The Ongoing Impact of the COVID-19 Pandemic on Student Placements facilitated by University Departments of Rural Health

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Contents

Executive Summary

University Departments of Rural Health (UDRHs) are funded under the Rural Health Multidisciplinary Training (RHMT) program to facilitate clinical placements in rural and remote settings throughout Australia for students enrolled in tertiary health courses. UDRHs support students financially to travel to rural and remote locations, provide subsidised accommodation, and ensure clinical learning needs are met whilst on placement. Prior to the COVID-19 pandemic, the 16 operational UDRHs across Australia supported over 16,500 placements in 2019 (mostly in nursing, midwifery and allied health).[1] Although similar numbers of UDRH-facilitated placements were planned in 2020, the onset of the COVID-19 pandemic and associated public health emergency resulted in many of these planned placements being altered, postponed or cancelled.[2] A national collaboration of UDRH academics sought to explore the early impacts of the COVID-19 pandemic, with several studies now published highlighting student experiences and perspectives of the placement changes that occurred during 2020.[3-6] As the COVID-19 pandemic has continued to unfold beyond 2020, however, less is known about any ongoing changes to rural and remote placements. The aims of this study were therefore to:

1. identify student experiences and perspectives of impacts to scheduled UDRH-facilitated placements due to the ongoing COVID-19 pandemic in 2021 and 2022; and
2. identify perspectives of students in their later years of study regarding clinical training, graduate preparedness and rural practice intention developed in the context of the ongoing COVID-19 pandemic and associated public health emergency.

A project team comprised of researchers from eight UDRHs led this study, with all 16 UDRHs encouraged to participate. All students with a scheduled UDRH-facilitated placement from 1 January 2021 to 31 October 2022 were invited by email to complete an online survey. A total of 520 students completed the survey. Of these, 82% identified as female, 2% as Aboriginal and/or Torres Strait Islander, 52% as rural origin, and 52% were under 25 years of age. Nursing or midwifery students were the largest cohort among respondents (44%), with the remainder studying medicine (12%) or one of 19 different allied health disciplines. At the end of the survey, all participants were asked if they were willing to be interviewed. Of those willing, 33 were randomly selected and interviewed, 60% of whom were female and 73% over the age of 25 years. Interviewees represented nursing, medicine, and 17 different allied health disciplines, and included students with scheduled placements in all states and the Northern Territory. All placements described by interviewees and survey respondents were in non-metropolitan (Modified Monash Model 2-7) areas.

Among the 520 surveyed students, most placements went ahead in some form, with only 2% of placements being cancelled or converted to a metropolitan placement. Although placements largely went ahead, 15% of students did describe experiencing placement changes, including being allocated a different placement site and/or location, failing to complete their placement, or 'other', which mainly related to having their placement delayed or disrupted due to illness. All aspects of placements surveyed continued to be impacted by the ongoing COVID-19 pandemic to some degree; however, these impacts were perceived by students to result in largely minor changes. Surveyed students highlighted that aspects of placements most affected during 2021 and 2022 were placement tasks (47%), experience of the local community (41%) and connection with other students (38%), while the least impact occurred to rural and remote location (15%). Notably, placement impacts were greater amongst nursing students, older students (>25 years), those of rural origin, and those who completed placement in 2021 compared to 2022.

Despite ongoing placement changes and impacts, 85% of students surveyed were satisfied with their placement experience and 79% felt their placement provided quality clinical training. Further, 68% of students in their early years of study wanted more rural or remote placements because of their experience, while 79% of students in their later years of study felt that their placement had equipped them for work as a new graduate. Regardless of year of study, 71% of students could also see themselves working outside metropolitan areas based on their placement experience. This suggests that placements were largely able to meet the challenges posed by the pandemic and still provide quality learning that fostered rural or remote intention. However, nursing students, and those who completed placements in 2021 were less positive about their placement experiences than allied health students and those completing placements in 2022, most likely reflective of the greater impacts and changes experienced by these cohorts.

Most students (89%) surveyed were happy to be vaccinated to undertake placements and only around 40% were concerned about contracting COVID-19 on placement or transmitting it to their rural or remote population by relocating from a metropolitan city. There was some hesitation to share accommodation, with only 69% agreeing that they were happy to reside with other health students on placement. Mental health concerns were, however, low in this study, with only 34% of students reporting that they felt stressed on placement and 19% experiencing wellbeing decline as a result of their placement experience. This suggests that students, largely, were resilient in the face of placement changes and impacts. However, it was also found that nursing students and those who completed placements in 2021 appeared more vulnerable to stress and wellbeing decline during the ongoing pandemic.

Among later years students, many felt that they were ready to be a health professional (70%) and felt clinically prepared to work in a rural or remote location after graduating (72%). However, 22% also felt that they had not developed enough clinical skills on placements to competently practice. This suggests that extra supports may be needed in the short term to support transition to practice where skill deficits may exist. Workforce in rural and remote areas may need to consider how best to support new graduates given that 65% of surveyed students indicated they wanted to work in a rural area post-qualifying. Finally, ongoing support from universities also appears important, with just under half (47%) of students in their early years of study surveyed indicating that the pandemic was continuing to impact on progression through their course. Further, 29% of students, regardless of year of study, had concerns about graduating on time, highlighting the ongoing challenge of completing training and clinical learning requirements in a timely fashion during the pandemic.

Interviewees shared diverse placement experiences during 2021 and 2022, depending on the timing, location and health setting of placements. Students reflected that placement changes were sometimes last minute, resulting from sudden changes in public health and safety restrictions, border closures and geographical lockdowns, COVID-19 outbreaks, staffing shortages, and illness among supervisors and students. Regardless of whether placements were changed, most students experienced some impacts to placement. These impacts resulted largely from: changing public health response measures including restrictions on access to locations and health settings; changes in health and safety compliance such as social distancing, testing, close contact isolation, the use of masks and other personal protective equipment; the eventual widespread community transmission of COVID-19 resulting in illness among students, supervisors and other placement staff; public anxiety around COVID-19 causing decreased patient attendance at healthcare facilities; and students attempting to minimise the risk of contracting and transmitting COVID-19 at placement sites and in shared student accommodation.

Interviewees reported unanimously that it was a requirement of placement to be vaccinated prior to attending, and the majority were happy to comply. While some students were concerned about contracting COVID-19 or transmitting it to a rural or remote community, especially during 2022 when widespread community transmission was occurring, more felt safe after being vaccinated. However, most students had not been infected with COVID-19 prior to placement and were cognisant of what illness during placement would mean for their clinical learning. In circumstances where case numbers were rising in their placement location, this led students to minimise risk wherever possible, including adhering to health and safety measures such as masks and personal protective equipment, making decisions around whether to work with COVID-19 positive patients, patients who could or would not comply with safety measures such as mask wearing, and minimising socialisation with other students on placements either at the placement site or in shared accommodation. Despite these efforts, several students did succumb to COVID-19 and other illnesses on placement, resulting in the need to extend placements for some, whilst others lost placement hours.

Most interviewees perceived their placements as positive experiences, which generally reflected opportunities for growth in clinical skills and learning, feeling that their learning needs were prioritised and supported by effective supervision, and engagement in the local community physically and socially. However, some students did perceive their placements negatively, particularly at placement sites experiencing workforce shortages that exposed students to greater demands and provided less attention to supervision and learning goals. Placements that were converted to online delivery were also viewed negatively, with no opportunity to develop face-to-face clinical skills or experience the rural community; key reasons why students had sought to undertake a rural or remote placement.

Interviews highlighted that while some students felt confident to begin clinical practice as a graduate, others felt they had not developed enough clinical skills during placements to competently practice post-qualifying. Feelings of unpreparedness were attributed to the transition to online learning which impacted their theoretical knowledge and the collective reduction of face-to-face opportunities for clinical skill development through their course and placement experiences. Students recognised that skill deficits and lack of confidence did not bode well for rural and remote employment given the increased autonomy, knowledge and generalist skills needed in these settings. However, students also recognised themselves as the 'COVID generation' and felt that they were graduating with additional skills having trained in unique circumstances, including resilience, adaptability, communication, technology and infection control.

Overall, students wanted to undertake a UDRH-facilitated placement despite the ongoing pandemic to gain experience, progress through their course, and consider their future employment pathways. While there were changes and impacts to placements, students largely felt satisfied with placement experiences, and many wanted to work rurally based on their placement experience. However, collective changes to placements, combined with impacts to learning more generally over the past few years, have left some students feeling unprepared for graduate practice; especially rural practice which is perceived to demand greater skill, knowledge and autonomy. Additional supports may therefore be required in the short term for nursing and allied health graduates transitioning to employment, especially in rural and remote contexts. Extra supports are also needed on UDRH-facilitated placements for nursing and allied health students who have largely trained in the context of the pandemic. Focusing on student development of confidence and autonomy in clinical skills on placements will help promote graduate competence and rural intention, and in turn continue a pipeline of workers able and willing to support rural and remote health workforce growth in the coming years.

Introduction

Almost 30% of Australians reside in areas that are geographically classified as regional, rural and remote (Modified Monash Model (MM) categories 2-7). These non-metropolitan residents face a range of unique challenges due to their geographic isolation, one of which is poorer health outcomes. Compared to people living in metropolitan cities, regional, rural and remote residents have higher rates of hospitalisations, mortality, injury, and poorer access to and use of a range of health care services.[7] The Australian Government Department of Health and Aged Care is committed to improving rural health inequities and have developed the Stronger Rural Health Strategy; a ten year plan commencing from 2018-19 aimed to improve the health of people in rural Australia through the development of a sustainable, high quality health workforce that is distributed across the country according to community need.[8]

Part of the Stronger Rural Health Strategy[8] is expansion of the Rural Health Multidisciplinary Training (RHMT) program; a program which supports a network of University Departments of Rural Health (UDRHs) and Rural Clinical Schools (RCSs) across Australia to engage in a range of initiatives including rural health research, increased participation of rural origin students in health courses, and the provision of quality clinical placements for medicine, nursing and allied health students in rural and remote settings.[9] The strategic direction of the RHMT is grounded in evidence, with a growing body of literature demonstrating that students who either grow up in rural areas, or who are exposed to rural practice through clinical placements, are more likely to practise rurally post-qualifying.[10,11] With placements of increased length being identified as especially influential toward future rural practice,[11] UDRH-facilitated placements are expected to range from two weeks to twelve months in length, depending on the discipline, and be undertaken full-time. In 2019, the 16 operational UDRHs across Australia supported over 16,500 placements for health students across 28 different disciplines and from universities across Australia.[1] Since then, the RHMT program has expanded to include an additional 3 UDRHs, two in Western Australia and one in Central Queensland, building further capacity to support rural and remote placements undertaken by health students in geographically diverse regions of the country.

Up to 2020, UDRHs had been growing the numbers of health students supported to undertake placements in rural and remote communities (MM2-7). However, the first recorded case of the COVID-19 virus in January of that year signalled the beginning of Australia's involvement in the global COVID-19 pandemic and subsequent challenges to facilitating rural and remote placements. As the virus began rapidly spreading across states and territories, the Australian State and Commonwealth Governments implemented nationwide public health directives with the goal of virus elimination, including international, and state and territory border closures, lockdowns, quarantine requirements, mandatory social distancing, contact tracing, testing and reporting, restrictions on large gatherings, work from home orders and closure of non-essential businesses.[12,13] Rapidly changing health policy measures, as well as the impact of the virus itself, caused significant disruption to the healthcare sector during 2020, including health student clinical placements.[14] The border closures, travel restrictions, quarantine requirements, biosecurity zones and concern about transmission of the virus from urban to rural and remote areas led to many rural and remote placements being cancelled,[15] changed to alternate placement sites or rural and remote locations,[3] or adapted to virtual or non-clinical placements.[3,6] For placements that did proceed, students were required to wear personal protective equipment (PPE) and change from face-to-face delivery of many health services and educational activities to online formats.[2,16] Other adjustments included remote supervision and social distancing in accommodation facilities.[6,17]

Challenges associated with continuing rural and remote placements during the initial pandemic period (2020) included the increased cost and reduced availability of flights, logistical management of quarantine requirements,[15] decreased access to health care facilities and diversity of clinical presentations,[18] lack of workplace space to comply with physical distancing rules, staff shortages due to COVID-19 outbreaks and reduction in supervision capacity.[18] Difficulties with information technology and communication were also encountered, including internet instability and maintenance of patient confidentiality when working from home.[19] As a result, some students who were able to continue their rural placement have experienced adverse mental health, including social isolation, lack of engagement with rural communities,[6] and reduced confidence and perceived preparedness for workforce entry.[3] Despite this, research suggests that students who were able to undertake rural and remote placements during the early stages of the pandemic in 2020 were largely satisfied with their experiences.[3,16]

In early 2021, low community transmission rates and the rollout of the COVID-19 vaccine prompted a relaxation of public health emergency measures in Australia. Public health measures also became more state and territory specific during this time. The goal shifted from virus elimination to suppression, with the aim to keep case numbers low until mass population vaccination could be achieved. States and territories with lower case numbers tended to rely on strict border controls and snap lockdowns, for example Western Australia and the Northern Territory, whereas states with higher levels of exposure, such as New South Wales and Victoria, utilised prolonged lockdowns. Victoria faced the most stringent restrictions, including six periods of lockdown. Even within individual states, differences emerged, with residents of metropolitan cities often facing stricter controls compared to their regional counterparts. Conversely, in the Northern Territory, Darwin at times had a lower stringency index than the rest of the territory due to the implementation of regional lockdowns to protect vulnerable groups.[13] By October 2021, 70% of the Australian population had been double vaccinated against COVID-19.[20] This achievement, as well as the emergence of the less severe Omicron strain as the dominant variant, led to a further easing of restrictions.[13] From 2022, Australia entered it's 'living with COVID' phase; there are no longer government-enforced border closures, lockdowns, mask mandates, self-isolation or reporting requirements, with greater responsibility falling on individuals and workplaces to prevent COVID-19 transmission.[21]

While the impacts of the COVID-19 pandemic and associated public health emergency on rural and remote placements during 2020 are being increasingly understood,[3,4,6,16,17] the ongoing impacts beyond this time on clinical training and graduate preparedness of health students remains unclear. This study therefore aimed to explore health student experiences and perspectives of rural and remote placements during 2021 and 2022; a time of great change in the pandemic threat and public health emergency response. Specifically, the aims of the study were to:

1. explore student experiences and perspectives of UDRH-facilitated rural and remote placements scheduled between 1 January 2021 and 31 December 2022 to identify any placement impacts attributable to the ongoing COVID-19 pandemic and associated public health emergency measures; and
2. understand the perspectives of students in their later years of study regarding clinical training, graduate preparedness and rural practice intention developed in the context of the ongoing COVID-19 pandemic and associated public health emergency.

How was the study conducted?

The study follows on from initial work undertaken by UDRH academics on the sudden impact of the COVID-19 pandemic on rural and remote placements in 2020.[2-6] For the purposes of this study, rural and remote placements were defined as those occurring in geographical locations classified as MM 2-7.[22] All 16 UDRHs were again invited to participate in this research project, with the project being led by a core team of researchers from eight UDRHs across Australia.

This project utilised a convergent mixed methods approach to examine student perspectives and experiences of the ongoing impact of the COVID-19 pandemic and public health emergency on UDRH-facilitated placements. Ethics approval for the project was obtained principally from the University of Tasmania, with reciprocal ethics also obtained from The University of Melbourne, University of Newcastle, La Trobe University, University of Western Australia, James Cook University and Flinders University. The study included an online survey which was designed to capture the experiences and perspectives of students across Australia. This was augmented by semi-structured individual interviews, conducted to gain further insights into placement changes, student perspectives, learning progress, graduate preparedness and rural intention. Importantly, only students in their later years of either undergraduate or postgraduate study were invited to be interviewed given that they had the most experience of training during the pandemic and were soon to begin working as health professionals; later years were defined as third, fourth or final year of undergraduate study, or second or final year of postgraduate study.

Data collection was undertaken from August 2022 to December 2022, with all students scheduled for a UDRH-facilitated placement from 1 January 2021 until 31 October 2022 eligible to participate. It is important to note that some students participated during or shortly after their placements while others participated sometime later.

Survey

The online survey was designed by the project team and was based largely on the initial survey design, with modifications in response to the findings of the initial series of investigations (Appendix A).[2-6] The survey comprised of a total of 34 questions and was expected to take between 10 to 15 minutes to complete. Question formats included yes/no questions, Likert scale responses and three open ended questions which encouraged free text responses about their placement experiences. Survey questions asked students to provide information on their most recent rural or remote placement experience including:

- when and where it was scheduled
- whether it went ahead as planned
- placement changes as a result of the ongoing pandemic
- experiences and perceptions of clinical training whilst on placement
- placement satisfaction and future rural intention

Students were also asked questions related to their health and wellbeing, accommodation and financial support. Regardless of whether students went on their placement or not, all were asked questions relating to their progress through their course, concerns about graduation, clinical training and graduate preparedness. A series of questions also sought to gather demographic data including gender, age, Aboriginal and/or Torres Strait Islander background, origin (whether the student grew up in a metropolitan or rural area), course of study, university attended, and employment status and industry. At the end of the survey, students were asked to leave their name and contact details if they were interested in taking part in a further interview to discuss their placement experiences. This personally identifying information was recorded in a separate database that could not be matched to any responses from the previous 34 questions.

An email invitation was used to distribute the online survey to students with a UDRH-facilitated placement scheduled any time between 1 January 2021 and 31 October 2022. Embedded in this email was a link to the online, anonymous survey and a Participant Information Sheet which described the study, the confidential nature of participation, data use and storage, and the contact details for the lead researcher. Students were advised that participation was voluntary and completing the survey implied their consent to participate. The email invitation was distributed to eligible students by each UDRH to protect the anonymity of potential participants. Two follow up emails were sent to increase participation rates (the first one week later, and the second two weeks after the original email was sent). The online survey data were captured in LIME survey hosted at the University of Tasmania.

A total of 857 students submitted a response to the online survey. All responses were transferred to SPSS Version 29 for data analysis and open-ended responses were coded by the research team. Following data cleaning, 337 responses were excluded (304 were non-responses, 18 were incomplete, and 15 reported data concerning placements in 2020 or metropolitan (MM1) placements). For the remaining 520 responses, data were analysed using frequencies and cross tabulations which are presented in this report. Logistic regression was conducted using nursing and allied health student data only to identify predictive factors for placement impacts, perspectives of placements, graduate preparedness and rural intention including: age (older students (aged >25 years) versus younger students (aged <25 years)); origin (rural background (MM2-7)) versus metropolitan background (MM1)); gender (male versus female); discipline (nursing versus allied health); and timing of placement (placements scheduled in 2021 versus 2022). A p value of <0.05 was considered statistically significant. While most questions (excluding open ended questions) have been tested for statistical differences, they are only reported where a statistically significant difference was found.

Interviews

Following the online survey, a total of 115 students registered their interest to participate in a follow up interview to discuss their recent rural or remote placement experiences. From these 115 interested students, 60 were randomly selected using random number generation to be contacted and invite their participation in an interview. Four members of the project team were allocated students to contact and interview. After contacting the 60 students, 34 students provided consent and were interviewed. Despite initially registering interest, the remaining students either did not respond to the invitation to schedule an interview, declined to be interviewed or failed to attend their scheduled interview time and did not respond to further attempts to reschedule.

Interviews were conducted primarily by the lead researcher (BJ), with another three members of the research team (LS, SH, JB) also undertaking interviews. All four interviewers undertook training prior to commencing interviews to ensure a similar approach and style of interviewing was adopted, and to ensure clarity around questions. Each interviewer arranged a time with the student, provided the Participant Information Sheet describing the study and highlighted that interviews were confidential, and audio recorded. Each participant was asked at the commencement of the audio recorded interview to provide verbal consent to be interviewed. Interviews were organised so that students were interviewed by a researcher from a UDRH not affiliated with the UDRH that had facilitated their placement.

Interviews were semi-structured, asking seven core questions (Appendix B), with additional questions asked based on the discussion to ensure all relevant information was elicited. Questions asked students to describe their placement experience, any placement changes or impacts of COVID-19 on their placement, and their perspectives of their placement. Students were asked to respond to these questions in relation to their most recent rural or remote placement, and then for any other rural or remote placements scheduled since 1 January 2021. Students were also asked questions relating to their perspectives on clinical training during the pandemic, their graduate preparedness and rural practice intention. Interviews ranged from 21 minutes to 80 minutes in length. All interviews were recorded using the Zoom recording function and audio files were then transcribed using an online transcription service. Students were provided the opportunity to confirm and amend their transcripts after the interviews. Once confirmed, transcripts were deidentified by removing the names of students, placement locations, health services and supervisors.

Transcripts, together with open-ended responses from the survey, were subject to content analysis by the lead researcher (BJ).[23] Discussion with other interviewers who had read all transcripts then identified key issues relating to placement impacts and student perspectives. The main issues identified from this process are presented below, along with descriptive analysis of the quantitative survey data to highlight student perspectives and experiences of the same issues. In addition, three case studies (using pseudonyms) are presented throughout the findings to illustrate the nature of placement experiences and student perspectives.

What did the study find?

Who participated in the study?

Survey participants

A total of 520 students completed the survey, with most identifying as female (81.9%) and around half (51.9%) under the age of 25 years. Only 2.3% of students identified as Aboriginal and/or Torres Strait Islander and just over half (52.5%) indicated they had a rural background. Students reported studying a range of health courses, the most common being either nursing or midwifery (44.4%). The remaining students reported studying medicine (12.1%), occupational therapy (7.5%), social work (5.0%), pharmacy (4.8%), paramedicine (4.6%), physiotherapy (4.4%), medical radiation science (4.2%), dietetics (4.0%), speech pathology (3.7%), or one of eleven other allied health disciplines (7.3%).

Most students were studying undergraduate degrees (79.2%), with the majority (79.9%) of these students in their third, fourth or final year of study. Of the students studying postgraduate courses (20.8% of total respondents), most (89.8%) were also in their second or final year of study. Responses were received from students studying in all states and territories of Australia, with the majority from Victoria (35.4%), New South Wales (17.7%) and Queensland (15.6%).

Around three quarters (74.8%) of students undertaking placements were employed. Of those employed, 64.8% reported working in the health industry and 33.7% were working more than 20 hours per week.

Interview participants

A total of 34 students completed an individual interview; however, one participant was excluded from the study after being interviewed as they discussed a placement experience prior to 2021. Therefore, the final interview sample included 33 participants, of which 20 identified as female and 13 as male. When indicating their age, 24 students were older than 25 years, while 9 were under 25 years of age. Overall, 17 were studying an allied health course (speech pathology, occupational therapy, physiotherapy, dietetics, exercise physiology, psychology, social work, public health, paramedicine, pharmacy), 10 were studying nursing or midwifery, and 6 were medical students. The 33 students were from all Australian states excluding the territories, with the majority (39.4%) studying in Victoria. Interviewees included those with metropolitan and rural backgrounds.

Student Perspectives of Ongoing Impacts to Rural and Remote Placements due to COVID-19

When and where were rural and remote placements scheduled?

Around three quarters of respondents (74.1%) indicated that their most recent rural or remote placement experience occurred sometime in 2022, with the remaining quarter (25.9%) of students undertaking placement in 2021. Around one in five respondents (19.6%) indicated their placement was two weeks or less in length, and a further half (55.3%) had placements of up to six weeks in length. Most nursing students (71.8%) had shorter placements of up to four weeks in length. The reverse trend was noted for medicine students, where most (76.2%) had placements five weeks or longer. Of the allied health placements longer than 12 weeks, most were for either social work (71.4%) or psychology (17.9%) students.

Placements occurred in all states and territories of Australia except for the Australian Capital Territory given its entirely metropolitan composition. Overall, a third (32.9%) of placements were in Victoria. However, the distribution of placements across states and territories differed depending on discipline, with nursing placements occurring more frequently in Victoria (44.2%) and Tasmania (16.5%), allied health placements in Victoria (25.2%) and New South Wales (21.7%), while medicine placements were most common in Queensland (30.2%) and New South Wales (22.2%). Around two thirds (66.5%) of placements were in locations categorised as rural (MM3-5). Most students (81.3%) had to relocate to attend placement, with over half (57.5%) travelling 200 kilometres or more to reach their rural or remote location. Travel to placement sites by private car (66.2%) or plane (16.0%) were the most common transport modes used.

Who scheduled rural and remote placements during the ongoing COVID-19 pandemic?

Most students indicated that their placement was allocated by their university (60.6%), or because they asked their university to allocate them a rural or remote placement (44.0%) (Figure 1). However, these proportions varied depending on discipline. For allied health students, an almost equal proportion requested their rural or remote placement as were allocated by their university. Medical students had proportionately more students requesting a rural or remote placement than being allocated one. However, for nursing students, over twice as many placements were allocated by their university without it being requested by the student (Figure 1). Many interviewees described how they provided preferences for placements, but ultimately, allocation decisions were made by their university placement teams. Some interviewees described that they felt it had been necessary to take whatever placement was on offer given the difficulty securing placement opportunities during the pandemic.

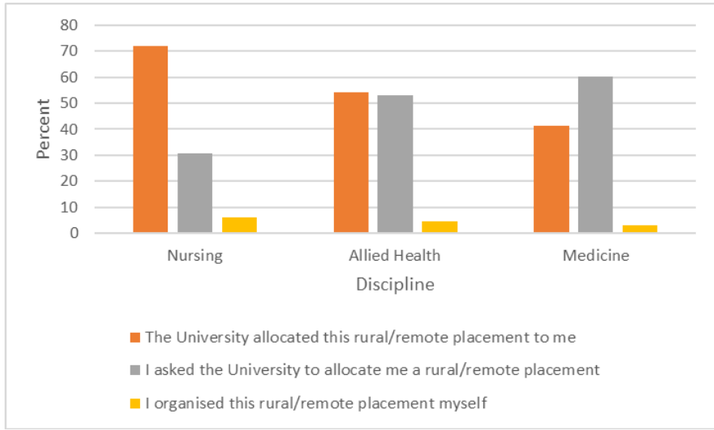


Figure 1. Reasons for rural or remote placement allocation (n=520)

Of those who indicated they were allocated a rural or remote placement by their university, 76.2% indicated that even though it was not their choice, they were happy with the allocation. However, 30.5% indicated that if given the choice, they would not have chosen the allocated placement.

For the students who asked their university to allocate them a rural or remote placement, the three most common reasons included that they either wanted to undertake a rural placement during their course (91.3%), wanted to work in a non-metropolitan area after they graduate (65.1%) or felt that rural and remote placements offered more learning opportunities (64.2%). Access to subsidised student accommodation was also cited as a reason by just under half (43.2%) of students, while just under a quarter indicated financial support (23.6%) and the ability to take time off work (21.8%) were motivating factors. These reasons were consistent with those of interviewees, with others adding that they requested a rural placement because they wanted experience working with Aboriginal and Torres Strait Islander peoples.

Only 5% of rural and remote placements were organised by students themselves. Most common reasons for self-organisation included a desire to undertake a rural or remote placement during their course (80.8%), future rural practise intention (65.4%) and their belief that non-metropolitan placements offered more learning opportunities (61.5%).

Did rural and remote placements go ahead?

Of the 520 student respondents who were scheduled to undertake a rural or remote placement some time since 1 January 2021, 97.9% indicated that they were able to undertake their placement in some form, while the remaining 2.1% of students had their placements either cancelled or changed to a metropolitan placement. Of those who were able to undertake their placement in some form, most (84.5%) indicated they were able to complete their placement as planned. Among the students who indicated their placement did not go ahead as planned, the most common changes included being allocated a different rural or remote placement and location

than that originally planned (4.2%) or failing to complete their placement (2.1%). Of note, 2.5% of students shared 'other' circumstances, which mainly related to placements that went ahead after being rescheduled due to COVID-19 illness, or were disrupted due to being a close contact or becoming unwell on placement.

Interviewees shared further insights into reasons for placement changes and cancellations, which included: sudden lockdowns which saw students unable to travel; sudden COVID-19 outbreaks in either the placement location or where the student was travelling from; placement sites no longer able to accommodate students; inadequate office space which would allow for a student to be accommodated with appropriate social distancing; students being identified as close contacts or becoming ill prior to placement; and supervisors unavailable due to illness or staffing changes. Some interviewees highlighted that it was sheer luck that they were able to undertake their placement as planned, having avoided sudden lockdowns by mere days. Some students described how placement confirmations were last minute in nature, giving them little time to organise and prepare to attend.

> *Getting over there was a bit of a drama. We were waiting on the legal department at the [university] to clear us all and get all that sort of stuff, so our flights weren't booked until about 40 hours before we were supposed to fly out, so it was very stressful. But apart from that, everything went forward as was expected. (Interviewee #24, pharmacy)*

Case Study One: Sudden Unexpected Placement Changes

Maggie, a final year student studying a Bachelor of Occupational Therapy, talked about the sudden changes to her rural placement. Maggie had sought a rural experience because of the learning opportunities offered and ability to experience the rural lifestyle. After managing to switch placements with another student so she could go to a rural location, she packed and drove three and a half hours to her placement site on the weekend, ready to begin on Monday. On the way, Maggie learnt that the metropolitan city she had just left had entered a sudden lockdown due to a COVID-19 outbreak. Feeling unsure of what to do as she was enroute, Maggie called university personnel who advised her that *'we're not really sure what to do, [but] we think the best thing is just to keep going to the rural town.'*

Once Maggie arrived at the rural location, the accommodation facility told her *'you have to leave like right now, you can't be here'*. Given that she had just driven for three and a half hours, and it would soon be dark, the accommodation facility ended up letting her stay one night before having to leave the following day. Maggie described the upsetting nature of this decision *'after driving three and a half hours being really excited, to drive home ... and then we were really like on the edge if we were even able to go back. So, there was a week or two that I was at home just waiting around.'*

Fortunately, Maggie did get the opportunity to return to the rural town two weeks later and completed her placement as planned thanks to her clinical educator being *'happy to have us still for that ten weeks'*. While Maggie ultimately had a positive placement experience, she felt as though being sent home was something that could have been avoided. Maggie described that *'if we had done testing ... or spent like even a week maybe isolating there or done the PCR tests', it felt like a 'doable risk, rather than having to drive all the way home, unpack the car and then only two weeks later pack it up again'*. Maggie was especially disappointed in the lack of alternatives considered and *'would have appreciated maybe a little bit more consideration around the effort it took for us to go out there.'*

Were aspects of placements impacted by the ongoing COVID-19 pandemic?

For the students who were able to go on their placement in some form, the most common changes reported were to placement tasks (46.8%) and experience of the local community (40.5%) (Table 1). The least impact was on rural or remote location, where 85.1% of students indicated no change as a result of the pandemic. Connection with other students recorded the highest proportion of students indicating major changes (14.7%).

Reported impacts to aspects of placements were different depending on discipline, age, rural background and timing of placement. When compared to nursing students, allied health students were less likely to report impacts to supervision, connection with other students, accommodation or to the rural or remote location ($p<0.05$). Older students were more likely to report impacts to placement setting and rural or remote location than younger students ($p<0.05$). Students with a rural background were more likely to report impacts to placement tasks, supervision, connection with other students and placement setting than those with a metropolitan background ($p<0.05$). Finally, students who undertook their placement in 2021 were more likely to agree that travel around the region was impacted than those who completed their placement in 2022 ($p<0.05$).

Table 1. Change to aspects of rural/remote placements (n=509)

Was the following changed as a result of the ongoing COVID-19 pandemic?	No change (%)	Minor change (%)	Major change (%)
Placement tasks	53.2	36.5	10.2
Experience of the local community	59.5	27.1	13.4
Connection with other students	62.3	23.0	14.7
Travel around the region	65.0	22.0	13.0
Supervision	69.4	24.8	5.9
Placement setting	69.9	19.8	10.2
Accommodation	76.2	14.7	9.0
Rural or remote location	85.1	9.0	5.9

An open-ended survey question asked students if they felt like they missed out on anything during their rural or remote placement due to the ongoing pandemic. One in five students (22.9%) indicated that they did not miss out on anything when on placement. However, others indicated that they missed out on certain clinical tasks/skills, were unable to attend certain areas of placement sites or provide outreach, lost placement hours due to quarantine, close contact rules, illness or placement changes, missed out on effective supervision, had fewer opportunities for social connection with others, lost opportunities to experience the local community, and had fewer patients to treat.

A second open-ended question then asked students to describe some of the positive learnings that they gained from completing a rural or remote placement during the ongoing pandemic. Just over one in ten students (11.3%) perceived that there were no added positives to undertaking their placement during the pandemic or did not feel that the pandemic had impacted their placement in any way. However, for others, a range of positive benefits were noted, the most frequent being: an understanding of infection control procedures and pandemic management, including PPE and vaccination (20.4%), the opportunity to engage in a wider range of clinical experiences and learning opportunities (15.4%), developing an understanding of rural healthcare including the challenges of staffing shortages (14.0%), experience of different cultures and communities (14.0%), acquiring clinical skills (10.4%), and the opportunity to develop a range of soft skills including flexibility, resilience, adaptability, improvisation and resourcefulness (10.0%). Opportunities to develop communication skills and telehealth were also discussed by just under 5% of respondents.

Interviewees' perceptions of placement impacts

Interviewees talked at length about their rural or remote placement experiences and impacts due to the ongoing pandemic, which were varied depending on the timing and location of placements, the level of community transmission and public health emergency measures in place. Some students expressed that their placement was largely unaffected by the ongoing pandemic.

> *At that time, it was still a fully closed border and so we were pretty much at a COVID zero at that time, so we were fairly unaffected. We had no mask wearing, no lockdowns, no restrictions. We were pretty much business as pre COVID. (#28, public health)*

However, other students described a raft of placement impacts, the most notable of which was compliance with a range of health and safety measures including wearing of masks and other PPE, social distancing, adherence to density limits, close contact quarantine and frequent rapid antigen tests (RATs) prior to, and during placements.

> *We had to walk in the front door and don our PPE, and we were RAT testing every morning as well, because we had a number of staff get COVID... (Interviewee #8, nursing)*

While students were happy to comply with the use of PPE, students did comment specifically on the difficulties of wearing masks when providing patient care, especially when attempting to develop rapport, communicate, and provide intervention.

> *It was really hard working with masks and working with children, especially those nonverbal children, those big barriers there with like non facial expressions and stuff like that. (Interviewee #21, occupational therapy)*

Some students reported restrictions on some placement activities, but this was noted to vary between placement sites and health settings, and also changed during placements in response to evolving public health measures. For example, some students were not permitted into aged care settings, emergency departments or designated COVID-19 wards. Some students also indicated that respiratory patients and COVID-19 patients were off limits.

> *I didn't get a chance to visit the aged care homes. I think that's a really big part of what GPs do when they do the home visit, and I wasn't really offered the opportunity to do that because the restrictions were quite tight. (Interviewee #4, medicine)*

Sometimes students noted that there were discrepancies between the policies of placement sites and universities, and between the location where the student had come from and to, which led to challenges knowing how to comply with rules.

> *The hospital rules and the university rules are not the same about COVID, and so you got kind of caught in the middle between the two when you would get exposed or different things, the testing and all sorts of things. Like we didn't know we were meant to be doing RATs twice a week until like three months in because no one told us. (Interviewee #20, medicine)*

During 2021, there were many areas of Australia who were effectively COVID-19 free because of stringent border restrictions, quarantine measures, and testing and tracing processes. With the eventual end of public health emergency declarations, and the removal of state and territory border restrictions and lockdowns, students described facing widespread community transmission of COVID-19, including into rural and remote locations. Resultantly, several students described being a close contact of a positive case or becoming unwell with COVID-19 or other illnesses before or during placement, which impacted their ability to complete placement hours. While some students were able to extend placements to make up for lost time, others had their placements shortened as a result.

> *Two weeks in, I got COVID which resulted in a week and a half off. The isolation at that period was only seven days, but the organisation I was with required a negative test before I could return and so I continued to test positive for a couple of days after the isolation period, which meant I think I had seven days off in total, spanning two weeks ... to get my hours requirements met, I ended up doing five days a week for the remainder of the time that I was there. (Interviewee #15, psychology)*

Knowing the highly contagious nature of COVID-19, many interviewees described their discomfort in having to share accommodation facilities with other students. Students described that most accommodation facilities required students to share bathrooms, kitchens and living areas making it challenging to self-isolate.

> *One of the roommates that I was staying with got COVID while I was there, and they had to leave and do a full COVID clean. And then we got a new roommate in and I went away for the weekend with one of the other roommates, we came back and they had tested RAT positive I think about six times and then they went and got a PCR from the hospital and it was negative. So for me, that was a bit worrying because they were still in the house, they hadn't moved out yet ... they got another PCR and it was negative as well and so they stayed in the house and we were a bit cautious of them and worried ... I would have been happy as well with my own little private section instead of having shared kitchen, shared toilets and bathrooms and things like that. (Interviewee #29, nursing)*

Given concerns about potential transmission in accommodation settings and placement sites, several students actively avoided social contact with other students on placements to minimise their risk of potential exposure.

> *We were grouped together and contact with other students was probably less because you didn't know where these other people were coming from or what they were doing, and you also didn't want to get sick because you need to finish your placement. So, it's not coming just from the other students, I felt like it was a bit of everyone was very suspicious. (Interviewee #11, nursing)*

Other students were impacted when their supervisors become ill with COVID-19 or were a close contact and needed to self-isolate. While some students indicated they could continue with remote supervision when the supervisor was self-isolating, others were left on placement without a supervisor for a period of time.

> *In our first week on that placement, our supervisor had COVID and so there was some disruption to, I guess, the orientation process ... there were some things that had already been organised for us, so like orientation to the IT systems and that kind of thing so we were kind of able to get started then. We may have started client facing work a little bit later than we may have otherwise, but it was more kind of, I guess the less formal things that maybe were missing in that first week, so all of the introductions and getting to know outside of the official training and orientation things, some of the things that the supervisor I guess handles on a little bit more of an interpersonal level that were put off a little bit. (Interviewee #15, psychology)*

Students recognised that illness, close contact rules and vaccine mandates had impacted placement sites through workforce shortages, which was felt to have lessened opportunities for quality supervision and demanded students take on greater workloads. This was seen as positive by some students who felt they had greater opportunity to undertake a broader range of tasks and develop autonomy. However, other students felt that placement sites exploited their workforce contribution at the expense of their learning.

I think there was probably at times less supervision. Like there was some times when either the intern was sick in ward rounds, or the registrar was sick, so there was probably a week where I played the role of the intern, which is pretty wild as a third year, but then, I guess, like you can see the team needs someone and you're already there anyway, so you say yes to doing it, like, alright, I'll give it a crack sort of thing. So, there were times when I was ringing other hospitals doing referrals and stuff, which probably people would say you should not have done that, but I suppose COVID necessitated it in many senses. I guess when people were off sick you often stepped up and maybe did things, I don't think anything like super bad, but maybe grey area things which in an ideal world you would not do, someone more senior would do. (Interviewee #20, medicine)

Contrasting the experience of increased workloads, other students noted that there continued to be less opportunities to acquire hands on skills with a wide variety of patients. This resulted from patient cancellations due to lockdown measures, illness or avoidance of attending health facilities, cancellations of surgeries and specialist visits, restrictions on students working with respiratory and COVID-19 patients, and social distancing measures (e.g., couldn't be in a room/theatre).

It was pretty quiet actually, because a lot of [clients] ... had been to [metro city], the clinic kind of said, 'oh, maybe stay away for a little bit', and this was a couple of weeks in ... I think it was more of kind of a trickle on effect if that makes sense. The clients weren't there, so I didn't get to see as many people, but then that meant that I didn't have as many programs to write, I didn't have the opportunity to have to manage my time like I would in a regular private practice, or in pre-COVID times. And then because there weren't as many people coming through, I didn't get to do as many initial testings or progress reports or anything, so I think I missed out on little bits of everything, but it was all because no one was there. (Interviewee #26, exercise physiology)

Some students also described how patients were reluctant to interact with students from metropolitan areas as they were perceived to be carriers of COVID-19.

It was impacted by COVID because people were scared of students, so they didn't want a student to do things. Or they were like, maybe you have COVID because you've come from another hospital or you're coming from a different area, and so often the patients would decline you doing something with them. (Interviewee #11, nursing)

Case Study: The Many Impacts of the Ongoing COVID-19 Pandemic

Lily is a final year speech pathology student studying at a metropolitan university. In 2022, she was allocated a 20-week placement in a rural town, located four and a half hours away. Lily was keen to undertake a rural placement *'to sort of get a wider variety of clients and just a different experience from what I'd get in a metro area.'* Lily did recall some last-minute stress before going on placement, having to suddenly have a COVID-19 booster shot because her university *'told us about it slightly last minute ... it was very much like you need to get this done or you won't be able to come and so I think I got it two days before I had to leave.'* Adding to Lily's stress, her placement required professionally fitted N95 masks which the university declined to pay for. Lily described, *'as a student with very little revenue at that point, I thought, I can't afford this.'*

Lily did end up paying for fitted masks and began her placement as planned. Lily was aware of community transmission of COVID-19 but *'felt more concerned about the clients that we were going to'* as she was working in nursing homes. After two weeks, policies changed and visits were no longer permitted in nursing homes due to safety concerns which Lily described as *'a shame because we didn't get as much experience as we could have.'*

Apart from being locked out of nursing homes, Lily's placement largely progressed without incident until the end of her first 10-week block when *'everybody kind of came down with COVID, or got sick, or was a close contact, except for me'.* In these circumstances, Lily found that she *'actually got to do more than I would have expected... because I just got to do things that other people weren't able to do.'* However, Lily did find this time challenging, as one of her supervisors contracted COVID-19 as she was trying to finish the first part of her placement. Lily described *'that was a little bit tricky, sort of getting in touch with her and getting her to send through reports and things because her whole family was unwell, and it was at the end of my adult placement so I really needed to get things finalised.'*

Lily was not able to escape from COVID-19 completely as *'one of my housemates got COVID and so I did have to isolate for a week.'* Lily described how the student accommodation was near each other meaning *'if anybody was a close contact or got COVID, it meant everybody in my street had to either RAT test or isolate.'* Lily felt that this accommodation setup *'was not great for COVID'* and described that she actively avoided socialising with other students once cases were on the rise. Lily also described feeling uncomfortable sharing accommodation with other students, some of whom tested positive to COVID-19, as the houses were not designed to encourage self-isolation. As she had the only room with an ensuite, *'whenever someone was a close contact or anything, they had to move into my space because they had their own bathroom.'* Lily also felt unsafe when students who were self-isolating left their room to get things they needed from other shared areas. Lily described that they were asked to *'wipe down surfaces and everything before they left but we didn't have a protocol for how to clean or anything like that.'*

Lily described that the week in isolation was somewhat of a *'waste of time',* given that *'I couldn't really do telehealth either because in the placement itself there wasn't anything set up for me.'* Fortunately, Lily finally completed her isolation and was able to extend her placement by a week to make up for lost time. While she had a positive experience and learnt lots, she did feel that she had to work hard to meet her competencies. For example, *'there was a point where I didn't have a lot of early intervention clients',* so Lily organised with another supervisor to see some children from a local Aboriginal Medical Centre. However, Lily noted that there was *'a bit of public anxiety though, we did have a lot of people not turn up to appointments because they were worried.'* This resulted in opportunities to use telehealth, with some clients not comfortable coming in for face-to-face sessions which Lily reflected that *'if COVID hadn't happened, that wouldn't have occurred.'*

Student perspectives of rural and remote placements during the ongoing COVID-19 pandemic

Most students, regardless of discipline, received an orientation at the commencement of their placement (86.1%), met the learning objectives of their placement (90.6%), and identified learning a lot of new clinical skills (83.1%) (Table 2). Although most of the students also felt their learning needs were well supported by their supervisors (78.0%), allied health students were more likely to agree with this statement than nursing students ($p<0.05$).

Around three quarters (76.8%) of students were able to develop cultural awareness on placement, with significantly more allied health students agreeing with this statement than nursing students ($p<0.05$) (Table 2). Similarly, although 71.3% of all students indicated they had opportunities to experience the local rural or remote community, allied health students were again more likely to agree, whereas older students were less likely to compared with younger students ($p<0.05$). Only two thirds (68.0%) of students indicated they had opportunities to interact with other health students on placement in the same location, with nursing students and students who were older again impacted to a greater degree than allied health and younger students respectively ($p<0.05$). Telehealth was not a focus of placement experiences for most students, with only 28.9% of students getting an opportunity to utilise telehealth technologies to deliver health services.

Around three quarters of students (73.1%) reported feeling well-prepared for placement, with allied health students more likely to agree with this statement than nursing students ($p<0.05$) (Table 2). Notably, students who undertook placements in 2021 were less likely to agree that they felt well-prepared for placement than those who completed placements in 2022 ($p<0.05$).

Even though only 59.3% of all students thought their placement was innovative, most students (85.7%) across all disciplines were satisfied with their placement experience and felt that their placement provided quality clinical training (79.2%) (Table 2). Of note, older students were less likely than younger students to report that their placement was innovative, or that they were satisfied with their placement ($p<0.05$). Similarly, allied health students were more likely to report their placement was innovative compared to nursing students ($p<0.05$).

For those students in the early years of their degree who were able to go on placement, around two thirds (67.8%) indicated they would like more rural or remote placement experiences based on their recent placement (Table 2). However, students who undertook their placements in 2021 were less likely to agree with this statement than those who completed placements in 2022 ($p<0.05$). Around four out of five (79.2%) students in the later years of their degree indicated that their recent rural or remote placement had equipped them for work as a new graduate. However, older students and students who completed placements in 2021 were less likely to agree with this statement than younger students and those who undertook placements in 2022 respectively ($p<0.05$), while allied health students were more likely to agree than nursing students ($p<0.05$).

Based on their placement experience, most (71.1%) students, regardless of discipline, could see themselves working in a rural or remote area after they graduated; however, rural origin students were more likely to agree that they could see themselves working rurally after graduation than metropolitan students ($p<0.05$) (Table 2). Conversely, students who undertook their placement in 2021 were less likely to agree that they could see themselves working rurally based on their recent placement experience than those who completed their placement in 2022 ($p<0.05$).

Table 2. Student perspectives of recent rural/remote placement experiences (n=509)

	Disagree (%)	Neutral(%)	Agree(%)
Placement Experience			
I met the learning objectives of my rural/ remote placement	4.9	4.5	90.6
I received an orientation at the commencement of my rural/remote placement	8.1	5.7	84.2
I learned a lot of new clinical skills during my rural/remote placement	7.7	9.2	83.1
During my rural/remote placement I felt my learning needs were well supported by my supervisor(s)	8.4	13.6	78.0
I had opportunities to develop my cultural awareness on rural/remote placement	7.5	15.7	76.8
I felt well-prepared to undertake my rural/ remote placement	9.2	17.7	73.1
I had opportunities to experience the local rural/remote community during placement	14.7	13.9	71.3
I had opportunities to connect with other health students in the same location during placement	17.1	14.9	68.0
I thought my rural/remote placement was innovative	15.1	25.5	59.3
I was able to learn how to deliver services by telehealth during my rural/remote placement	54.8	16.3	28.9
Placement Satisfaction			
As a result of the pandemic, my rural/ remote placement was not busy	55.2	20.6	24.2
I felt my rural/remote placement provided quality clinical training	8.4	12.4	79.2
Overall, I was satisfied with my rural/remote placement	6.3	8.1	85.7
Based on my recent placement experience, I want to undertake more rural/remote placements during my health course (n=90)	12.2	20.0	67.8
Graduate Preparedness			
My rural/remote placement has equipped me for work as a new graduate (n=419)	9.6	11.2	79.2
Based on my recent placement experience, I can see myself working in a rural/remote location after I graduate as a health professional	12.4	16.3	71.1

Interviewees perspectives of rural or remote placement experiences

Despite placement changes and ongoing impacts, many interviewees described the positive nature of their rural or remote placement. This was contributed to by: the absence of COVID-19 in the community, accommodation that facilitated self-isolation, effective supervision, welcoming staff, social connection with people on placement (staff/students), travel around the region, engagement in the local community, opportunities for learning and growth, and measures that enabled feelings of safety and wellbeing.

> *That was my first clinical exposure and in a rural area as well and it was a really good experience. There was not any COVID down in [rural town] really at that stage, so it was like a breath of fresh air compared to [metro city]. (Interviewee #23, medicine)*

Students also identified that undertaking rural or remote placements in the context of the pandemic provided added benefits including the development of skills such as: autonomy, time management, communication, technology and telehealth, infection control and respiratory diseases management. Students also felt valued by contributing to the health workforce during a time of need.

> *When you're a relatively senior student and you're actually contributing things and forming a part of the healthcare service and offering and fulfilling a role which the health service is very happy to have you do a lot of the time ... (Interviewee #19, medicine)*

However, some interviewees did feel their rural or remote placement was a negative experience which related to: limited opportunities to learn and grow as a clinician *(Just general impressions, it was very boring... (Interviewee #25, paramedicine))*; poor supervision and support, and unwelcoming/unfriendly/burnt out staff *(they're pretty burnt out down there, it was not a pleasant placement and I wouldn't recommend it to anyone... (Interviewee #18, nursing))*; and lack of opportunity to experience rural work and life firsthand (e.g. online placement).

> *I think just being there, being in a rural community was what I was wanting. Like the work is interesting, but that's going to be the same no matter what placement I'm on or where it is. But the reason why I wanted to go rural was to ... experience going rural, it's something that I've always had in the back of my mind. I really didn't get that. (Interviewee #27, nutrition and dietetics)*

Were students worried about their health or wellbeing during rural and remote placements?

Around 40% of students were concerned about either contracting COVID-19 or transmitting it to the rural community by attending placement (Table 3). Older students were less likely than younger students to express concern about contracting COVID-19 on placement ($p<0.05$). Similarly, students who undertook placements in 2021 were less likely to be worried about catching COVID-19 on placement than those who completed placements in 2022 ($p<0.05$).

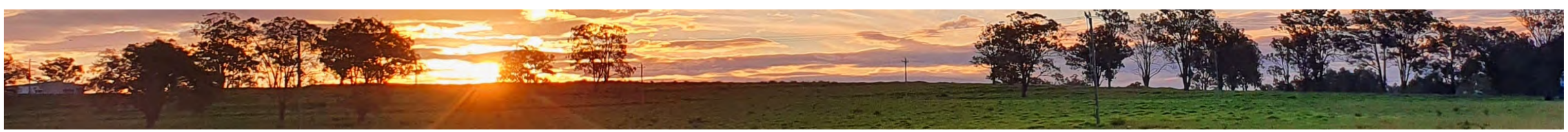
Just over two thirds (69.4%) of students indicated they were happy to share accommodation whilst on placement with other health students, however, significant differences were observed depending on age, rural background and discipline, with older students less willing to share than younger students, rural origin students less willing to share than metropolitan background students, and allied health students more willing to share than nursing students ($p<0.05$) (Table 3). Most students (89.2%), regardless of discipline, were happy to be vaccinated to be able to attend their rural or remote placement.

Overall, a third (33.8%) of all students reported feeling stressed by undertaking a rural or remote placement during the pandemic (Table 3). Notably, rates of reported stress were lowest among medical students (22.2%), and highest among nursing students (38.6%). Students undertaking placements in 2021 were more likely to agree that placements were stressful than those who completed placements in 2022 ($p<0.05$). Despite the levels of reported stress, only one in five (18.8%) students reported a decline in wellbeing due to placement changes, with a further quarter of students reporting feeling 'neutral' about wellbeing decline. Notably, allied health students were less likely than nursing students to report a decline in wellbeing ($p<0.05$).

Only 42.1% of students indicated they felt supported by their university in relation to changes made to their placements during the pandemic, with a quarter feeling unsupported (Table 3). Allied health students were more likely than nursing students to have indicated they felt supported by their university in relation to placement changes ($p<0.05$). Only 10% of students across all disciplines indicated they would prefer not to be allocated rural or remote placements during a pandemic.

Table 3. Students' health and wellbeing concerns regarding rural/remote placements (n=509)

	Disagree (%)	Neutral (%)	Agree (%)
COVID-19			
I was happy to share accommodation with other students during placement/s	12.6	18.1	69.4
I was happy to be vaccinated to be able to go on placement/s	4.0	6.7	89.2
I was concerned about contracting COVID-19 during my rural/remote placement	42.0	16.3	41.7
I was concerned about transmitting COVID-19 to a rural/remote location by travelling to placement	43.0	16.1	40.9
Wellbeing			
I found undertaking rural/remote placement/s during the pandemic stressful	44.2	22.0	33.8
Changes to my rural/remote placement/s caused a decline in my wellbeing	55.8	25.4	18.8
I would prefer not to be allocated rural/remote placements during the pandemic	68.1	21.9	10.0
I have felt well supported by the University regarding changes made to my rural/remote placement/s during the pandemic	25.8	32.1	42.1



Interviewee perspectives of health and wellbeing on rural or remote placement

All interviewees confirmed that vaccination was a requirement to attend placement, and most were happy to comply with mandates. Many students described how they perceived it was a necessity given their chosen field of study and that as future health professionals they had a moral obligation to lead by example.

> *With paramedicine, you have to be vaccinated against the flu, you have to be vaccinated against a range of different things, so the concept of getting vaccinated against COVID, it just seemed like another thing on the list ... you work in the industry, you got to kind of play the game. (Interviewee #7, paramedicine)*

However, some students did describe their hesitancy in becoming vaccinated as the risks associated with vaccination were largely unknown. Students also described the stress involved in getting vaccinated prior to placement, with vaccines only having just been rolled out and needing to complete their full course prior to placement commencing. Some students were also stressed as they were unsure as to how they may react given they had had allergic reactions to other prior vaccinations.

> *I do remember being very stressed about trying to get the COVID vaccination before I went on my placement in [month] ... I think I felt a little bit uncomfortable because I have a nut allergy and so there was all this talk about having an anaphylactic reaction and stuff like that, so I had to find a hospital to go to and I do remember feeling quite scared. I don't know if it was necessarily of the vaccination or just the fact that like I could have a reaction from this. And I remember, I think no one could come with me either, I had to go on my own, so I remember being like, this is not fun. But I think in hindsight, there wasn't a choice, like you either got vaccinated and you could go on placement, or you weren't vaccinated, and you couldn't go on placement. (Interviewee #2, occupational therapy)*

One student also described having a severe adverse event following vaccination which was disregarded by their university. This student felt that there should have been individual consideration for students when applying the vaccination mandates, especially in circumstances where students have suffered from serious adverse events post vaccination.

> *I obviously complied and I ended up getting quite severe side effects from the vaccines. For six months my heart rate was constantly above 100 and I was always feeling short of breath, and it was literally like the day after my second vaccine that I started experiencing that ... it didn't impact my ability to study, it annoyed me more than anything because I was worried about my long-term health. And then what was particularly frustrating was when it was time for a third shot that was mandated, I had said to them, I'm not very comfortable with this because I didn't have a good reaction and they just sort of said to me, that's too bad, there isn't anything you can do about it. And then in the end, the only way that I was not going to need a third shot was if I got COVID, and fortunately, or unfortunately enough, I did get COVID so it meant that I wasn't going to need a booster ... so just shut up and get the vaccine was most certainly the message that I was receiving and students around me felt the same, although most of them were pretty comfortable with the process. (Interviewee #16, medicine)*

Some students described feeling coerced to comply with mandates to continue studying, as interviewee #11, a nursing student described: *'I had no choice ... I certainly wasn't going to quit two years of hard work in university ...'*. Others acknowledged that with hindsight, they would have done more research before becoming vaccinated rather than relying on the university's decision.

> *My views have kind of changed now a little bit, I think, but at the time I just went along with it. I was like, we just need to get it done, it's fine, it's just another vaccination. But looking back now and kind of looking at it from a different view and understanding a bit more about the type of vaccination, it's kind of like, hmmm ... I think I still would have [been vaccinated], especially my views at the time on it and my perceptions at the time ... if it wasn't mandated, and even now, I probably could still have an interest in researching it a bit more and getting a bit more information on it. I would have done that first and kind of made a more informed decision moving forward from that. (Interviewee #29, nursing)*

As a result of being vaccinated, their age and often previous infection with COVID-19, many students felt safe on placement. This was supported by a range of health and safety measures whilst on placement which included: wearing masks and goggles, other PPE, infection control procedures, testing using RATs, and limited exposure to COVID-19 positive patients or those with respiratory symptoms.

> *So, I was fortunate or unfortunate, depending on how you put it, to have had COVID a couple of weeks prior to placement, so I had a very big false sense of confidence at the time. So, I didn't really have too many concerns. I, of course, adhered to all the mask wearing requirements and the sanitizing and everything, but in terms of my own health, having recently recovered from COVID, I did feel like I was somewhat invincible. (Interviewee #17, pharmacy)*

Several students also commented on the relatively limited community transmission in rural areas compared to metropolitan cities they were travelling from. In that respect, students described less concern about contracting COVID-19, but rather transmitting it to the rural community.

> *I remember talking about it with students back in [metro city], and they were going to the [metro hospital]. They were really worried about catching COVID. I think there was only 400 cases in [state] ... so no, I actually felt quite safe comparatively. (Interviewee #18, nursing)*

> *I felt probably safer being out there and not in [metropolitan city] while COVID was happening. I guess I think the only thing would be like that anxiety around being the person that brought COVID to [rural town]. (Interviewee #2, occupational therapy)*

However, following the cessation of all border closures and the inevitable widespread community transmission, students articulated the very real risk of catching COVID-19 whilst on placement. Student concerns were generally not related to their health, but the potential impact of illness on their ability to complete their placement, as described by interviewee #28, a public health student, *'I didn't really worry about my health so much as I worried about how it would affect the placement and would I be able to complete it in person.'* This fear of contracting COVID-19 was amplified for students who were working directly with COVID-19 positive patients, unvaccinated patients or in situations where safety measures were compromised (e.g., mental health patients who would not comply with mask requirements).

> *I think, luckily enough, compared to the [rural town] placement, people were still at their peak caution levels, so everyone wore their masks, people social distanced, and I was obviously very cautious in terms of doing the same to the patients and making sure I didn't get anyone sick, but also making sure no one gets me sick, because then I'd end up kind of sitting in accommodation in a rural town not being able to participate in the placement. So, I was a lot more cautious and even when I took my mask off to eat, I would go sit somewhere outside that's not like in a busy staffroom in the back. So, in that regards I was definitely a lot more cautious compared to later on. (Interviewee #12, nursing)*

How do students feel about graduating and future practice as a health professional?

While most students (91.2%), regardless of year level, indicated that they had been able to continue studying their health course throughout the pandemic, 28.7% indicated they were concerned about graduating on time (Table 4). Of note, allied health students were more likely to agree that they were able to continue studying and were less concerned about graduating on time than nursing students ($p<0.05$). Older students were also more likely to be concerned about graduating on time than younger students ($p<0.05$), as were students who completed placements in 2021 compared to 2022 ($p<0.05$). A quarter (25.0%) of all students, regardless of discipline or year of study, indicated that they felt the COVID-19 pandemic had lessened opportunities for them to undertake rural or remote placements.

Table 4. Students' perspectives of course progression and clinical learning opportunities during the pandemic (n=520)

	Disagree (%)	Neutral (%)	Agree (%)
Course progression and graduation			
I have been able to continue studying my health course during the pandemic	4.2	4.6	91.2
I have concerns about graduating on time due to the pandemic	53.5	17.9	28.7
Clinical learning opportunities			
The pandemic has lessened my opportunities for rural/remote placements	52.3	22.7	25.0

Among students in the early years of their degree, only a quarter (24.5%) indicated that the pandemic had inspired them to study their health course (Table 5). Just under half (46.8%) reported that the pandemic had impacted on their progression through their course, with allied health students less likely to agree with this statement than nursing students ($p<0.05$). In terms of clinical learning, just under half (46.8%) of early years students indicated that they would like more placement time despite the pandemic, with a similar proportion (41.5%) indicating they would like more rural or remote placement experiences. Students in the early years of their degree who undertook placements in 2021 were more likely to have agreed that they would like additional placement time despite the pandemic than those who completed placements in 2022 ($p<0.05$).

Table 5. Early years students' perceptions of course progression, graduation and clinical learning opportunities (n=94)

	Disagree(%)	Neutral(%)	Agree(%)
Course progression and graduation			
The pandemic inspired me to study my health course	62.8	12.8	24.5
I am concerned that the pandemic is impacting my progression through my health course	39.4	13.8	46.8
Clinical learning opportunities			
I would like more placement time during my course despite the pandemic	23.4	29.8	46.8
I would like more rural/remote placements during my course despite the pandemic	23.4	35.1	41.5

Students in the later years of their degree reflected on the adequacy of their clinical training, their clinical preparedness and readiness for entry into the workforce. Only 28.2% of later years students felt that they hadn't had enough placement time during their course, with allied health students less likely to agree than nursing students with this statement ($p<0.05$) (Table 6). However, over half (55.4%) of later years students indicated that they would have liked more placement time during their course. This was more so among allied health students compared to nursing students ($p<0.05$), and less so for older students and those with a rural background compared to younger students and metropolitan background students respectively ($p<0.05$). A lesser proportion (44.4%) of students indicated that they would have liked more rural or remote placement time during their course, which was again more common among allied health compared to nursing students ($p<0.05$).

In terms of graduate preparedness, just over two thirds (69.7%) of later years students indicated they felt ready to be a health professional, and an almost equal proportion (71.8%) felt clinically prepared to work in a rural or remote location after they graduate (Table 6). However, one in five (21.6%) later years students felt that they had not developed enough clinical skills during placements to competently practise post-qualifying. Consistent with other findings, allied health students were less likely to agree that they had not developed sufficient clinical skills and were more likely to agree that they felt ready to be a health professional and work in a rural or remote location after graduating than nursing students ($p<0.05$).

Table 6. Later years students' perceptions of course progression, graduation and clinical learning opportunities (n=426)

	Disagree (%)	Neutral (%)	Agree (%)
Clinical learning opportunities			
I do not feel that I have had enough placement experience during my course due to the pandemic	54.2	17.6	28.2
I would have liked more placement time during my course	24.6	20.0	55.4
I would have liked more rural/remote placements during my course	23.5	32.2	44.4
Graduate preparedness			
I do not feel that I have developed enough clinical skills on placements to competently practise when I graduate	58.9	19.5	21.6
I feel that I will be ready to be a health practitioner when the time comes to graduate	9.6	20.7	69.7
I feel clinically prepared to work in a rural/remote location after I graduate	9.2	19.0	71.8

Interviewee perspectives of graduate preparedness

Interviews confirmed that some students felt prepared to graduate whilst others did not. Those who felt prepared described having acquired a strong theoretical foundation and sufficient opportunities to acquire clinical skills which they felt would enable safe and competent practice post-qualifying.

> *I do feel ready, because when I was on my last, probably my last few placements, so my rural one as well, by the last few weeks I was really running things as my own ... so I feel ready in that aspect. (#21, occupational therapy)*

Some students outlined the extra efforts they went to on placements to ensure gaps in their knowledge and skills were addressed to ensure they were work ready.

> *At the very end of the placement, I asked my supervisor if I could do another assessment and report [for dysphagia] just to consolidate everything ... and so we did an evening visit just quickly in and out. We made sure to go for a resident that wasn't particularly vulnerable and that helped consolidate my skills. (#1, speech pathology)*

Some students also described how supervisors and other staff on placements were cognisant of their impacted training due to the pandemic and worked harder to help them achieve graduate competencies.

> *It was a lot of work to play catch up and I think importantly, everyone that I've been working with this year has recognized that it was a catch up. I think everyone around the hospital has realized that we were so badly impacted the last couple of years that it's actually important that we do catch up because we can't fall behind. (#4, medicine)*

Other students felt unprepared to graduate. For some, this related to their theoretical knowledge base, which they felt was weak because of the switch from face-to-face to online learning. While some students thrived in an online environment, others did not, and felt the lack of face-to-face contact with lecturers and other students removed the opportunity to consolidate their learning given the lack of opportunity for robust discussion.

> *You learnt more by being in the group and bouncing ideas off each other, not so constricted by like a Zoom group kind of discussion where people feel as if they can't really, may be reluctant to ask, but they do feel kind of removed ... it's like any kind of social media, you're connected, but you're not really connected ... it's having that kind of brainstorming and being able to see things practically and to actually share information, to share content. That's one thing which I have actually lost out ... with the whole COVID pandemic, that's what really has been impacted and it impacts your confidence. (#34, nursing)*

Students also described the loss of opportunities to acquire and consolidate clinical skills necessary for practice. This resulted from: reduced opportunities to attend practical tutorials and training at university in person due to pandemic restrictions; and impacted clinical placements which saw both a reduction in the number and complexity of clinical presentations, reduced opportunities for students to provide hands on, face-to-face care, and access to a range of different clinical settings.

> *I'd estimate probably a 20,30% reduction in face-to-face handling practice over the course of all of my placements compared to what would have been in 2019. I think the bigger hindrance for everyone else would have been the fact that we probably lost 10 hours a week over semester two, 2020 where we would have been practicing hands on skills because that had to be compressed into one day and the cohorts had to be split to meet all the [requirements]. (Interviewee #6, physiotherapy)*

Some students described independently seeking additional placement experience despite having graduated to upskill before commencing employment.

> *To practice safely, definitely. To excel, I'm not sure ... In a couple of hours I'm going to shadow a sports scientist in a clinic a couple of suburbs over from me, just because I feel like ... I've missed so much of the practical side of things, that it's more that I don't want this job to be like, 'oh, who did we hire? Like can't [they] do anything?' So, to practice safely, yes. I've got the basics down pat, but I'm trying to be a step above. I don't want to just pass. I don't want to be just okay. (#26, exercise physiology)*

Whilst there were students who felt unprepared, most students in the later years of training recognised that they were the 'COVID generation' and had therefore acquired unique additional skills because of training during a pandemic that would serve them well as graduates. Students firstly acknowledged that the pandemic challenges had helped them develop a range of soft skills including flexibility, adaptability and resilience. Students also felt that the constant changes and challenges associated with the pandemic had facilitated their problem-solving skills and had allowed them to become more self-directed and autonomous.

> *I think it's helped develop resilience in a sense, you know, unexpected things happen. It happens in every placement, but COVID is a different thing, it really impacts everything. And you know, not having a supervisor available or not having your peers available, it's a very unique situation and so you need to problem solve and think out of the box and just apply your skills in different areas than you would normally do. So, yes, COVID has impacted people, but it's also allowed us to better adapt to unexpected changes. (#1, speech pathology)*

Students also recognised other important learnings, especially communication, which many described as a strength of the students soon to graduate. Students acknowledged that constant mask wearing, social distancing rules and telehealth helped them hone and refine their verbal and nonverbal communication skills, including delivering instructions and building rapport. Students also felt more skilled in the use of technology to augment clinical practice, including web conferencing for meetings and therapeutic delivery.

> *I think definitely telehealth, and even more so communication. It's a whole different ballgame communicating with someone in person to communicating online and showing that empathy and listening and all that kind of stuff. So, I think my cohort had that added bonus of really getting to really develop those skills, even more so than any other cohort before, which is amazing ... I'm really glad and happy that COVID has resulted in me having all those extra skills and the confidence in knowing that I can do it as well. (#21, occupational therapy)*

Finally, students also acknowledged additional skills in their knowledge and application of infection control procedures and the use of PPE to address both COVID-19 and other infectious diseases.

> *You're probably a lot more conscious of PPE, I guess, as well, like gowning and gloving. Before COVID, you may never have done that, or like done it once in a blue moon, whilst now it's second nature. (Interviewee #5, medicine)*

Case Study: How Impacted Clinical Placements Affected Graduate Preparedness

Patrick, a final year student studying Master of Social Work, described the cumulative effect of impacted placement experiences on his clinical learning and graduate preparedness. Patrick undertook two rural placements, one in 2021 and one in 2022; however, both placements were impacted substantially by the ongoing COVID-19 pandemic. During his first placement in 2021, Patrick was advised that he was unable to access the placement site for two weeks due to social distancing measures that meant *'they could only have 25% of their workplace within the office at any one time.'* After being optimistic that *'it's only for a week or two',* Patrick eventually remained at home for 12 weeks, converting his placement to part time in the end *'because he wasn't getting anything out of the placement.'*

Patrick described his placement as a *'real struggle because so many of the tasks that were devised were reliant on being in the office ... or necessitated client contact, which I didn't have any opportunity for.'* Patrick didn't have an opportunity to access the workplaces' technological infrastructure at home and was therefore unable to access client files. During his time at home, he described that he *'had a lacklustre experience with supervision and support.'*

Although Patrick finally entered the placement site physically on day 55 of his 70-day placement, this left him with two weeks in which to complete placement tasks. Unfortunately, Patrick then faced additional hurdles of clients contracting COVID-19, resulting in frequent cancellations. Staff at his placement site also contracted COVID-19, which further limited both support available, and client access, as policies required a staff member to accompany Patrick on client visits. Overall, Patrick was disappointed with his placement, as *'there was no opportunity to actually practice any sort of relative skills with clients... For me, it was no different to online learning, which is not a placement, that's just online learning.'*

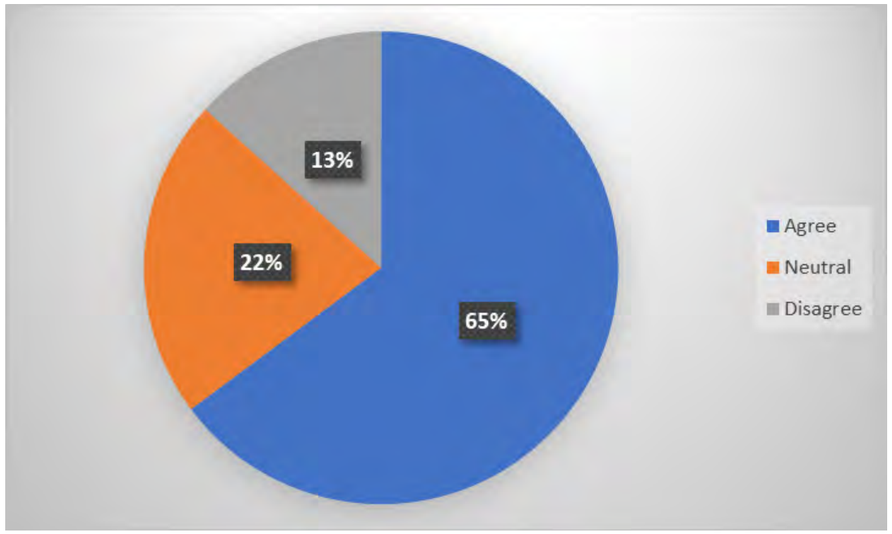
In 2022, Patrick then undertook a second rural placement, which was also converted to an online placement. Again, Patrick described that the supervision on placement *'was not great'.* Being a pilot project, the placement was novel and experienced significant challenges with implementation. This was largely due to COVID-19, given clients were unable to attend programs that were to be delivered online because *'one of them, or all of them, would have COVID-19 every couple of weeks, so they just never happened'.* Although the placement was expected to be three months long, the placement ceased after Patrick completed six to seven weeks. He is now having to redo his final placement before being able to graduate.

As a collective result of his impacted placements, Patrick decided to seek *'work-based training to actually practice the skills that I've been studying for the last few years.'* Despite not yet graduating, Patrick successfully gained employment and was honest with his employer about needing to upskill. Patrick described feeling *'under qualified, and it's not just imposter syndrome. I know that I haven't actually had the opportunity to practice so many of the skills and so many of the theories that I've been presented with and that I've been learning about.'* Patrick described that he has now been in his new job for two weeks and feels like he's experienced *'more progress in the last two weeks than I did in the four months I was on placement last year and in the three months that I was on placement this year.'*

Do students want to work rurally after they graduate?

Overall, 64.8% of students surveyed indicated future rural practice intention (Figure 2). As expected, rural origin students were more likely to indicate they would like to work rurally after they graduate compared to metropolitan students ($p<0.05$). However, students who undertook placements in 2021 were less likely to agree with this statement than those who completed placements in 2022 ($p<0.05$).

Figure 2. Rural practice intention among survey respondents (n=520)



Interviewee perspectives on rural intention

Many interviewees confirmed a desire to work rurally after they graduate. Some, especially those of rural origin, had always wanted to pursue rural employment. However, for others, their placement experience had shown them the positive benefits of rural work and life and spurred their interest in rural employment post-qualifying.

> *It's not that I had a disinterest in going rural before my prac, but I think it's kind of confirmed that ... I do enjoy it, it interests me, and that I could do it in the future. (Interviewee #28, public health)*

While some students did feel prepared for rural practice post-qualifying, interviews highlighted more commonly that students did not feel ready for practice outside of a metropolitan setting. Reflecting on their placements, students described feeling that their skill level, knowledge and level of autonomy were insufficient for practice in rural and remote environments given the increased scope of practice and independence with which you are expected to work. Students raised several concerns especially about lack of rural health workforce which they experienced first-hand on placements. They perceived that scant workforce resulted in reduced opportunities for working in a team environment, and less support and supervision from other health professionals. Some students also felt that rural and remote health settings were poorly resourced and therefore provided fewer learning opportunities, which led them to believe that they needed to delay rural employment until after they had gained some experience in a metropolitan setting.

> *I think maybe if I worked alongside another pharmacist for a while, I might be able to somewhat take over, but if I was thrown up there right now, I don't know if I'd be very happy with that, for myself and the patients...I think eventually I would be interested to do so. I definitely would want to upskill myself first before committing to something like that, but it is an interest of mine at some point in time. (#17, pharmacy)*

It's probably shown me a few of the limitations potentially, particularly coming to a rural area as a junior, because I think there can be limitations on the education, more there can be limitations in consistency of senior clinicians giving you education and professional support and training pathways. So, I think after this year I would like to go back to an urban centre for a few years, with the intention of going back to a rural area role. (#19, medicine)

However, students did recognise the positives that rural and remote practice could provide, both immediately post-graduation and, in the future, including opportunities for autonomy, generalism and career advancement. Several interviewees also recognised the depth of rural and remote workforce shortages and felt that this provided more opportunities for them to become employed and to learn within rural settings.

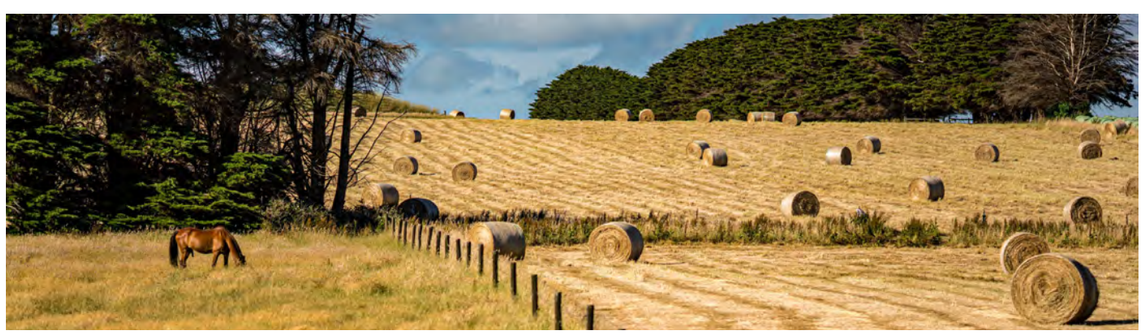
I feel like because rural places have such job shortages, they want as many hands-on deck as possible. So, I feel like if you've got the confidence, and you're showing them that you can do things, you'll actually hopefully be allowed to be able to practice more. (#22, physiotherapy)

Some students described how the public health emergency had increased their desire to work rurally post-qualifying. This was especially related to experience of metropolitan lockdowns, with students recognising lesser impacts of public health emergency policies in more regional and rural communities. Students also felt that metropolitan hospitals had borne an increased workload during the pandemic, which interviewees felt was not a positive working environment for them.

I would stay ten feet away from any city possible. I have seen a shift in myself about being uncomfortable in cities, in really crowded places. Whether that's just a personal thing or just a professional thing it's hard to tell, but I think the pandemic has really impacted on what I appreciate about work and personal life. I have come to appreciate what I need to stay happy and healthy in situations like the lock down, which was a roller coaster for everyone. And I guess, everyone else has had that sort of situation, so it's interesting to see what everyone else's perspective on rural health is now after the pandemic, because I know a lot of people have decided to move rurally and work in places that they never saw themselves working before. So, it's changed the health landscape for a long, long time. I'm just so excited to be in [large rural town] next year to be able to keep working in a smaller hospital and to have those experiences so, yeah. (#4, medicine)

However, other students reflected that as the impact of the pandemic had lessened, they were less inclined to leave the city. Students reflected that they were more influenced by their core beliefs of whether they wanted to experience rural practise rather than being concerned about the pandemic.

I suppose it's easy to say with retrospect now, and it's like COVID's no longer this unknown thing that we're doing hardcore lock downs for because we're not sure what's going to happen. Maybe if you asked me that question in like 2020, like I would respond differently, but no, I don't think it informs, like it doesn't change anything. (#23, medicine)



What do these findings suggest?

Rural and remote placements scheduled in 2021 and 2022 have been in the context of continuous change related to the public health emergency response to the COVID-19 pandemic. Unsurprisingly, survey and interview data therefore demonstrated a spectrum of student placement experiences and perspectives depending on the timing, geographical location and health setting of placements. Positively, many students sought to undertake rural and remote experiences despite the ongoing pandemic, and those who had scheduled placements were largely able to undertake them as planned (98%). This is an improvement on previous investigation in 2020 when as many as 20% of rural and remote placements did not go ahead.[2,3] Among the scheduled placements, there were also fewer changes to planned rural or remote locations, placement sites or face-to-face attendance than seen during 2020.[2] This suggests greater ability of placement sites to physically accommodate students. However, some students did highlight the fortuitous nature of having placements go ahead, with placements confirmed at the last minute. This is consistent with the reasons for placement changes which were identified through interviews as mostly relating to COVID-19 outbreaks causing sudden lockdowns, impacting staffing levels, and ultimately, the ability of some placement sites to accommodate students; all of which were impossible to foresee. Several students also described contracting COVID-19 or other illnesses either shortly before or during placement, thereby either delaying their placement or preventing them from completing their full placement hours. As COVID-19 is now widespread within the community, students, universities and UDRHs need to anticipate the impact of illness on rural and remote placements and ensure clear contingency plans are in place for students and supervisors who become unwell, both before and during placements.

Although placements went ahead largely as planned, students did report a range of impacts attributed to the ongoing pandemic, which is consistent with other investigations of rural and remote placements undertaken beyond 2020.[18] Importantly, these impacts were perceived to be largely minor in nature; a trend reversed from 2020 when students were reporting mostly major changes to all aspects of placements.[2] The number of students reporting impacts has also declined across all aspects except for placement tasks,[2] which demonstrates a gradual lessening of the pandemic on placement experiences overall. However, aspects of placements certainly continue to be affected, with placement tasks, experience of the local community and connection with other students most impacted in this study. The latter two were also identified in the top three placement impacts in 2020,[2] suggesting community immersion and social connection amongst students in rural and remote settings is challenging in the context of public health emergencies. However, changes to placement tasks have become more impacted than in 2020,[2] with around half of students reporting that they experienced changes that were predominantly minor. This may reflect greater enactment of health and safety measures during 2021 and 2022 because of widespread community transmission which would have seen increased compliance with PPE, social distancing and restrictions on working with specific patients.

Evidence of the lessening impact of the pandemic on placement experiences was also reflected in the additional challenges faced by students who undertook placements in 2021 compared to 2022. Students who completed placements in 2021 felt less prepared, found placements more stressful and were less likely to want further rural placements or to work rurally following completion of their rural or remote placement. These students were also less likely to agree that their placement had equipped them for work as a new graduate, and they wanted more clinical placement time throughout their course than their 2022 counterparts. As students were less concerned about contracting COVID-19 on placements undertaken in 2021, this suggests that widespread community transmission of COVID-19 was an unlikely factor causing placement impacts. It may be that the public perception of threat, combined with the stringent public health emergency measures, resulted in more disruption to placements in 2021 than the widespread virus itself in 2022.

While there may have been a lessening impact from the pandemic on placements overall, nursing students appear to have fared worse than allied health students during the ongoing pandemic. This finding contrasts with the 2020 study, which observed allied health students to have been impacted to a greater degree than nursing students.[2,3] This study found allied health students were less likely than nursing students to report impacts to rural and remote location, supervision, accommodation and connection with other students. Allied health students were also less likely to report unwillingness to share accommodation, wellbeing decline due to placement changes, and

feelings of stress on placement (although this was not significant). Resultantly, allied health students were more likely to indicate a readiness for professional practice, and to work rurally post-qualifying than nursing students; a potential challenge for rural and remote nursing workforce growth. Comparison of how the clinical learning of different health disciplines has been impacted by the ongoing pandemic in rural and remote settings has not yet been described in the literature. It may be that in 2020, nursing students were working in relatively safe and controlled settings which could limit public contact and potential COVID-19 positive cases. In contrast, allied health placements at this time were likely in wider community settings, thereby exposing students more to potential threats and therefore greater restrictions. However, as widespread community transmission has occurred, this situation has likely reversed, with nursing students suddenly facing the reality of infectious patients, and the subsequent health and safety protocols. Allied health students could largely manage these risks by discouraging patient attendance if unwell or close contact; a strategy not afforded to nursing students.

In terms of health and wellbeing, less than half of the students surveyed in this study were concerned about contracting or transmitting COVID-19. Of note, this was more of a concern for students who undertook placements in 2022, which likely reflects the extensive community transmission of COVID-19 during this time. Students also felt additional confidence having been vaccinated prior to placement, which combined with extensive health and safety measures, including testing with RATs, mask wearing and the use of PPE, provided feelings of personal safety on placement. However, it is important to note that while most students were happy to be vaccinated, others felt coerced.

Notably, there was little discussion amongst interviewees around mental health, stress or wellbeing decline. This was also observed in survey results, with less than a third of students perceiving their placement as stressful, and less than 20% indicating placement changes resulted in wellbeing decline. These findings are markedly different to 2020, when students were reporting high levels of mental health concern, wellbeing decline and stress.[5,16] This may suggest that students' mental health and wellbeing has improved as the pandemic has continued to unfold, allowing them to be more resilient in the face of any placement changes. Partly, this may have been supported by the resumption of on campus attendance and course progression. This study found only a quarter of students were still concerned about graduating on time which was well down from the 49% figure recorded in the 2020 data.[2]

Satisfaction levels among students undertaking rural and remote placements during 2021 and 2022 remain very similar to 2020, with around 85% of students reporting they were satisfied with their placement experience.[2] This figure is also consistent with satisfaction levels among students undertaking rural and remote placements in pre-pandemic contexts (92%).[24] However, it is important to consider that students in this study may have been satisfied with less during their placements given they were likely more aware of the challenges in offering rural and remote placements in the context of public health emergency circumstances.[3,6] Regardless, 80% of students felt that their placement prepared them for graduate practice, and 70% indicated that they wanted to work rurally following their placement experience. This suggests that placements, although impacted in the context of the pandemic, continued to foster rural intention in students.

However, only 70% of students in the later years of their degree felt they were ready to be a health professional, and one in five did not feel they had learnt enough clinical skills on placements to competently practice as a new graduate. This suggests that the influence of the ongoing pandemic on rural and remote placement experiences may have limited students from being able to *think, feel, and act* as health professionals.[25] Interviews highlighted that students in the later years of their degree also lacked confidence regarding their theoretical knowledge and hands on clinical skills, fostered by the transition to online learning and impacted placement experiences. Therefore, there may be a need for additional support in the short term to help graduates who have trained exclusively during the pandemic transition to practice.[18] Students did, however, acknowledge that as the 'COVID generation' they were graduating with additional unique skills that would support future clinical practice. Knowledge of infection control, technology skills, communication, autonomy, resilience, adaptability and problem solving were all highlighted as strengths that would serve them well as new health professionals post-qualifying.

Given that rural placement satisfaction is strongly associated with rural intention,[24] it was unsurprising to find that 65% of students surveyed intended to work rurally after they graduate. As expected, rural origin students were more likely to indicate a desire to work rurally post-qualifying.[10] However, students who undertook placements in 2021 were less likely to indicate a desire to work rurally than those in 2022; a time during which students were less positive about placement experiences. This reaffirms that placement experiences shape student pathways into rural employment,[11] and suggests that rural intention may have been lost in some students because of impacted placements. This was observed among interviewees where negative placement experiences served to drive students away from considering rural employment opportunities, regardless of their origin. Conversely, positive placement experiences served to reinforce the beliefs of rural origin students who knew that they wanted to work rurally after graduating, as well as igniting desire in metropolitan background students to work rurally. Irrespective of rural background or intention, however, many interviewees felt that they lacked the skills, experience and confidence to work in a rural or remote setting immediately post-qualifying. They believed that a period of metropolitan work was necessary before going rural. It is therefore possible that impacted clinical training and placements which have not allowed students to develop confidence in their skills and abilities will see a shift in students away from rural employment where they perceive opportunities for learning and support to be less.

Limitations

This study does have some limitations. First, there was a delay for some students between when they were surveyed and the completion of their placement. This may have led to recall bias. Second, there is potential response bias in which students self-selected to participate, with those impacted to a greater degree by the pandemic possibly more motivated to participate. Third, it was not possible to calculate a response rate for the survey, as UDRHs did not advise of how many students were emailed. Fourth, there is a lack of knowledge of the placement context and detail, given the amalgamation of students across Australia. Fifth, it was not possible to identify differences between Aboriginal and/or Torres Strait Islander students and others due to a low number of Aboriginal and/or Torres Strait Islander respondents. Despite these limitations, findings report on the perspectives of 520 health students and their experiences of a planned UDRH-facilitated rural or remote placement during 2021 and 2022. The mixed method approach provides more detail from 33 students about their placements. In addition, the demographic profile of students in this study is similar to previous cohorts of students undertaking a UDRH-facilitated placement across Australia.[3] Further analysis will follow this report in more detailed publications on specific issues.

Conclusion

UDRH-facilitated rural and remote placements have continued to be impacted by the ongoing COVID-19 pandemic and associated public health emergency measures over the past two years. Ongoing impacts have largely resulted from widespread sudden lockdowns, community transmission of COVID-19, and continued health and safety measures which has seen a reduction in opportunities for patient care, illness amongst supervisors and students, changes in placement tasks, and social disconnection. There is evidence that placement impacts resulting from the ongoing pandemic are lessening over time and affecting fewer students overall. However, the impacts are still readily evident, and are affecting health disciplines differently over time. Positively, this study found that students appeared motivated to gain rural and remote experience and were generally satisfied with their placements. Placements fostered rural intention amongst the majority, and many students indicated a desire to work rurally post-qualifying. However, some later years students reported feeling unprepared to enter the workforce. Additional supports may be needed in the coming years for nursing and allied health students undertaking rural and remote placements to ensure they develop confidence, autonomy and competence in their clinical learning.

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Appendices

Appendix A

Ongoing Impact of COVID-19 on Rural Placements: A National Study

Thank you for agreeing to be part of this study.

We would like to understand how your recent rural or remote health placement experience may have changed because of COVID-19.

The survey should take no more than 10 to 15 minutes of your time. All responses that you provide are anonymous.

Thank you for your participation.

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1. What health discipline/s are you currently studying? (please tick all that apply)

- Medicine
- Nursing
- Midwifery
- Aboriginal/Torres Strait Islander Health
- Audiology
- Chiropractic
- Dental Hygiene/Therapy
- Dentistry
- Oral Health
- Dental Prosthesis
- Diagnostic Radiography
- Dietetics
- Exercise Physiology
- Medical Laboratory Science
- Medical Radiation Science
- Nutrition & Dietetics
- Occupational Therapy
- Optometry
- Orthotics and Prosthetics
- Osteopathy
- Paramedicine
- Pharmacy
- Physiotherapy
- Podiatry
- Psychology
- Public Health or Health Promotion
- Social Work
- Speech Pathology
- Other (please specify)

2. In what year did you commence your health course? _____

3. Is your health course an undergraduate or postgraduate degree?

- Undergraduate (go to question 4a)
- Postgraduate (go to question 4b)

4a. What year of your health course are you currently completing?

- First of second year of undergraduate course
- Third, fourth or final year of undergraduate course

4b. What year of your health course are you currently completing?

- First year of postgraduate course
- Second or final year of postgraduate course

5. Since you started your health course, how many rural or remote placements have you completed? (number) _____

6. Have you had any rural or remote placements that you have had to cancel since starting your health course?

- Yes (go to question 6)
- No (go to question 7)

7. How many rural or remote placements have you had to cancel? (number)_____

8. For each rural/remote placement that you have had to cancel, please indicate the reason/s: (tick all that apply)

- Natural disaster
- Pandemic
    - Rural/remote placement cancelled by placement site or health service
    - The University/program cancelled my rural/remote placement
    - Could not travel to the rural/remote placement site
    - No accommodation available for the rural/remote placement
    - There was not enough Personal Protective Equipment (PPE) for students
    - Social isolation/quarantine requirements of the rural/remote placement
    - I chose not to undertake the rural/remote placement
    - I could not financially afford to go on rural/remote placement
    - I was unable to get time off work to attend rural/remote placement
    - I was concerned about contracting COVID-19 on rural/remote placement
    - I was unwell and could not attend my rural/remote placement
    - I did not want to live by myself while on placement in a rural/remote location
    - My family/partner did not want me to travel during the pandemic
    - Other (please specify_____)

Now we want to ask you about your most recent rural/remote placement experience:

9. When was your most recent rural/remote placement scheduled to commence (month/year)?
_____

10. How long was your scheduled rural/remote placement? (in weeks _____)

11. In which state or territory was your rural/remote placement located?

- Queensland
- New South Wales
- Victoria
- Tasmania
- South Australia
- Western Australia
- Northern Territory
- Australian Capital Territory

12. In what town/city was your rural or remote placement located? (_____)

13. Did you relocate from your usual place of residence to the rural/remote location to complete your placement?

- Yes (go to 14/15)
- No (go to 16)

14. Approximately how many kilometres (km) did you travel from your usual place of residence to the rural/remote placement location?

- Less than 50km
- 51-100km
- 101-200km
- 201-500km
- More than 500km

15. How did you travel from your usual place of residence to the rural/remote placement location? (please tick all that apply)

- Private car
- Bus
- Plane
- Train
- Boat

16. Please indicate the reason/s why you were allocated this rural/remote placement: (please tick all that apply)

- The University allocated this rural/remote placement to me
  - If it was up to me, I would not have chosen this rural/remote placement
  - Even though it was not my choice, I am happy that I was allocated this rural/remote placement

- I asked the University to allocate me a rural/remote placement
  - I wanted to undertake a rural/remote placement during my health course
  - I want to work in a rural/remote area after I graduate
  - I prefer rural/remote placements because they offer more learning opportunities
  - Rural/remote placements are safer than metropolitan placements during the pandemic
  - Rural/remote placements are a compulsory part of my course and I wanted to get it done
  - I could access financial support to undertake this rural/remote placement
  - I was able to access cheap student accommodation for the placement
  - I could get time off from paid employment to attend this rural/remote placement
  - Other (please specify_____)

- I organised this rural/remote placement myself
  - I wanted to undertake a rural/remote placement during my health course
  - I want to work in a rural/remote area after I graduate
  - I prefer rural/remote placements because they offer more learning opportunities
  - Rural/remote placements are safer than metropolitan placements during the pandemic
  - Rural/remote placements are a compulsory part of my course and I wanted to get it done
  - I could access financial support to undertake this rural/remote placement
  - I was able to access cheap student accommodation for the placement
  - I could get time off from paid employment to attend this rural/remote placement
  - Other (please specify_____)

17. Please indicate which one of the following best reflects your rural/remote placement experience? (choose only one)

- I completed my rural/remote placement in the rural/remote location as planned
- My rural/remote placement was changed to another rural/remote placement and location
- My rural/remote placement was changed to another service in the same rural/remote location
- I completed my rural/remote placement but not all of it was undertaken in the rural/remote location
- My rural/remote placement was changed from a clinical to a non-clinical placement
- I completed my rural/remote placement virtually from home using telehealth
- I started my rural/remote placement but did not complete the placement
- My rural or remote placement was changed to a non-rural/remote placement (go to question 22)
- My rural/ remote placement was cancelled (go to question 22)
- Other

If other, please specify: _____

18. Please indicate if COVID-19 changed any of the following aspects of your rural/remote placement: (no change, minor change, major change)

- Placement setting
- Rural/remote location
- Supervision
- Placement tasks
- Accommodation
- Connection with other students
- Experience of the local community
- Travel around the region

19. You previously indicated that your rural/remote placement went ahead in some form. Please identify if you strongly disagree, disagree, neutral, agree or strongly agree with each of the following statements:

(All respondents to answer)

- I met the learning objectives of my rural/ remote placement
- I had opportunities to develop my cultural awareness on rural/remote placement
- I felt well-prepared to undertake my rural/remote placement
- I received an orientation at the commencement of my rural/remote placement
- I learned a lot of new clinical skills during my rural/remote placement
- I was able to learn how to deliver services by telehealth during my rural/remote placement
- I thought my rural/remote placement was innovative
- During my rural/remote placement, I felt my learning needs were well supported by my supervisor (s)
- I had opportunities to experience the local rural/remote community during placement
- I had opportunities to connect with other health students in the same location during placement

(First, second year students only)

- I was happy to share accommodation with other students during placement
- As a result of COVID-19, my rural/remote placement was not busy
- I was concerned about contracting COVID-19 during my rural/remote placement
- I was concerned about transmitting COVID-19 to a rural/remote location by travelling to placement
- I found undertaking rural/remote placement during the pandemic stressful
- I felt my rural/remote placement provided quality clinical training
- Based on my recent placement experience, I want to undertake more rural/remote placements during my health course
- Based on my recent placement experience, I can see myself working in a rural/remote location after I graduate as a health professional
- Overall, I was satisfied with my rural/remote placement

(Third, fourth, final year students only)

- I was happy to share accommodation with other students during placement
- As a result of COVID-19, my rural/remote placement was not busy
- I was concerned about contracting COVID-19 during my rural/remote placement
- I was concerned about transmitting COVID-19 to a rural/remote location by travelling to placement
- I found undertaking rural/remote placement during the pandemic stressful
- I felt my rural/remote placement provided quality clinical training
- My rural/remote placement has equipped me for work as a new graduate
- Based on my recent placement experience, I can see myself working in a rural/remote location after I graduate as a health professional
- Overall, I was satisfied with my rural/remote placement

20. What are some of the positive learnings that you gained because of completing a rural/ remote placement during the pandemic? Please describe. (free text)

21. Was there anything you felt that you missed out on during your rural/remote placement because of the pandemic? Please describe. (free text)

22. What was the reason/s for your rural/remote placement being cancelled or changed to another non-rural/remote placement? (please tick all that apply)

- The rural/remote placement was no longer offered by the placement site
- The University/health program cancelled my rural/remote placement
- I chose not to undertake the rural/remote placement
  - I could not financially afford to go on rural/remote placement
  - I could not to get time off paid employment to attend rural/remote placement
  - I was concerned about contracting COVID-19 on rural/remote placement
  - I could not travel to the rural/remote placement site due to illness
  - No cheap accommodation was available for the rural/remote placement
  - I did not want to travel to a rural/remote location during the pandemic
  - Other: please specify _____

23. For each of the following statements, please identify if you strongly disagree, disagree, neutral, agree or strongly agree.

(All students to answer)

- I was happy to get vaccinated to be able to go on rural/remote placement
- I would prefer not to be allocated rural/remote placement/s during the pandemic
- Changes to my rural/remote placement/s because of COVID-19 caused a decline in my wellbeing
- I have felt well supported by the University regarding changes made to my rural/remote placement/s during the pandemic

(First, second year students only)

- The pandemic inspired me to study my health course
- I have been able to continue studying my health course during the pandemic
- I am concerned that the pandemic is impacting on my progression through my health course
- I have concerns about graduating on time due to the pandemic
- The pandemic has lessened my opportunities for rural/remote placements
- I would like more placement time during my course despite the pandemic
- I would like more rural/remote placements during my course despite the pandemic
- I would like to work in a rural/remote location after I graduate

(Third, fourth, final year students only)

- I have been able to continue studying my course during the pandemic
- I have concerns about graduating on time due to the pandemic
- I do not feel I have had enough placement experience during my course due to the pandemic
- The pandemic has lessened my opportunities for rural/remote placements
- I do not feel that I have developed enough clinical skills on placements to competently practise when I graduate
- I feel that I will be ready to be a health practitioner when the time comes to graduate
- I would have liked more placement time during my course
- I would have liked more rural/remote placements during my course
- I feel clinically prepared to work in a rural/remote location after I graduate
- I would like to work in a rural/remote location after I graduate

24. Do you have any other comments about your recent rural/remote placement experience? (Free text)

Finally, some questions about you….

25. How old are you?

- <25 years
- 25 – 34 years
- 35< years

26. Do you identify as Aboriginal and/or Torres Strait Islander?

- Yes
- No
- Do not want to say

27. What gender do you identify with?

- Female
- Male
- Non-gender binary

28. Do you identify as having a rural background? (Rural background is defined as having lived whilst growing up for five years continuously or ten years in total in a location outside of a capital city, Geelong, Wollongong or Newcastle)

- Yes, I do identify as having a rural background
- No, I don't identify as having a rural background

29. What state or territory is the University you are enrolled in?

- Queensland
- Victoria
- New South Wales
- South Australia
- Northern Territory
- Western Australia
- Tasmania
- Australian Capital Territory

30. How are you currently completing your health course?

- Face to face
- Online
- Blended learning (e.g. both face to face and online components)

31. Are you in paid employment?

- Yes (go to question 32)
- No (go to question 34)

32. What industry do you work in?

- Hospitality
- Retail
- Health
- Other (please specify _____)

33. On average, how many hours per week do you work?

- Less than 5 hours
- 6-10 hours
- 11-15 hours
- 16-20 hours
- >20 hours

(First, second year students only)
[End of survey]

(Third, fourth, final year students only)
34. Are you interested in taking part in an interview to discuss further your rural/remote placement experience?

- Yes (goes to capture name and contact details in separate database)
- No (end of survey)

[End of survey]

Appendix B

Interview Questions

Interview Number _____ Date _____

Thank you for agreeing to be part of this study.

The ongoing COVID-19 pandemic has impacted many placements in rural and remote Australia since 2020. We are keen to understand your recent rural or remote health placement experience and any changes that may have occurred due to COVID-19.

Have you reviewed the Plain Language Statement emailed to you?

As you are aware, all answers you provide are confidential. This interview will be audio recorded and transcribed but all names will be removed and no identifying information will be used. You can choose not to answer a particular question or to end the interview at any time. We will email you a copy of your interview transcript and you will have a chance to check that you are happy with what you have said and can make any changes if you would like to.

Do you have any questions about this project?

Do you give consent to be interviewed for this research project? YES NO

ONLY PROCEED IF VERBAL CONSENT IS GIVEN.

Perhaps we can start with a little bit of information about you:

- What is your discipline of study?
- What year of study are you in?
- What university do you study at?
- Do you normally live in a rural or remote location while studying?
- Gender?
- Under or over 25 years of age?
- Do you identify as having a rural background?

1. I understand that you were scheduled to undertake a rural or remote placement sometime since January last year. Can you tell me about that placement and how it came about?

- How far away was the placement from where you live while you study?
- What sort of placement was it? (i.e. hospital based, service learning, area of study, etc.)
- Did you choose the placement?
- Did you choose to go to a rural or remote location?
- Did you receive any financial support to undertake placement?
- Did you have to be vaccinated to undertake placement? How did you feel about that?

2. Did you go on the rural/remote placement as planned?

- Was it your choice to (not) go on placement? Why/why not?
- Were you happy to (not) go on placement during COVID-19? Why/why not?
- Can you describe your experience of the decision to (not) go on this placement?
- What are the implications for you resulting from (not) going on this placement?

If the student did not do any placement, skip to Q.6

3. Can you tell me about your experience of undertaking your rural or remote placement during the pandemic?

- What was the placement like?
- Was the placement what you expected?
- Did you get out of the placement what you wanted?
- What do you feel that you missed out on on placement?
- Did you learn new skills that you didn't expect?
- Can you describe the accommodation you stayed in?
- Can you tell me about the supervision your received?
- Did you feel supported during placement?
- Did you feel that you had the opportunity to immerse yourself in the rural/remote community where your placement was based?

4. Did COVID-19 change your placement in any way? If so, in what ways?

- Where placement was located?
- Tasks undertaken?
- Supervision?
- Contact with patients/clients?
- Contact with students?
- Use of technology?
- Accommodation?
- Support provided?
- What did you think of these changes?

5. Did you have any concerns about your health and safety on placement? Can you tell me about these concerns?

- Did you feel at risk at any time?
- Did you feel that your safety was well considered?
- Did you feel that you would have liked to have taken more risks clinically?

(Questions 1-5 can be repeated if student has done more than one rural or remote placement in the last two years)

6. Do you have any concerns about graduating soon?

- Do you feel ready to graduate?
- Do you feel that you have developed enough clinical skills to safely practise as a health professional?
- Are there clinical skills that you feel you are lacking?
- Do you feel that you have had enough clinical training during your course?
- Would you feel skilled enough to work in a rural or remote location?
- Do you feel there are skills you haven't been able to develop as a result of training during the pandemic?
- Are there skills that you are graduating with that you didn't expect as a result of training during the pandemic?

7. Do you have any interest in working in a rural or remote location after you graduate?

- Have you always wanted to (or not wanted to) work in a rural or remote area? Why/why not?
- Have your recent or other rural training experiences (or lack of) influenced your choice?
- Has the pandemic influenced where (location wise) you see yourself working after you graduate?

Thank student for their time.


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