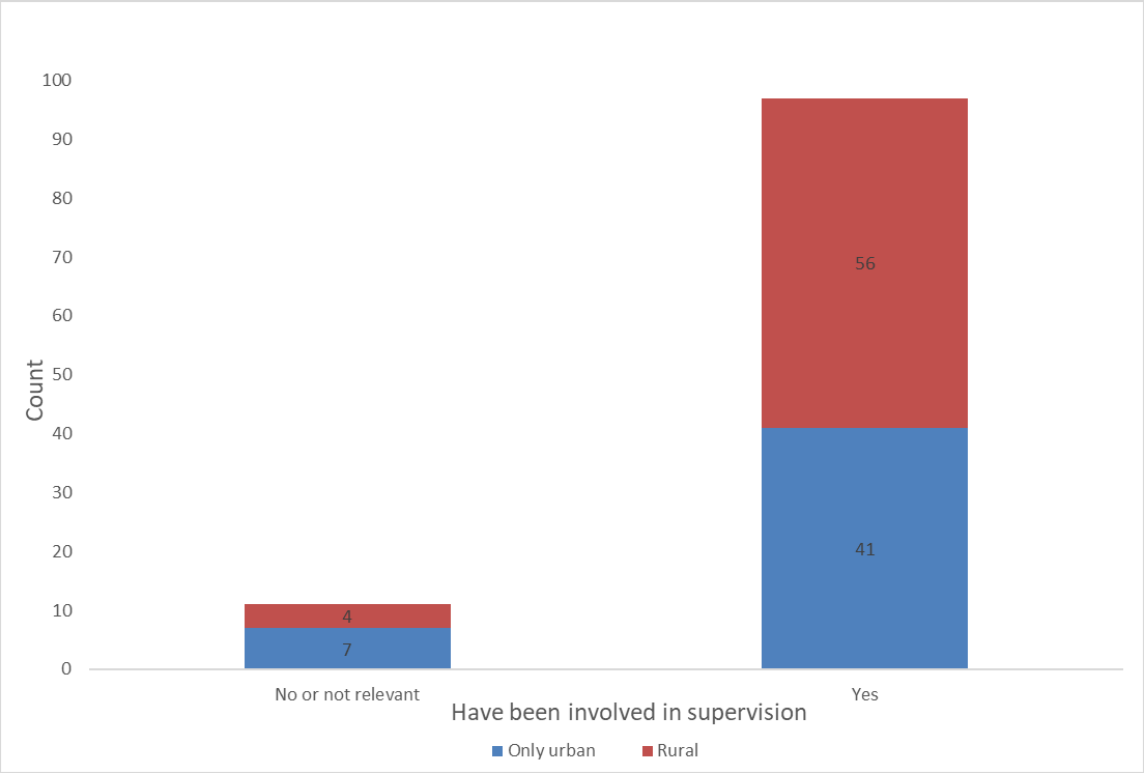
Figure 1 Responses by training status and rural location



Question 2: Have you been involved in any supervision (including SET Trainee, non-SET Trainee, Jdocs)

Question 2 received 108 responses. The majority of the participants had some form of experience in providing supervision to others (n = 97). The 11 respondents who reported not undergoing any supervision were all Trainees. The number of respondents with supervision experience was slightly higher among those reporting rural work (n = 56) compared to those reporting only urban work (n = 41). The distribution of rurality and supervision is illustrated in Figure 2 below.

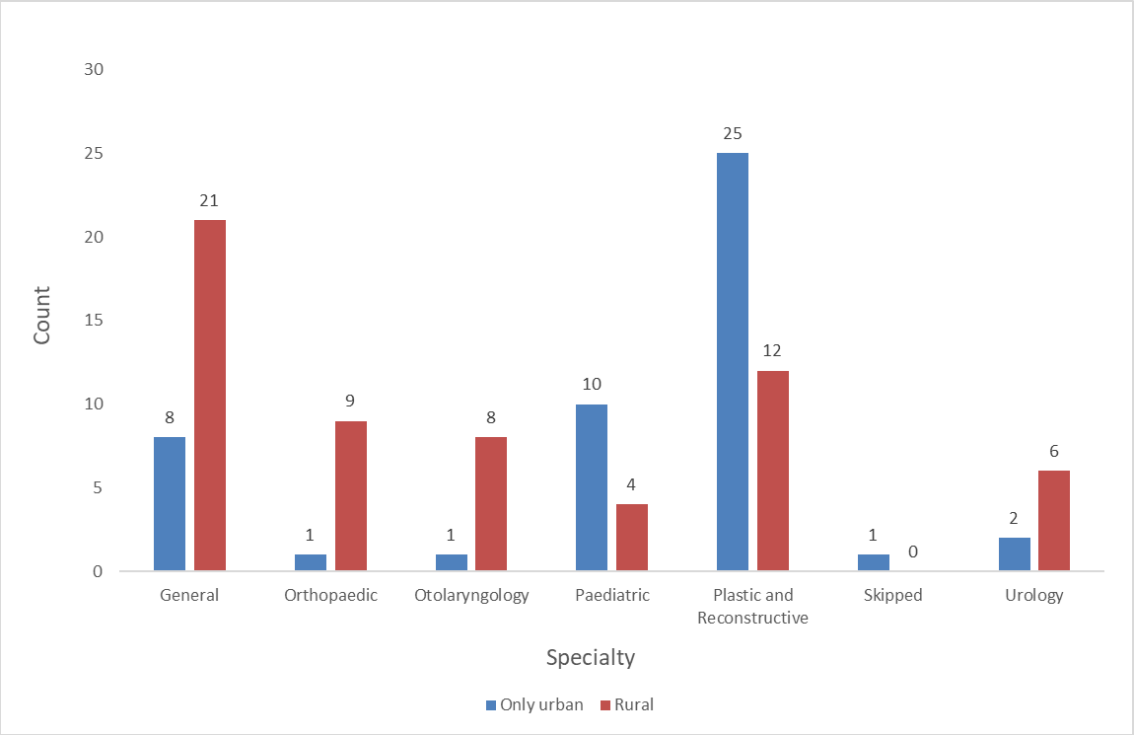
Figure 2 Experience of respondents in providing supervision, by rural location



Question 3: What is your surgical specialty?

Question 3 received 112 responses across 6 specialties. Plastic and Reconstructive Surgery was the most commonly reported specialty among respondents (n = 37), followed by General Surgery (n = 29), Paediatric Surgery (n = 14), Orthopaedic Surgery (n = 10), Otolaryngology (n = 9) and Urology (n = 8). There were no participants from the specialities of Cardiothoracic Surgery, Neurosurgery and Vascular Surgery. (One participant skipped this question and didn't select one of the listed specialties, but responses from this participant are included in other analyses.) The majority of specialities (4 of 9) showed a higher number of responses from rural-working surgeons compared to urban-only surgeons. General Surgery had the highest proportion of rural surgeons (n = 21) compared to the urban setting (n = 8). There were two exceptions within the rural–urban split across surgical specialties: responses from Plastic and Reconstructive Surgery and Paediatric Surgery showed more surgeons working in the urban setting (25 vs 12 and 10 vs 4, respectively). The distribution of surgical specialty responses against rural or urban location is illustrated in Figure 3.

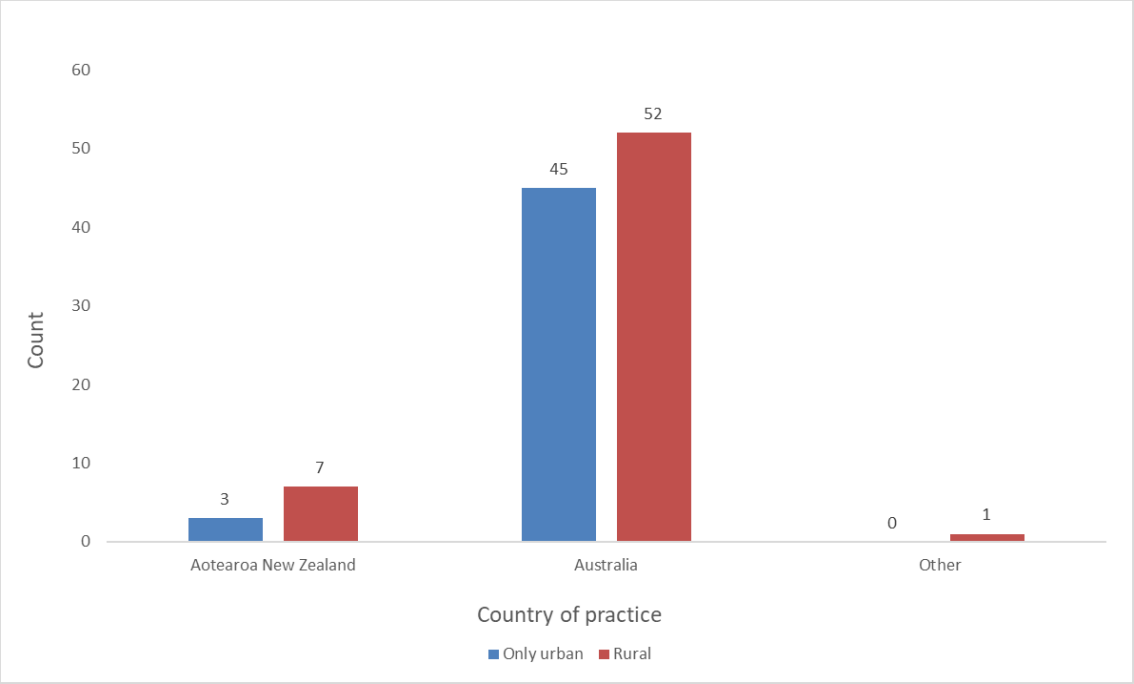
Figure 3 Responses by specialty and rural location



Question 4: Which country is your main practice or training location?

Question 4 received 108 responses, with most respondents working in Australia (n = 97), followed by AoNZ (n = 10). One respondent reported working in the UK (other). Across all countries, more respondents reported having worked in rural areas compared to only urban areas (Figure 4).

Figure 4 Responses by country of practice and rural location



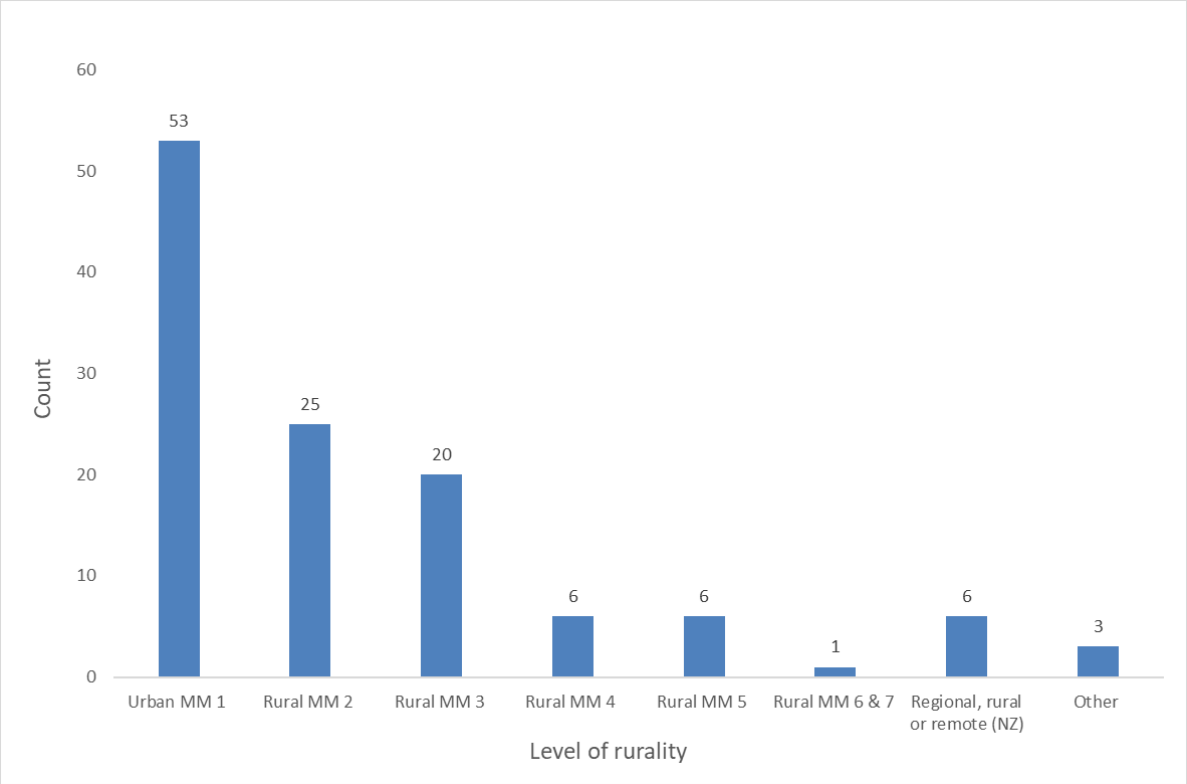
Question 5: Where is your main practice or training location in Australia or Aotearoa New Zealand?

Question 5 received 108 responses, with the urban MM1 category reporting the highest number of responses overall (n = 53) (Figure 5). A total of 67 participants responded that they worked in any rural zone (MM2 to MM7, or regional, rural or remote AoNZ). (As respondents were able to select more than one option, depending on their experience, the sum of responses across all categories [n = 120] is greater than the number of respondents [n = 108].)

For further analysis, all responses were dichotomised to: surgeons who exclusively worked in an urban setting (i.e. MM1 urban only) and surgeons who had any rural experience (i.e. MM2–MM7 with or without MM1).

Based on the additional information they provided, the 3 respondents in the 'other' category were found to be practicing or training in rural areas. For all additional analyses, these 3 respondents were classified as rural.

Figure 5 Responses by urban (MM1) or rural location (MM2–7; regional, rural or remote AoNZ)



Question 6: Have you been involved in any of the following services for rural patients or rural surgeons (select all that are applicable):

- In-reach of rural patients (i.e. received rural patients for care in an urban hospital or worked on systems for rural people to be appropriately referred to an urban hospital)
- Outreach to rural patients (i.e. any consultations or surgery performed in a town where you are not a resident and may not be available in person for ongoing care)
- Telehealth to rural patients
- Provided peer-support to rural surgeons

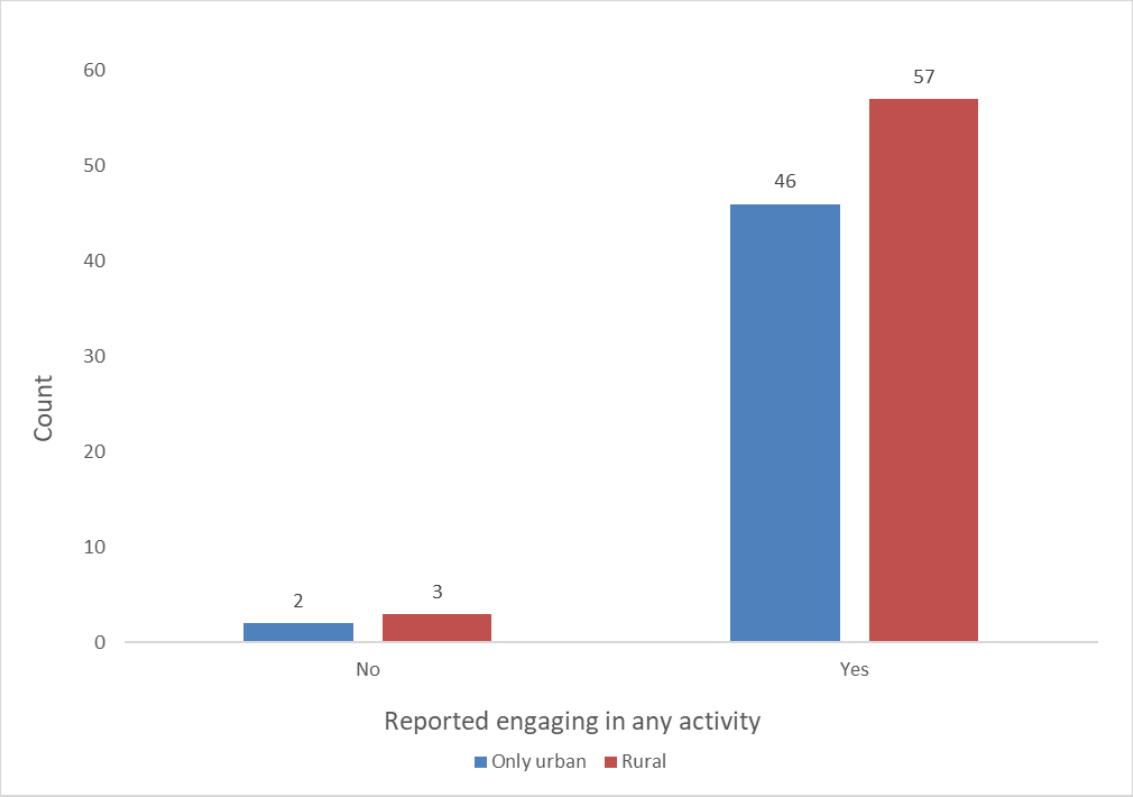
Question 6 received 103 responses. Five respondents did not provide a response to this question but carried on with the rest of the survey. Respondents were able to select more than one response; however, the question did not include a nil response option (e.g. I do not provide rural services, or not relevant). For the purposes of this analysis, we considered these skips to be a nil or 'no' response. The data showed that most respondents (n = 103; 95%) have been involved in at least one of the four

listed services, compared to 5 who did not provide a response to this question and were considered to have engaged in none of the activities.

In terms of the number of activities, there was an increasing trend, with more surgeons or Trainees being involved in a greater number of rural activities: 0 activities (5 responses); 1 activity (17 responses); 2 activities (26 responses); 3 activities (28 responses); 4 activities (32 responses). This trend was evident in both rural and urban respondents.

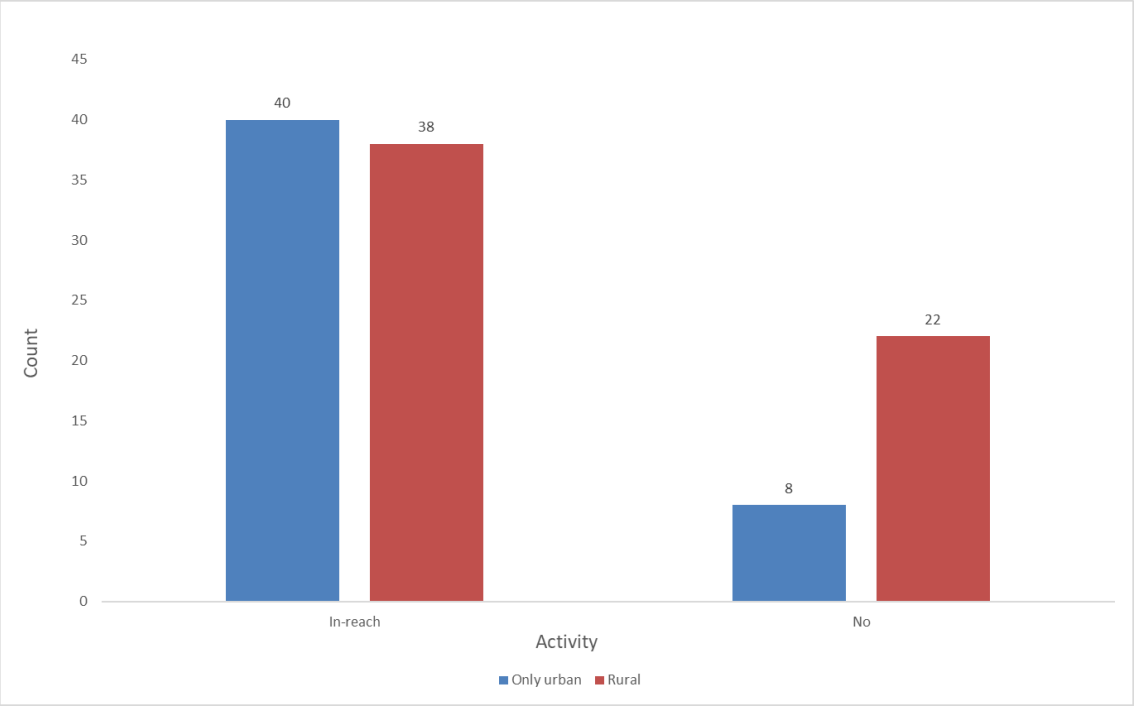
The responses were dichotomised into 'yes' and 'no' categories to signify whether or not respondents had engaged any rural services, with nil response categorised as 'no'. In both the 'yes' and 'no' groups, rural respondents were more likely to report having been engaged in any of the potential activities compared to urban respondents, with 57 versus 46 in the 'yes' group and 3 versus 2 in the 'no' group (Figure 6).

Figure 6 Involvement of respondents in any type of rural activity (in-reach, outreach, telehealth, peer support)



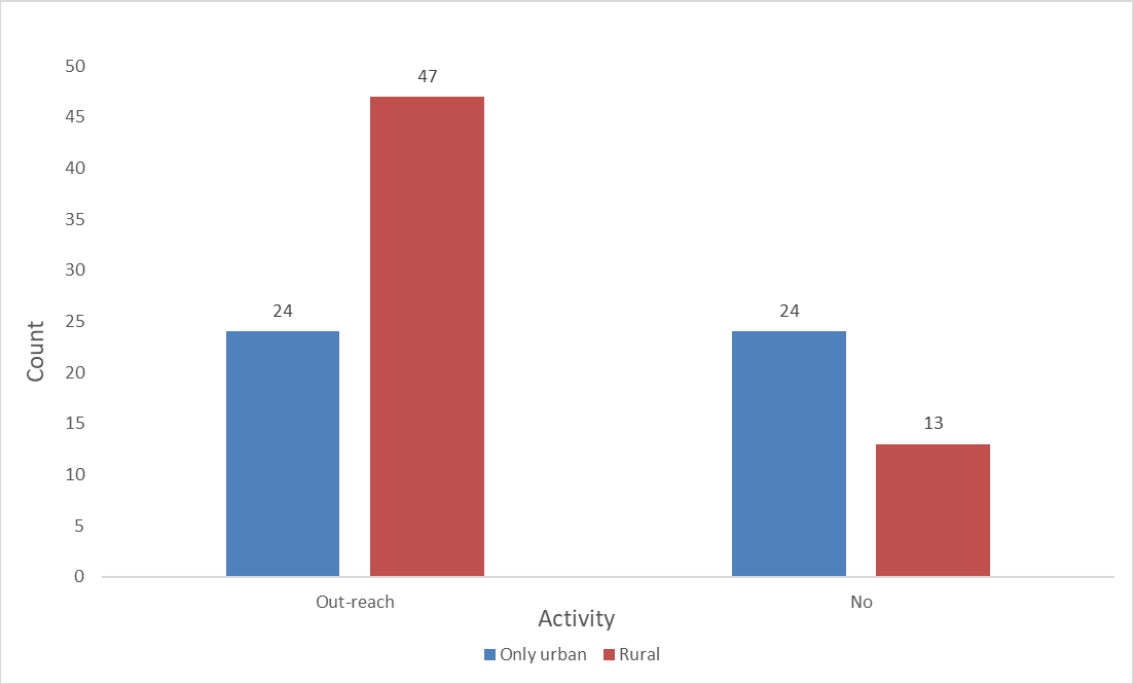
Responses were dichotomised and recoded to whether surgeons were involved in in-reach services or not (Figure 7). Overall, 78 respondents reported having been engaged in in-reach activities, compared to 30 who were not. It was more common for urban surgeons to be engaged with in-reach services (n = 40; 83%) than were rural surgeons (n = 38; 63%). Conversely, it was more likely for rural respondents to not be engaged in in-reach (n = 22; 37% vs n = 8; 17%).

Figure 7 Involvement of respondents in providing in-reach to rural patients



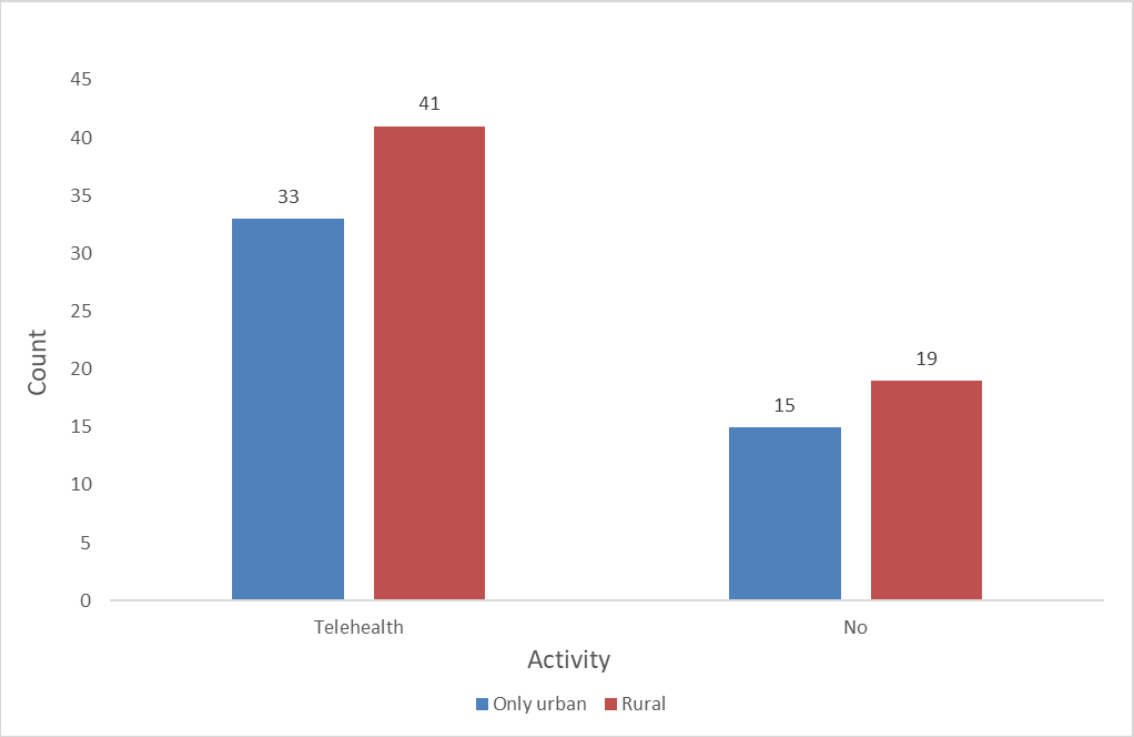
Responses were dichotomised and recoded to whether surgeons were involved in outreach services or not (Figure 8). Overall, 71 respondents reported having engaged in outreach services compared to 37 who did not. Rural respondents were substantially more likely to be involved in outreach services (n = 47; 78%) compared to their urban-only counterparts (n = 24; 50%).

Figure 8 Involvement of respondents in providing outreach to rural patients



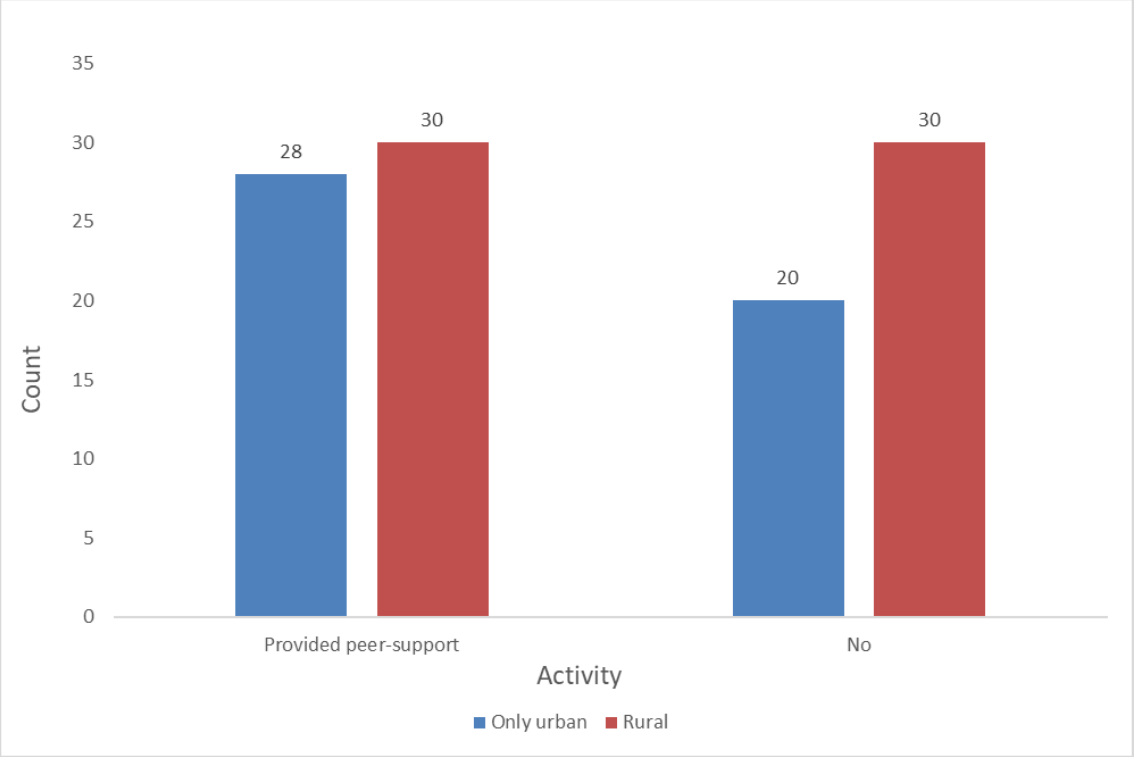
Telehealth responses were also dichotomised (Figure 9). Overall, the majority of respondents reported engagement in telehealth (74 vs 34). The level of telehealth engagement was similar in rural respondents (n = 41; 68%) and urban-only respondents (n = 33; 69%).

Figure 9 Involvement of respondents in providing telehealth to rural patients



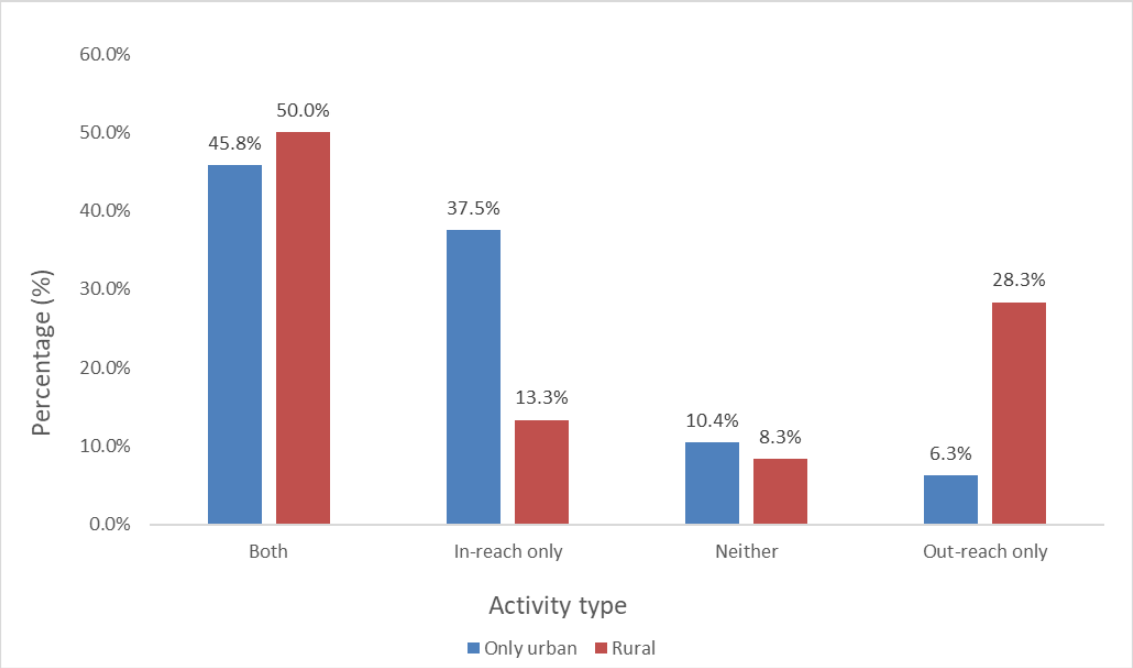
When dichotomised, peer support was the least commonly engaged rural service, with 58 (53%) respondents engaging compared to 50 who did not. The rural respondents (n = 30; 50%) were marginally less involved with peer support service experience than were the urban-only respondents (n = 28; 58%) (Figure 10).

Figure 10 Involvement of respondents in providing peer-support to rural surgeons



To investigate the relationship between rurality and in-reach/outreach services, the data were recoded to 4 mutually exclusive categories (Figure 11). Overall, almost half of both rural and urban respondents engaged in both in-reach and outreach services, occupying 50% and 45.8% of the responses respectively. Similar patterns were identified for surgeons who provided neither of the services. The number of surgeons providing only in-reach or only outreach services formed a contrasting pattern. In-reach service was more common among urban surgeons compared to their rural counterparts (37.5% vs 13.3%, respectively). Whereas outreach services only was more common among rural respondents compared to their urban respondents (28.3% vs 6.3%).

Figure 11 Proportion of respondents providing in-reach or outreach services

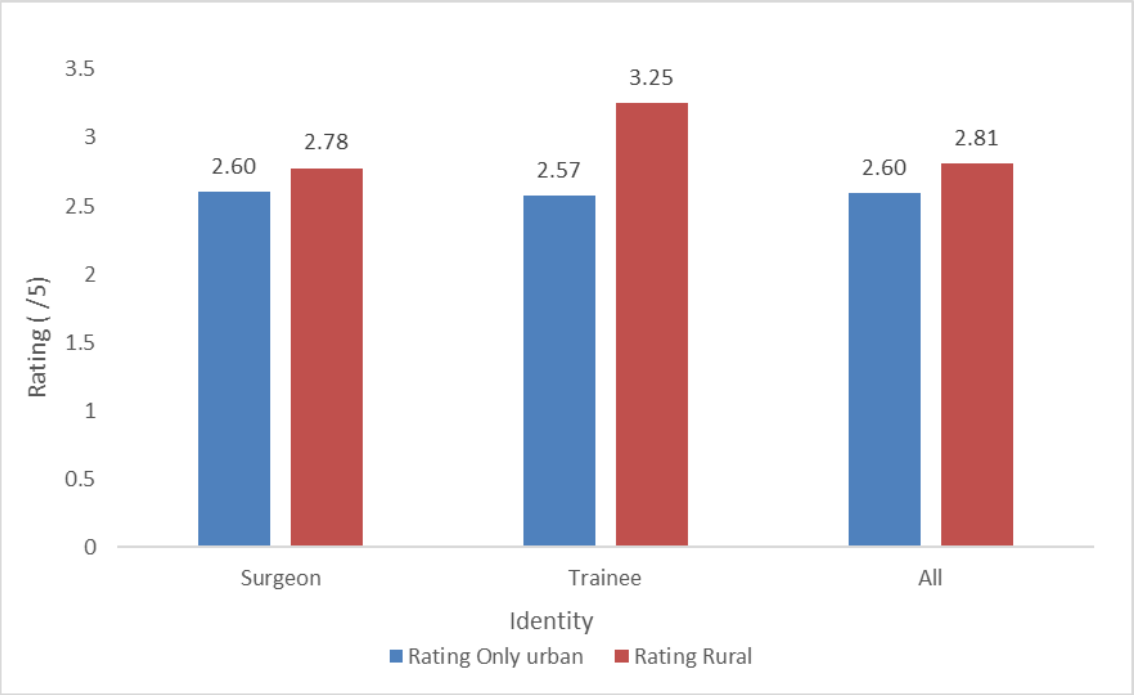


What were perceptions or understanding of respondents to current training or RACS activities related to rural health equity?

Question 7: As a rural Trainee or surgeon, what was the level of preparation that the SET curriculum provided for your work in rural settings?

The majority of respondents, regardless of practice location, found that the SET curriculum provided a moderate level of preparation for working in a rural context. Across the total 100 responses, the average rating for all participants was 2.7/5, with urban respondents (2.6/5) having a slightly lower rating than did rural respondents (2.8/5). When analysing surgeon and Trainee responses separately, the results show that Trainees (3.3/5) have a slightly higher opinion of the curriculum than do urban surgeons (2.6/5) (Figure 12). However, it should be noted that the sample size for Trainees is small, contributing only 11 of the 100 responses for this question.

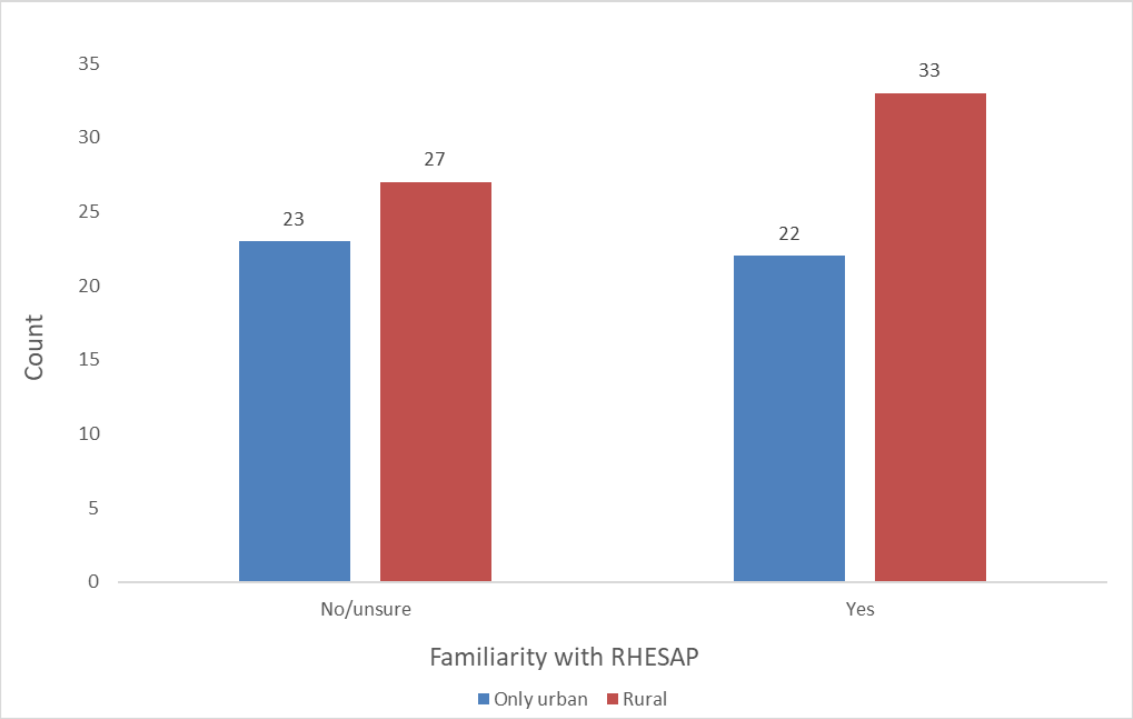
Figure 12 Perception of the SET curriculum in preparing respondents for work in rural settings



Question 8: Are you familiar with the RACS Rural Health Equity Strategic Action Plan?

Question 8 received 105 responses. Approximately half of all respondents, regardless of practice location, were familiar with the RACS Rural Health Equity Strategic Action Plan (55 'yes' vs 50 'no') (Figure 13). Rural surgeons reported a slightly higher level of familiarity with the plan than did urban respondents (55% vs 49%).

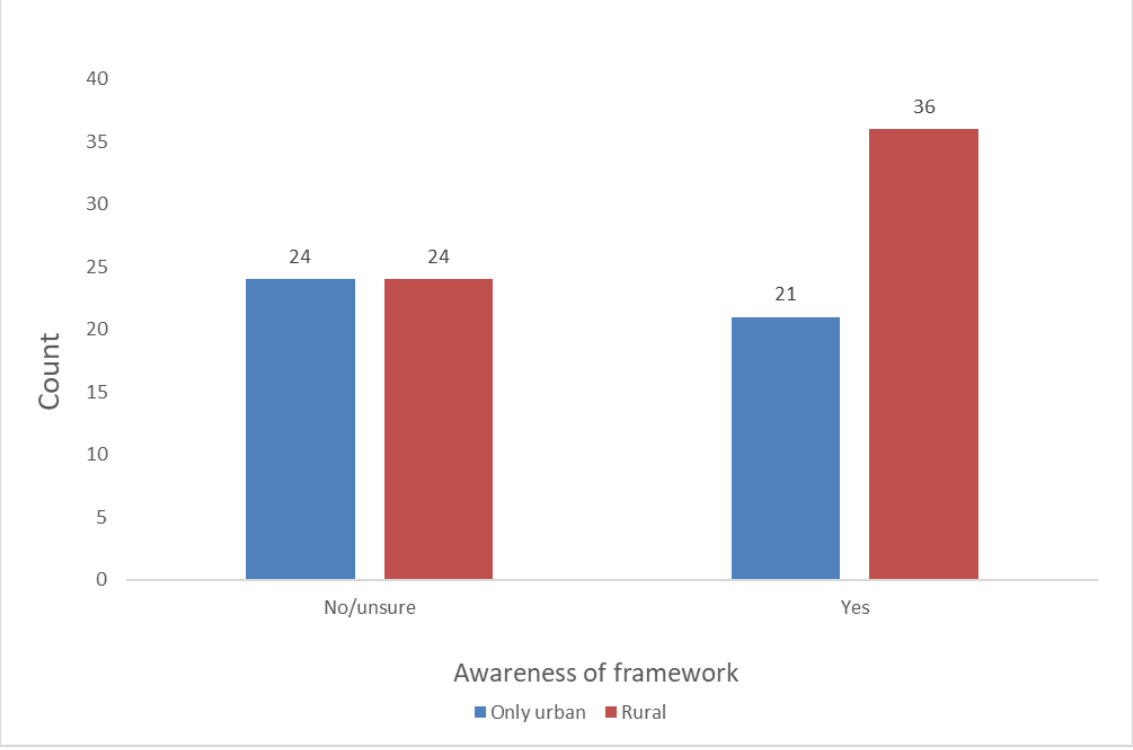
Figure 13 Familiarity of respondents with the RACS Rural Health Equity Strategic Action Plan



Question 9: Are you aware that RACS has developed a rural-facing surgical curriculum framework?

Question 9 received 105 responses. Rural respondents reported a higher level of awareness of the framework (n = 36; 60%) than did urban respondents (n = 21; 47%) (Figure 14).

Figure 14 Familiarity of respondents with the rural-facing surgical curriculum framework

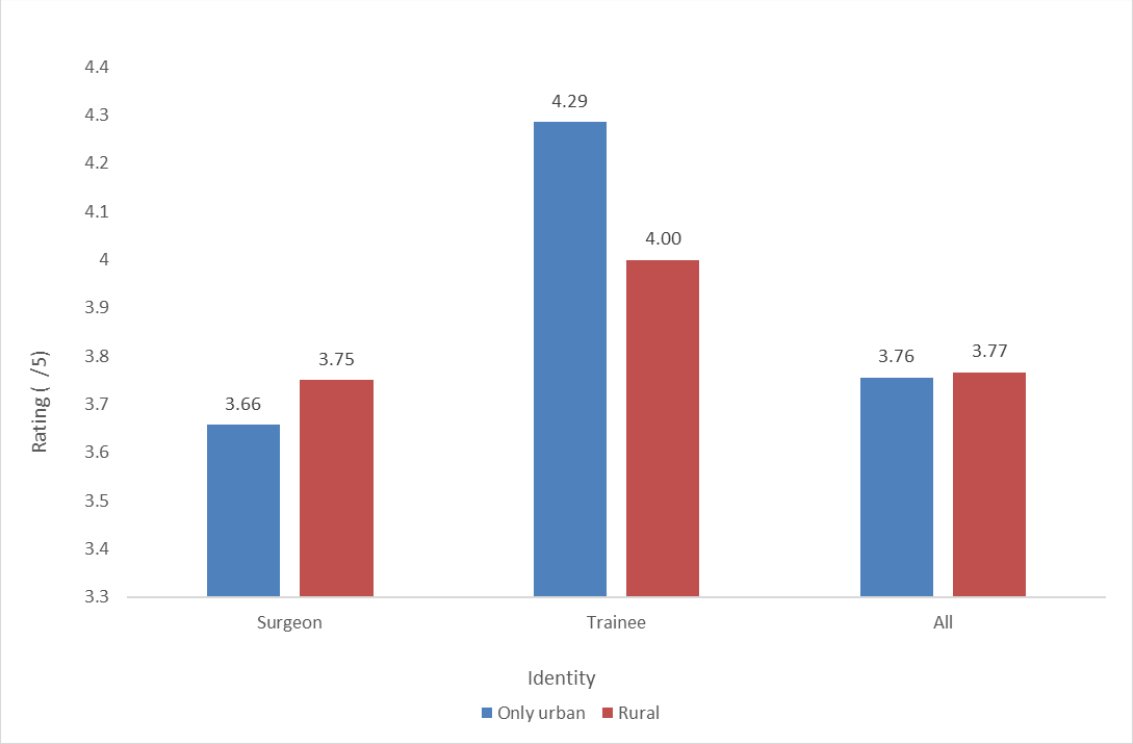


How did participants rate the importance of different aspects of the proposed rural curriculum?

Question 10: As a Trainee or supervisor, what level of usefulness would you award for additional resources to learn or teach rural-specific professional skills?

Question 10 received 106 responses, with an average rating of 3.8/5 (Figure 15). The overall ratings for rural and urban respondents were similar (3.77/5 and 3.76/5, respectively); however, when analysed against identity (surgeon or Trainee), the results were noticeably different. Trainees had a higher average rating of 4.2/5 compared to 3.7/5 for surgeons. Urban Trainees had a higher average rating compared to rural Trainees (4.3/5 and 4.0/5, respectively). It should be noted that the sample size for Trainees is very small, comprising only 11 of 106 responses.

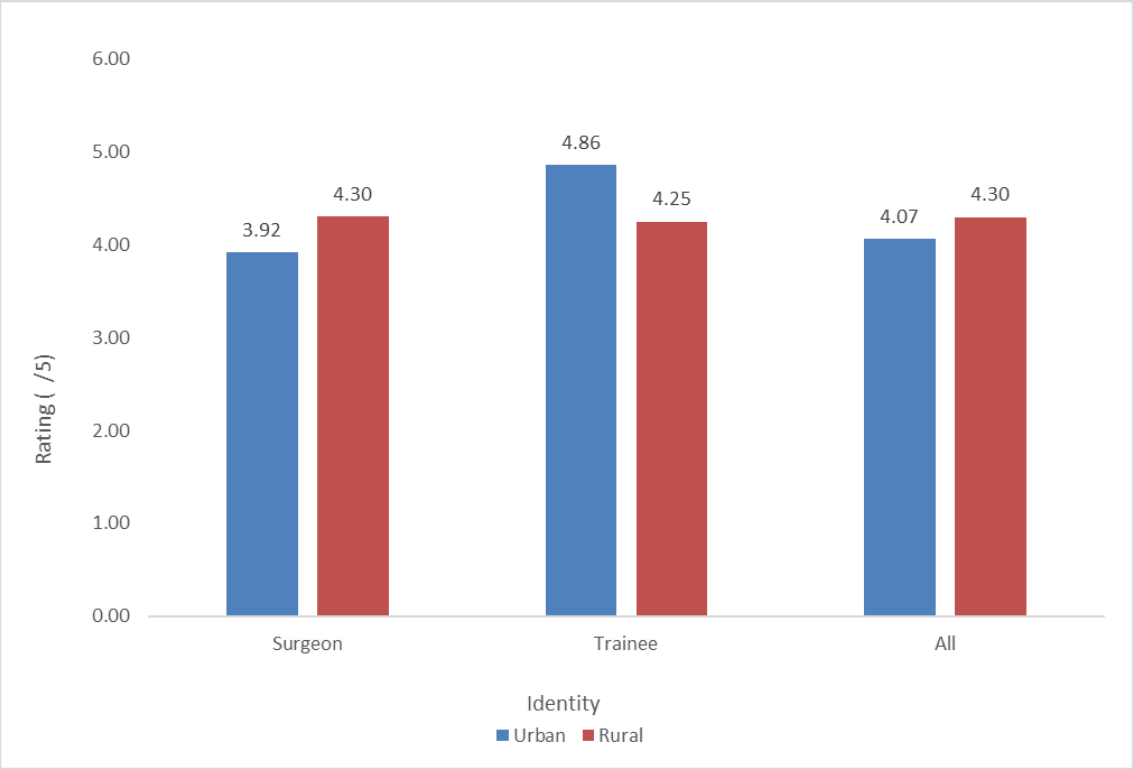
Figure 15 Importance of additional resources to learn or teach rural-specific professional skills



Question 11: How would you rate the importance of training surgeons in understanding rural context (i.e. what a surgeon needs to know about the rural context they are working within, including health system and resources, geography, climate, culture, community, scope of practice)

Overall, 105 responses were collected for question 11, resulting in an average rating of 4.2/5 (Figure 16). The overall rating for total rural respondents was higher at 4.3/5, compared to 4.1/5 for urban respondents. When comparing identities (surgeon vs Trainee), Trainees had a higher overall rating of 4.6/5, compared to surgeons at 4.2/5, regardless of practice location. Among the Trainee population, urban Trainees rated the importance of rural context higher than did rural Trainees (4.9 and 4.3, respectively). The pattern among the surgeon group was the opposite: rural surgeons reported a higher average rating of 4.3/5 compared to urban surgeons at 3.9/5. However, it should be noted that the sample size for Trainees is small (11 of 105 responses).

Figure 16 Importance of training surgeons in understanding rural context



Question 12: How would you rate the importance of training surgeons in rural contextual decision-making (i.e. clinical decision-making processes that take into consideration location-specific rural contextual factors of the health system and the surgeon etc.)

In total, 105 participants responded to question 12, with an average rating of 4.3/5 (Figure 17). Rural respondents reported a slightly higher average rating of 4.3/5, compared to urban respondents at 4.2/5. Similarly to the previous questions, Trainees had a higher rating than did surgeons, at 4.7/5 and 4.2/5, respectively. When comparing rurality, urban Trainees had an average rating of 4.9/5, which was noticeably higher than their rural counterparts at 4.5/5. The opposite pattern was observed for surgeons. Rural surgeons had a rating of 4.3/5 compared to urban surgeons at 4.1/5. It should be noted that the sample size for Trainees is very small making up only 11 of 105 responses.

Question 13: How would you rate the importance of training surgeons in RUFUS (rural focused urban surgeon) skills (i.e. urban surgeons providing care to rural patients through outreach, in-reach and telehealth, and providing peer support to rural surgeons)

There were 105 responses for this question, resulting in an average rating of 4.0/5 (Figure 18). Urban respondents, regardless of identity (surgeon or Trainee), all reported substantially higher average ratings than did their rural counterparts. Urban surgeons had an average rating of 4.2/5, compared to 3.9/5 for rural surgeons. Urban Trainees had the highest average rating of 4.4/5 compared to 4.3/5 for rural Trainees. Trainees, regardless of practice location, generally rated the importance of training surgeons in RUFUS higher than did surgeons, with average ratings of 4.4/5 and 4.1/5, respectively.

Figure 17 Importance of training surgeons in rural contextual decision-making

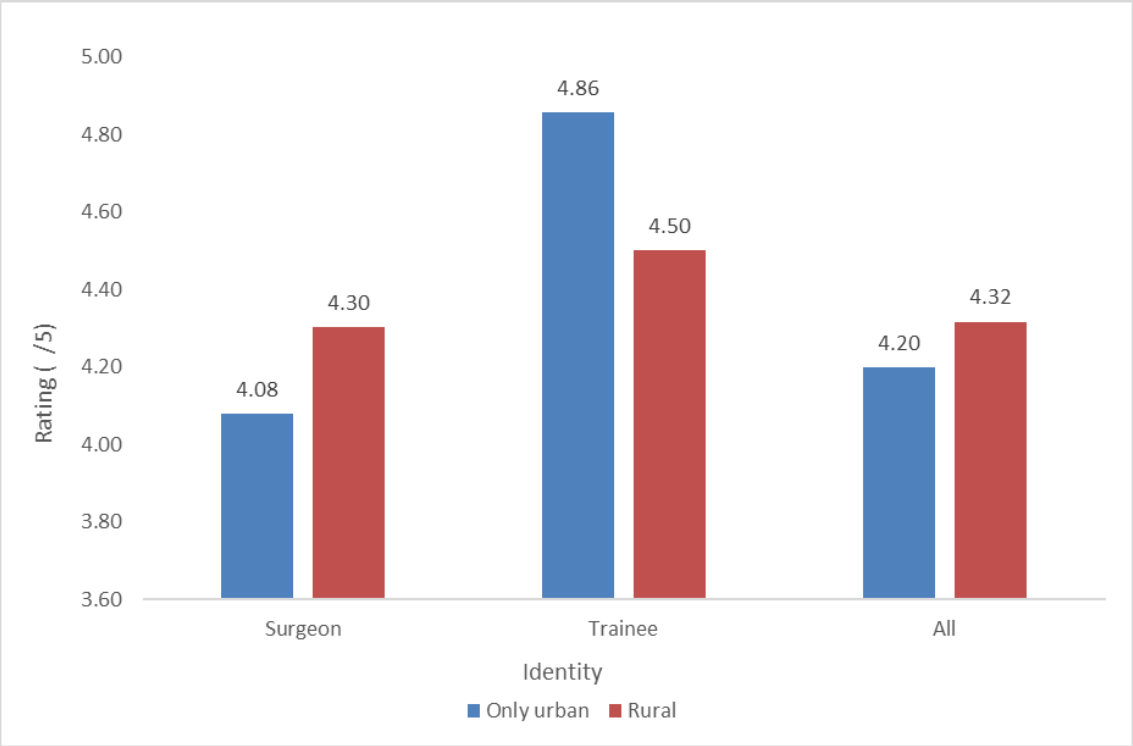
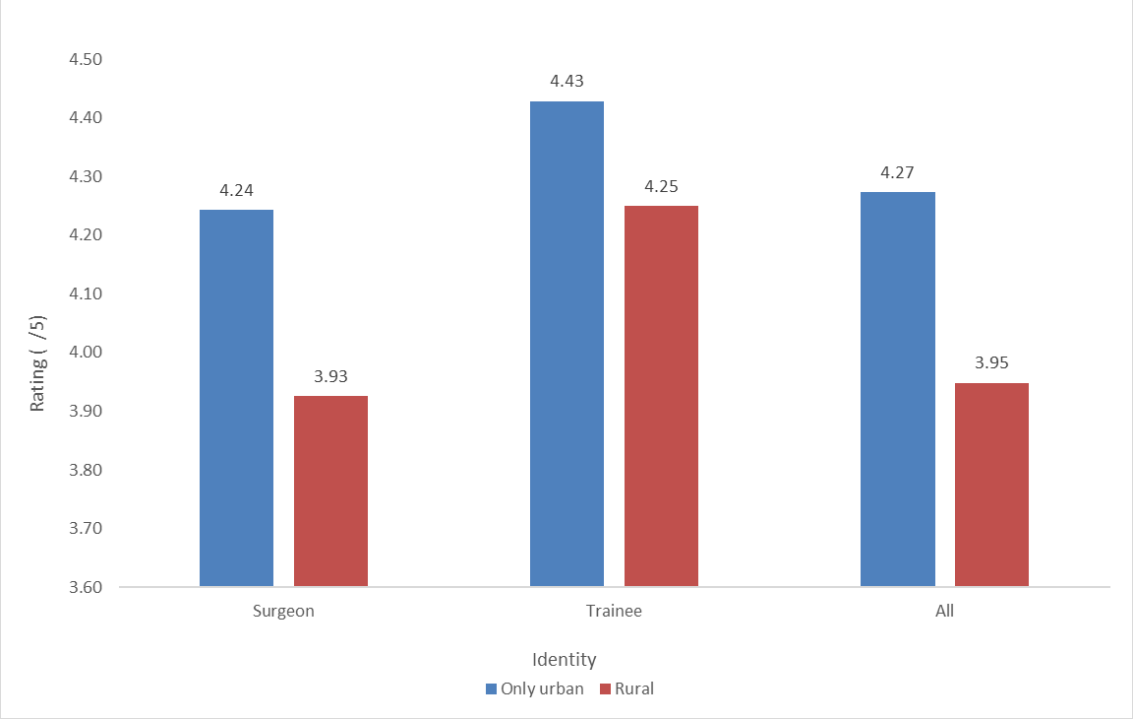


Figure 18 Importance of training surgeons in RUFUS skills



How did participants respond to the next steps in developing the eLearning modules?

14. Are you interested in helping the education specialist team at RACS develop the eLearning modules (provide examples, case studies, vignettes etc.) and/or test sections of the module?

A total of 102 participants responded to this question, 49 of whom answered 'no' and 53 of whom answered 'yes' and provided email contact details.

The contact details of interested respondents will be provided to RACS separately as part of the e-learning development activities.

15. Are there any existing online resources that you think would be useful to include as part of the eLearning module

Of the 102 participants who responded to this question, 89 were unaware of any pre-existing resources, while 13 responded positively and provided the following resources:

- Emergency Management of Severe Burns (no further detail provided)
- Monash Rural Health Communication and Cultural Competence Modules
- Australian Society of Plastic Surgery guide to establishing a rural or regional practice (https://plasticsurgery.org.au/rural/)
- Vu medi, video education platform for doctors (https://www.vumedi.com/public/pages/about/)
- American Hand Society website and videos, eHand (https://www.assh.org/hande/s/)
- Textbook on paediatric surgery remote and regional practice by Carroll, Rathnamma and Stalewski[12]
- Neurosurgical Society of Australia guide to management of acute neurotrauma in rural and remote locations (https://www.surgeons.org/-/media/Project/RACS/surgeons-org/files/position-papers/pos_2009-9-14_management_of_acute_neurotrauma_in_rural_and_remote_locations.pdf)
- Royal Australasian College of General Practitioners Fellowship in Advanced Rural General Practice (https://www.racgp.org.au/FSDEDEV/media/documents/Education/FARGP/Surgery-Curriculum.pdf)

Additional responses regarding more general sources included Medscape, the RACS website, and data that may be available from Australian electronic patient management systems.

16. Do you have any other comments on the development of a curriculum for rural professional non-technical skills?

There were 35 responses for this question, comprising various feedback and opinions summarised below. Six of these responses included comments on further contact, rather than additional information, and these were excluded from the analysis.

Responses included comments specifically pertaining to the development of a rural curriculum (n = 14), as well as broader comments regarding surgical training and service provision in rural areas.

Overall, the comments were positive regarding the need for support for rural Trainees and recognising the need for rural surgeons and services located in rural areas. Six responses specifically supported the need for a rural curriculum, flagging the difficulty of learning professional skills in a rural environment. Conversely, 2 responses—both from a financial perspective—considered that a rural curriculum is not needed and the current SET program adequately prepares surgeons for rural service. In this example, rather than generalist surgeons practicing in rural areas, fully trained subspecialists would be supported by outreach services.

Many respondents provided commentary on the development of a curriculum for rural professional non-technical skills, and their responses demonstrated a range of opinions and highlighted specific

challenges and needs. A recurring theme was the necessity for a curriculum tailored to the unique demands of rural medical practice, addressing both technical and non-technical skills.

Specifically in terms of the rural non-technical professional skills curriculum, the comments shared a common theme in calling for enhanced training in skills such as managing uncertainty, effective risk assessment, and decision-making when operating beyond one's usual scope of practice. The rural context was identified as a key issue, particularly in terms of effectively understanding the capacity and capability of the specific rural hospital and the services available. Understanding how and when to refer patients for more advanced care was considered to be critical. These skills are crucial for rural practitioners who often work in environments with limited resources and support. Additionally, respondents pointed to the importance of developing strong management skills for rural services and creating robust links with larger urban hospitals. RUFUS skills, in particular, were identified by 2 respondents as being of high value to ensure that urban surgeons can provide the necessary support. The opportunity to provide business education to Trainees and surgeons in how to establish visiting medical officer specialist services at rural hospitals, was also rated highly.

One respondent flagged the importance of international medical graduates (IMGs), as a large proportion of rural surgeons are from this background, suggesting that the rural curriculum should cater for their needs.

There was also an emphasis on the curriculum reflecting current practice. As technology evolves rapidly, it can enhance the support available to rural hospitals, making regular curriculum updates necessary. Respondents suggested that training materials should include succinct, practical content such as instructional videos.

Separately, many comments highlighted broader issues of rural healthcare, Trainee and surgeon support, and technical training. This included the importance of specialty societies and their involvement in rural training, specifically in providing skills and support to Trainees in the latter years of training. This was advocated to ensure that rural areas benefit from high-quality, specialised care, which can often be delivered locally with the right training and support systems in place.

Another critical aspect discussed was the need for inclusive and diverse training experiences. Respondents suggested mandatory rural clinic rotations or similar practical experiences within each training framework to ensure that all Trainees understand and are prepared for the realities of the rural healthcare setting.

There were calls for greater support for rural practitioners and rural hospitals, including creating supportive networks. This kind of holistic support was deemed essential for the sustainability of rural healthcare services. It is important that local specialty and subspecialty services are able to provide high-quality care, with appropriate network support including from larger hospitals. Comments identified the importance of selecting appropriate Trainees to work in rural areas. Support should also be extended to the families of Trainees and surgeons.

The ongoing value of the rural surgeon, and the recognition of this by RACS, was identified as important in order to establish the long-term needs of this role. One respondent explained that current training appeared to be specifically designed only to create subspecialty surgeons for city private practice.

Narrative from the feedback underscored a desire for a curriculum led by professionals with substantial experience in both rural and urban settings. This will ensure the relevance and applicative value of the training, helping bridge the gap between different healthcare environments. The need for reciprocal exchanges between metropolitan and rural healthcare professionals was highlighted as one way to foster mutual understanding and skill enhancement.

Overall, the responses illustrated a strong consensus on the need for a dynamic, well-rounded curriculum that prepares surgeons and other healthcare professionals for the multifaceted challenges of rural medical practice, ensuring they are equipped to provide high-quality care in diverse settings.

DISCUSSION

Circulation of the online questionnaire through individuals, newsletters and committees, garnered a successful response to the survey, reflected in the large number of participants. Although the target audience was rural surgeons and Trainees, there was a relatively equal split between rural (n = 60) and urban (n = 48) respondents in the final analysis. The number of rural participants correlates favourably with the total number of rural RACS members—approximately 529 current members of the RSS.[13] The authors of this report thank all surgeons and Trainees who gave their time to this valuable and highly informative activity.

There was a varied response across the specialties. General Surgery was well represented, probably because it is the most common specialty in rural areas.[14] Urology and Orthopaedic Surgery were also represented, being other surgical specialties commonly represented in rural practice. The relatively high number of responses from Plastic and Reconstructive Surgery is likely due to the survey being disseminated to all members of the ASPS through a direct email. It is unclear why the response rate from paediatric specialists is so high, as this represents the smallest specialty group in Australian surgical practice. This varied response relates to the voluntary nature of the survey, including its distribution, and the broader intent of the survey for the collection of information and opinion. Individual RACS members were encouraged to circulate the survey amongst their colleagues. It is likely that some specialties had greater promotion of and access to the survey than did others, due to the enthusiasm of individual members.

The lack of response from Cardiothoracic Surgery, Neurosurgery and Vascular Surgery is unfortunate but not surprising. These specialties, together with Paediatric Surgery and Plastics and Reconstructive Surgery, are those with the lowest rural representation in Australia.[1 14]

Other limitations of the survey include incomplete responses to some questions and the lack of a nil response to certain questions, which created some ambiguity. There was a relatively low number of rural Trainee participants.

Survey responses were from surgeons across the entire range of regional, rural and remote practice, (MM2 to MM6–7). For the main analyses, all rural locations (MM2–7) were grouped, allowing for an improved dataset and more logical analysis. In addition, many surgeons reportedly work across several different rural locations, therefore data analysis for each separate MM classification was impossible. The intent of the survey was to gather information and opinion from rural surgeons and Trainees, so a sub-analysis of preferences based on individual MM location was not needed.

Most responses were from Australia. AoNZ data have been retained in the analysis in order to capture feedback from the RACS Fellowship as a whole.

Question 6 investigated the rural activity of the respondent and asked: ‘Have you been involved in any of the following services for rural patients or rural surgeons?’. The responses were intentionally broad and included options for activities of in-reach, outreach, telehealth and peer support. The level of positive response was very high (95%), with the great majority of respondents being involved in at least one rurally focused activity. This fact will be valuable to highlight as part of future communications regarding rural surgery and the development of a rural curriculum, as it shows that most surgeons are engaged in some type of rural activity even if their practice is wholly located at an urban hospital site.

A small number of rural surgeons (n = 5) did not select any rural activity. This was a disadvantage of the survey question, as there was no option for ‘other response’ or ‘no rural activity’. Thus, it is uncertain if the nil response from some participants indicated that they provided nil rural service (e.g. solely urban practice), if they considered that this question was not relevant (i.e. solely rural practice), or if they simply skipped the question (no response). For the purposes of the analysis, a nil response to this question was interpreted to be a ‘no’ response.

In terms of the most common rural activity, the responses were: in-reach (76%), telehealth (72%), outreach (69%) and peer support (56%). Unsurprisingly, urban surgeons (83%) were more likely to be

engaged in in-reach activities (i.e. received rural patients for care in an urban hospital or worked on systems for rural people to be appropriately referred to an urban hospital) compared with their rural counterparts (63%). Outreach was more common for rural respondents (78% vs 50%). Engagement in telehealth (68% vs 69%) and peer support (50% vs 58%) was similar between rural and urban respondents.

More Trainees than surgeons held the opinion that the current SET curriculum prepared them for rural practice. This may be due to some bias in the data due to the smaller number of Trainees in the survey, or it could be that surgeons have had more experience of rural practice and have seen the limitations of the current training pathways.

It is perhaps unfortunate that only about half of all surgeons, including rural surgeons, were aware of the RACS Rural Health Equity Strategic Action Plan and the rural-facing surgical curriculum framework. While rural surgeons were a little more informed, this may be an issue for RACS to consider when publicising and promoting the ongoing and future work in this area.

CONCLUSIONS

Following a high level of participation by rural and urban RACS members, the survey identified that most Australian surgeons and Trainees participate in some aspect of rural surgical practice.

All proposed rural curriculum activities were highly rated, particularly training surgeons in rural contextual decision-making. Trainees rated all aspects of the proposed rural curriculum more highly than did surgeons. RUFUS activities were found to be particularly important for urban surgeons and Trainees, showing the value of the rural curriculum extends beyond the rural hospital setting.

Many rural surgeons and Trainees are aware of RACS activities in the areas of rural health equity and curriculum development, but it may be opportune to more actively promote this work, particularly the final rural e-learning curriculum and its benefits and importance to rural healthcare.

Through participation in this survey, many RACS members have provided information and made themselves available to help with developing the e-learning modules. This feedback has highlighted the importance of involving IMGs as a target consumer of the rural curriculum, given their vital role in delivering rural surgical services in Australia.

APPENDIX A: SURVEY QUESTIONS

Section 1

Your background

1. Who are you?

- Trainee
- Surgeon
- Other (please specify)

2. Have you been involved in any supervision (including SET Trainee, non-SET Trainee, Jdocs)

- Yes
- No or not relevant (e.g. I am a Trainee.)

3. What is your surgical specialty?

- Cardiothoracic Surgery
- General Surgery
- Neurosurgery
- Orthopaedic Surgery
- Otolaryngology Head and Neck Surgery
- Paediatric Surgery
- Plastic and Reconstructive Surgery
- Urology
- Vascular Surgery

Section 2

Your main training or practice setting

4. Which country is your main practice or training location?

- Australia
- Aotearoa New Zealand
- Other (please specify)

5. Where is your main practice or training location in Australia or Aotearoa New Zealand? In Australia, please use your Modified Monash [MM] classification. To identify your MM location, please search your postcode at the following website: Click here to open a new window[1]

Urban, MM 1 [major city] (Australia or New Zealand)

- Rural, MM2 [regional centre]
- Rural, MM3 [large rural town]

[1] https://www.health.gov.au/resources/apps-and-tools/health-workforce-locator/app

- Rural, MM4 [medium rural town]
- Rural, MM5 [small rural town]
- Rural, MM6 and 7 [remote and very remote communities]
- Regional, rural or remote Aotearoa New Zealand
- Other (please specify)

6. Have you been involved in any of the following (select all that are applicable):

- In-reach of rural patients (i.e. received rural patients for care in an urban hospital or worked on systems for rural people to be appropriately referred to an urban hospital)
- Outreach to rural patients (i.e. any consultations or surgery performed in a town where you are not a resident and may not be available in person for ongoing care)
- Telehealth to rural patients
- Provided peer-support to rural surgeons

7. As a rural Trainee or surgeon, what was the level of preparation that the SET curriculum provided for your work in rural settings?

- Very low, Low, Medium, High, Very high

Section 3

Your background knowledge related to RACS activity on rural health equity.

8. Are you familiar with the RACS Rural Health Equity Strategic Action Plan?

- Yes, I'm familiar
- No, I'm unfamiliar/unsure

9. Are you aware that RACS had developed a rural-facing surgical curriculum framework?

- Yes, I'm aware
- No, I'm unaware/unsure

10. As a Trainee or supervisor, what level of usefulness would you award for additional resources to learn or teach rural-specific professional skills?

- Very low, Low, Medium, High, Very high

Section 4

Content of the eLearning rural curriculum

11. How would you rate the importance of training surgeons in understanding rural context (i.e. what a surgeon needs to know about the rural context they are working within, including health system and resources, geography, climate, culture, community, scope of practice)

- Very low, Low, Medium, High, Very high

12. How would you rate the importance of training surgeons in rural contextual decision-making (i.e. clinical decision-making processes that take into consideration location-specific rural contextual factors of the health system and the surgeon etc.)

- Very low, Low, Medium, High, Very high

13. How would you rate the importance of training surgeons in RUFUS (rural focused urban surgeon) skills (i.e. urban surgeons providing care to rural patients through outreach, in-reach and telehealth, and providing peer support to rural surgeons)

- Very low, Low, Medium, High, Very high

Section 5

Next steps

14. Are you interested in helping the education specialist team at RACS develop the eLearning modules (provide examples, case studies, vignettes etc.) and/or test sections of the module?

- No
- Yes (please provide your email address below)

15. Are there any existing online resources that you think would be useful to include as part of the eLearning module

- No
- Yes (please provide your suggestions below)

16. Do you have any other comments on the development of a curriculum for rural professional non-technical skills?

APPENDIX B: INVITATION EMAIL EXAMPLE

Dear [Name/Committee name]

The development of a rural curriculum to enable surgeons to develop rural practice capability and rural self-efficacy is a key action identified in the Rural Health Equity Strategic Action Plan. The RACS Rural Curriculum Project is an activity fully funded by the Australian Government Specialist Training Program (STP). More information is in the attached pdf (also available in this link).

Following publication of the RACS rural-facing surgical curriculum framework in 2022, the next step is to develop a learning experience.

Due to your involvement as a member of the Specialist International Medical Graduate Committee we seek your help with the following requests:

- Complete a 5-minute survey canvassing your views on a RACS learning experience for a rural curriculum. All survey results are anonymous and the results will be used by RACS solely to inform the next steps in the development of a rural curriculum. **The link to the survey is here**
- Forward this email to any colleagues involved in rural training, rural surgery, rural in-reach or rural outreach, or any who provide telehealth to rural patients or peer support to rural colleagues.

Your involvement is invaluable. The more information we can collect, the better the final curriculum will be. The survey is open to 10 April 2024.

With thanks and warm regards,

Dr Alun Cameron (RACS Team Leader, Research and Evidence Support Services)

Dr Bridget Clancy (Chair, Rural Surgical Section Committee and Vice Chair, Rural Health Equity Steering Committee)

REFERENCES

1. Australian Government Department of Health and Aged Care. National Medical Workforce Strategy 2021–2031 2021 [Available from: https://www.health.gov.au/sites/default/files/documents/2022/01/national-medical-workforce-strategy-2021-2031_0.pdf accessed 12 January 2024.

2. Kumar S, Clancy B. Retention of physicians and surgeons in rural areas-what works? *J Public Health (Oxf)* 2021;43(4):e689-e700. doi: 10.1093/pubmed/fdaa031

3. World Health Organization. WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas 2021 [Available from: https://apps.who.int/iris/handle/10665/341139 accessed July 31 2023.

4. Clancy B. Excellence through equity: responding to community need. *ANZ J Surg* 2023;93(3):448-49. doi: 10.1111/ans.18249

5. Clancy B. Royal Australasian College of Surgeons Rural Health Equity Strategic Action Plan: excellence through equity. *ANZ J Surg* 2022;92(9):1990-94. doi: 10.1111/ans.17954 [published Online First: 20220805]

6. RACS. Activities report 2024 [Available from: https://www.surgeons.org/en/Resources/interest-groups-sections/rural-surgery/activities accessed 9 May 2024.

7. Australian Government Department of Health and Aged Care. Modified Monash Model 2023 [Available from: https://www.health.gov.au/topics/rural-health-workforce/classifications/mmm accessed 21 February 2024.

8. RACS. Updated Surgical Competence and Performance Guide 2020 [Available from: https://www.surgeons.org/en/News/News/Updated-Surgical-Competence-and-Performance-Guide accessed 10 May 2024.

9. RACS. Evaluation of the Rural-Facing Curriculum Framework, 2022.

10. Neurosurgical Society of Australia Inc. The Management of Acute Neurotrauma in Rural and Remote Locations 2000 [Available from: https://dstc.com.au/wp-content/uploads/2017/02/The-Management-of-Acute-Neurotrauma-in-Rural-and-Remote-Locations.pdf accessed 16 February 2024.

11. SurveyMonkey. Online surveys in Australia 2024 [Available from: https://www.surveymonkey.com/mp/australia/ accessed 7 May 2024.

12. Carroll D, Stalewski H, Rathnamma BM. Paediatric Surgery. Clinical Practice in Remote and Rural Settings, and in Tropical Regions: CRC Press 2023.

13. RACS. Rural Surgical Section membership, May 2024, 2024.

14. RACS. Activities report 2021 [Available from: https://www.surgeons.org/-/media/Project/RACS/surgeons-org/files/reports-guidelines-publications/workforce-activities-census-reports/2021-12-31_RACS_ActivitiesReport_2021_V4_Final.pdf?rev=7dced14774fa449e8a74b1023013998e&hash=528EC8EDAD1B41E0B2757EEECEAC97DF.