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RESEARCH ARTICLE

DECODING DOCTOR DEPARTURE DECISIONS IN REGIONAL QUEENSLAND

Emma Hodge[1], Alisha Thomson[2], Lauren Moses[3], Lilian Hung-Ling Pu[2]*

1. Bundaberg, Wide Bay Hospital and Health Service, Queensland Health, Australia
2. Townsville Hospital and Hospital and Health Service, Queensland Health, Australia
3. Cairns and Hinterland Hospital and Health Service, Queensland Health, Australia

*Correspondence: emma.hodge@health.qld.gov.au

ABSTRACT

BACKGROUND

Medical workforce shortages are a pervasive issue across Australia, with rural and regional hospitals facing particular challenges in maintaining a stable workforce. Frequent turnover of prevocational doctors in these areas can adversely impact service delivery and healthcare outcomes. The primary aim of this study is to investigate the reasons why prevocational doctors leave regional hospitals, and whether these reasons vary across different regional settings.

METHOD

Semi-structured, mixed methods exit interviews were conducted with 83 interns and resident medical officers (RMOs) who resigned from three regional Queensland hospitals (Townsville, Cairns, and Bundaberg) at the end of the 2023 clinical year. Thematic analysis was used to identify common themes, and chi-squared tests assessed quantitative regional differences.

RESULTS

The main reasons for starting at a regional hospital included reputation, familiarity with the hospital or region, and proximity to family or friends. Career progression emerged as the primary reason for leaving. There was no significant difference across regions in the reasons for leaving, retention factors, most valuable attributes, and factors influencing resignation. A significant difference between regions was established in the reasons for starting ($p=0.01$) and areas for improvement ($p=0.02$).

CONCLUSIONS

Strengthening regional hospitals by promoting their unique attributes and enhancing career development opportunities is essential for fostering a sustainable medical workforce. The findings highlight key areas where regional hospitals can focus to enhance prevocational doctor retention. Furthermore, a systemic approach to attracting and retaining prevocational doctors is essential for building a future proof workforce capable of meeting the healthcare demands of regional communities.

KEYWORDS

exit interviews, regional workforce, junior doctor, prevocational, attraction, retention, attrition

BACKGROUND

Geographic maldistribution of prevocational doctors continues to pose a significant challenge for regional hospitals despite the increasing number of medical graduates in Australia [1-3]. National surveys of graduating medical students consistently show a preference for metropolitan practice, with only 31.5% of medical graduates in 2023 expressing a desire to work in regional, rural or remote communities [4]. This has contributed to recruitment and retention challenges for regional hospitals. As a result, these hospitals frequently rely on locum doctors and International Medical Graduates (IMGs) to fill vacancies, which compromises workforce sustainability and continuity of care [2]. In the Australian healthcare system, rotational doctors (interns and resident medical officers) are essential to delivering healthcare in regional and rural communities, which are already disadvantaged by geographical isolation and complex sociodemographic factors [5-6].

A growing body of research has explored the factors influencing healthcare workforce attraction and retention in rural areas. These factors include career opportunities, workplace conditions, rural background, organisational management, social connections and attachment to place [6-8]. A study examining doctors' perceptions of rural practice found work-life balance and social connectedness are advantages of working rurally, but the lack of specialist training and career development opportunities are significant deterrents [9]. Within the Australian setting, retrospective research of James Cook University (JCU) medical graduates found that rural generalist training, attendance at rural clinical schools and completing internships in regional or remote locations were associated with an increased likelihood of practicing in these areas for at least 12 months [10]. Similarly, attending a regional clinical school has been shown to be the strongest predictor of completing an internship in that area, alongside being from a hometown near the clinical school location [11].

The association between rural background, rural medical training and subsequent rural practice is well documented [7, 12-14]. However, fewer studies have focused on attraction and retention factors of early career doctors, despite international evidence that rural exposure during this time is positively associated with subsequent rural practice [15-18].

This study aims to build on the existing knowledge by examining the factors influencing the attraction and retention of prevocational doctors across three regional health services located in Queensland (QLD), Australia. The health services cover a large geographical area with a population each served by a single larger hospital and multiple smaller rural facilities (Table 1). By providing a detailed analysis of the reasons doctors leave regional settings, this study will inform targeted strategies for recruitment and retention.

TABLE 1 - REGIONAL HOSPITAL CHARACTERISTICS

	Townsville	Cairns	Bundaberg
Catchment population	250,000, with a tertiary catchment of 700,000	250, 000	100,000
Geographical area served (square km)	148,000	142,900	6,500
Beds or equivalents	811	771	261
Doctors employed	Over 1000	742 (Cairns Hospital) 853 (HHS)	Over 400
Clinical Service Capability Framework (CSCF) level	6	5	2
Specialist College Training programs	Physician (Adult and subspecialties) Physician (Paediatrics) Anaesthetics Radiology (including radiation oncology)	Physician (Adult) General Medicine and subspecialties Physician (Paediatrics)	Physician (Adult) Physician (Paediatrics) Anaesthetics Emergency medicine

	Emergency medicine Intensive care Surgery (including general, orthopaedics, urology, vascular, paediatric, neurosurgery, otolaryngology head and neck, cardiothoracic) Oral and maxillofacial Dermatology General practice (including rural generalist) Medical administration Obstetrics & gynaecology Psychiatry	Anaesthetics Emergency medicine Intensive Care Surgery (including general, orthopaedics, urology, vascular) Dermatology General practice (including rural generalist) Medical administration Obstetrics & gynaecology Psychiatry Sports medicine	Intensive care Surgery (General) General practice (including rural generalist) Medical administration Obstetrics & gynaecology Psychiatry
Coastal or inland	Coastal city	Coastal city	Coastal city
Access to direct international flights	No	Yes	No
Modified Monash Model (MMM)	MM2	MM2	MM2
Rural health service facilities	8	8	8

Note: Data reference- Queensland Government. Our Performance. [Internet]. [cited 2024 Nov 22]. Available from: www.performance.health.qld.gov.au/view-performance-by-facility/hospitals

METHOD

STUDY AIM, DESIGN AND SETTING

This study aimed to explore the factors influencing the attraction and retention of prevocational doctors in regional Queensland health services, with a focus on understanding why prevocational doctors choose to leave these hospitals. This was a cross-sectional, mixed-methods study conducted across three regional Queensland hospitals: Townsville Hospital and Health Service (THHS), Cairns and Hinterland Hospital and Health Service (CHHHS), and Bundaberg, Wide Bay Hospital and Health Service (WBHHS). The study employed both qualitative and quantitative data collection techniques, utilising semi-structured exit interviews with interns and RMOs who had resigned at the end of the 2023 clinical year. They were conducted between December 2023 to January 2024.

PARTICIPANTS

The participants in this study were prevocational doctors who resigned from their positions at the three regional hospitals during the 2023 clinical year. The inclusion criteria were: (1) doctors in their postgraduate year 1 (interns) or postgraduate year 2+ resident medical officers (RMOs) and (2) those who had officially resigned from the hospital between October 2023 and March 2024. Doctors who were accredited or unaccredited registrars were excluded from the study due to differences in the length of their rotational period. Based on these criteria, a total of 127 participants were deemed eligible across the three hospitals.

DATA COLLECTION

Data were collected through semi-structured exit interviews facilitated by the study investigators, who were each medical education or medical administration registrars from the participants' respective hospital. These interviews were conducted mostly face-to-face, with some via video conferencing if working at a rural facility. Each interview took 15 to 30 minutes.

The questions asked at the outset of the interview captured a range of sociodemographic variables (gender, age, role, relationship status, presence of children, and hometown) and professional details, university attended, and location of current employment. The ensuing questions elicited participants' reasons for starting at the hospital, reasons for leaving, and intentions to return to their current health service.

To ensure relative consistency across the exit interviews, a standardised set of questions was used to guide the interview (Appendix 1). The interview template was developed to ensure consistency in the core questions relevant to this study and in documentation across all interviews. The questions related to factors influencing attraction and attrition were intentionally broad and open-ended, to invite participants to share the experiences and thought processes which contributed to their employment decisions. During the interviews, the interviewers sought feedback on participant answers to elicit examples of specific events the participants experienced and/or observed at their hospital, as well as personal opinions and circumstances affecting their decision to resign. The semi-structured approach allowed for flexibility in exploring participants' reasons for departure, which may be of a sensitive or personal nature [19].

Regular meetings were held among the researchers to discuss emerging themes and ensure alignment in the interpretation of responses. Interviews were recorded and transcribed for qualitative analysis. This process ensured standardised, reliable data collection while allowing flexibility for participant-driven insights.

DATA ANALYSIS

Quantitative data were analysed using Stata version 17 (StataCorp, TX, USA). Descriptive statistics were calculated to summarise the characteristics of the participants and the frequency of responses to key questions. Chi-squared (χ^2) tests were employed to assess differences between the hospitals in terms of factors influencing decisions to leave. The level of significance for all tests was set at $\alpha = 0.05$. Post-hoc analyses with Bonferroni correction were performed to further investigate any statistically significant differences between the hospitals.

For qualitative data, a thematic analysis using Braun & Clarke's approach was conducted to identify recurring themes and factors influencing the attraction and retention of prevocational doctors [20]. Transcripts were coded using a deductive approach, with themes related to reasons for leaving, factors influencing retention, and valuable aspects of the hospital experience being identified and categorised. When theming occurred, the group collectively set the themes through an initial review of the earlier transcribed interviews and then later brought any queries back to the group for theming. Regular meetings were held among the interviewers to discuss emerging themes and ensure alignment in the interpretation of responses and reflexivity.

ETHICAL CONSIDERATIONS

The study was approved by the Townsville Hospital and Health Service Human Research Ethics Committee (HREC approval: THHS EX/2024/QTHS/108407). All participants provided informed and written consent prior to participating in the study, and their responses were anonymised to ensure confidentiality.

STATISTICAL POWER

A power calculation was not performed for this exploratory study, as the primary aim was to conduct an in-depth, qualitative analysis of factors influencing attrition, supplemented by descriptive quantitative analysis. Nonetheless, the sample size of 83 participants provides clear insights across the three regional hospitals, given the relatively small medical workforce in these settings and data saturation.

RESULTS

SOCIODEMOGRAPHICS

A total of 83 doctors participated in the exit interviews, with a response rate of 53%, 64% and 100% across CHHHS, THHS and WBHHS respectively. The sociodemographic characteristics of the participants are summarised in Table 2. The majority of participants were female (61%). The predominant age group was 26-30 years (59%). Most participants were RMOs (73%), with a smaller proportion being interns (27%). Relationship status varied, with 57% being single, 33% having a medical partner and 11% having a non-medical partner. A minority (4%) had children. Just over one third of participants (35%) identified as IMGs. Figure 1 outlines the employment destination for participants leaving these regional health services. Whilst 41% of participants sought roles in a different regional setting, just over half of participants (51%) left the regional hospital to work in a metropolitan area. The remaining 8% of participants expressed intentions to undertake locum work. The majority of participants expressed a willingness to return to their regional health service in the future (83% overall) with CHHHS at 96%, THHS at 79%, and WBHHS at 71% (Table 3).

TABLE 2. PARTICIPANT SOCIODEMOGRAPHICS

Baseline characteristic	THHS		CHHHS		WBHHS		Total sample	
	n	%	*n*	%	*n*	%	*n*	%
Gender								
Male	13	38.24	11	39.29	7	33.33	31	37.35
Female	20	58.82	17	60.71	14	66.67	51	61.45
Nonbinary	1	2.94	0	0.00	0	0.00	1	1.20
Age								
20-25 years	8	23.53	6	21.43	11	52.38	25	30.12
26-30 years	24	70.59	19	67.86	6	28.57	49	59.04
31-35 years	2	5.88	2	7.14	3	14.29	7	8.43
36+ years		0.00	1	3.57	1	4.76	2	2.41
Role								
Intern	8	23.53	5	17.86	9	42.86	22	26.51
RMO	26	76.47	23	82.14	12	57.14	61	73.49
Partner								
Single	17	50.00	12	42.86	18	85.71	47	56.63
Medical partner	13	38.24	12	42.86	2	9.52	27	32.53
Non-medical partner	4	11.76	4	14.29	1	4.76	9	10.84
Children [a]	1	2.94	1	3.57	1	4.76	3	3.61
Hometown								
Local	4	11.76	4	14.29	0	0.00	8	9.64
QLD resident	9	26.47	12	42.86	2	9.52	23	27.71
Interstate resident	11	32.35	10	35.71	1	4.76	22	26.51
Overseas resident	10	29.41	2	7.14	18	85.71	30	36.14
QLD university	18	52.94	20	71.43	2	9.52	40	48.19
Interstate University	5	14.71	7	25.00	2	9.52	14	16.87
IMG	11	32.35	1	3.57	17	80.95	29	34.94

[a] Reflects the number and percentage of participants answering "yes" to this question.

FIGURE 1. LOCATION OF NEXT ROLE AFTER LEAVING THE REGIONAL HOSPITAL

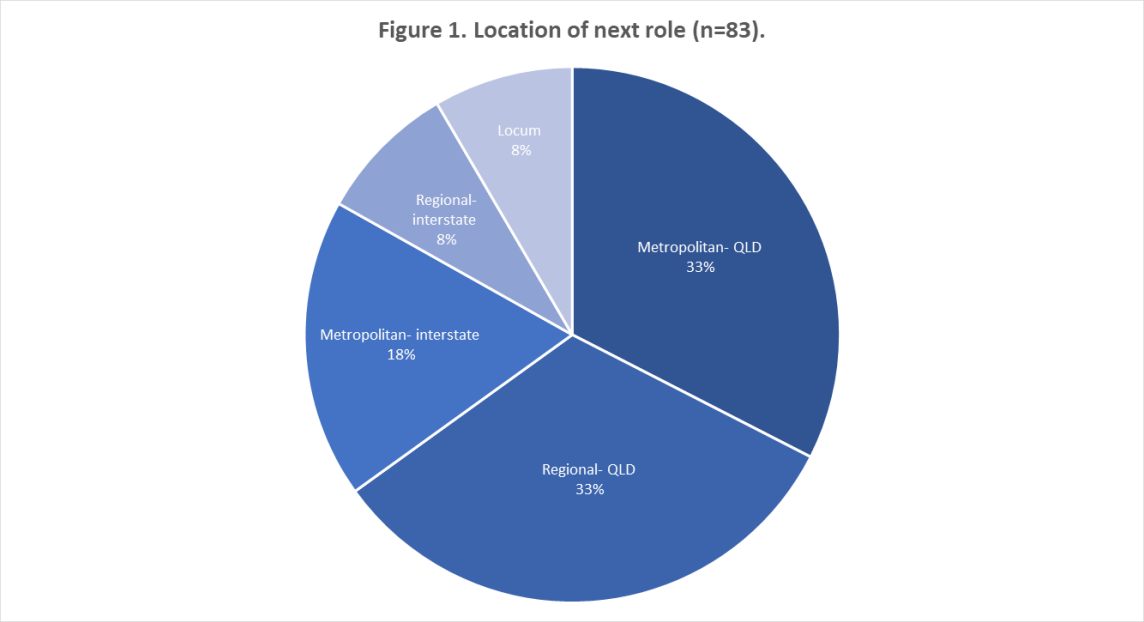


TABLE 3. PARTICIPANT WILLINGNESS TO RETURN TO THE HEALTH SERVICE

Response	THHS		CHHHS		WBHHS		Total sample	
	n	%	*n*	%	*n*	%	*n*	%
Yes	27	79.41	27	96.43	15	71.43	69	83.13
No	6	17.65	1	3.57	3	14.29	10	12.05
Maybe	1	2.94	0	0.00	3	14.29	4	4.82

REASONS FOR STARTING

Table 4 outlines the reasons given by the participants for starting their positions. The most common reason for starting overall cited by participants across the three regions included reputation of the hospital (41%). Participants considered the opinions and recommendations of friends and colleagues as key sources of information when assessing a hospital's reputation:

I asked around about where is a good place to be a junior doctor, and heard reports from multiple different people that [this] hospital has a good environment and supportive system for junior doctors.

I heard really good feedback about […] Hospital whilst in medical school… friendly place to work, well supported, good Intern teaching.

Familiarity with the region was another key factor influencing the decision to seek employment in the regional hospital, with 25% of participants citing prior experience with the hospital or region as a reason for starting. Generally, this sense of local connection originated from having attended university in the region or having completed hospital placements at the regional hospital as a student. In these cases, participants often emphasised their desire to smoothly transition from medical student to doctor. In some cases, participants had grown up or studied in the region:

[…] is my hometown...I was away from home for uni and always wanted to come back here to work. From a personal perspective, I have had family members come to this hospital and felt it was a familiar environment.

I had done 2 years of medical school here... so felt this was a comfortable, familiar place to step up to being a doctor.

I went to the local clinical school, so it just made sense to do internship here.

Social connections were identified as a reason for starting by 20% of participants. Having friends or family in the region encouraged these participants to seek employment with the regional hospital, alluding to the value of social support when transitioning to a new position. One participant described meeting their partner, a local resident with a non-medical career, whilst living in the regional setting and attending the rural clinical school as a medical student. This was a significant factor in their decision to relocate and commence working in the regional hospital as a doctor. Several participants described already having friends, peers or colleagues working at the regional hospital as an incentive to start, whilst others stated they moved to the region with a group of medical friends:

I had a few friends that were also keen on making the move as well, so that was probably a big part of it. Not going alone.

The desire for new experiences and a change of scenery contributed to the decision to start for 17% of participants. Participants often felt compelled to relocate after years of living or studying in one location, particularly when this setting was interstate or metropolitan. These participants articulated an urge to "get away from the big city", "see Australia" or undertake a "personal and professional lifestyle change".

My partner and I were looking for a lifestyle change with warmer weather, more outdoor activities and were not sure what we wanted to do so, so it seemed like a good opportunity to move somewhere else and work in a different environment.

However, the desire for change was not limited to participants from metropolitan locations. One regionally based participant from a geographically distant state of Australia voiced their desire for "different experiences at a different hospital", referencing the diverse patient demographic, medical conditions, and climate the regional hospital had to offer.

Access to desired or required clinical rotations was identified as a reason for starting for 14% of participants. For some participants who identified as International Medical Graduates, the decision to relocate to the regional hospital was based on the availability of specific rotations to fulfil their registration requirements. For other participants, the decision to seek employment was based on the availability of certain rotations to fulfil specialist training requirements:

The main thing that bought me here was I needed a paediatric rotation for RACGP [Royal Australian College of General Practitioners] training. It was difficult to get in {previous hospital} because there are limited spots.

For 13% of participants, a desire for clinical exposure to regional and rural medicine was identified as a reason for commencing employment with the regional hospital. A summary of the most prominent themes and examples of participant quotes can be found in Table 5.

Data analysis revealed that the reasons for starting at the hospital showed significant differences between regions ($\chi2(11) =8.64$, $P=0.013$). For example, for THHS participants, the most prominent attraction factor was familiarity with the region, whereas reputation was the common reason for seeking employment for CHHHS and WBHHS participants. Post-hoc comparison using Chi-Squared tests, adjusted with the Bonferroni correction, highlighted notable differences between THHS and WBHHS (Adjusted $P=0.022$). This finding suggests distinct regional factors influencing initial employment decisions in these regions.

TABLE 4. ATTRACTION FACTORS.

Themes	THHS		CHHHS		WBHHS		Total sample	
	n	%	*n*	%	*n*	%	*n*	%
Reputation of hospital/word of mouth	5	14.71	17	60.71	12	57.14	34	40.96
Familiarity with hospital/region	13	38.24	8	28.57	0	0.00	21	25.30
Moving for family/friends/partners	7	20.59	8	28.57	2	9.52	17	20.48
Looking for a change of scene/new experiences	6	17.65	8	28.57	0	0.00	14	16.87
Access to desired/ required rotations	8	23.53	4	14.29	0	0.00	12	14.46
Interest in regional/rural experience	5	14.71	6	21.43	0	0.00	11	13.25
Partner's career	5	14.71	0	0.00	1	4.76	6	7.23
Community lifestyle factors (culture, food, activities)	0	0.00	6	21.43	0	0.00	6	7.23
Tertiary facility	6	17.65	0	0.00	0	0.00	6	7.23
Availability of job (including bonded or balloted position)	4	11.76	1	3.57	1	4.76	6	7.23
Renumeration/financial incentive (onboarding support)	2	5.88	1	3.57	1	4.76	4	4.82
Exposure to interesting/tropical medicine	0	0.00	2	7.14	0	0.00	2	2.41

TABLE 5. MOTIVATION FOR LEAVING.

Themes	THHS		CHHHS		WBHHS		Total sample	
	n	%	*n*	%	*n*	%	*n*	%
Career opportunity [a]	24	70.59	15	53.57	14	66.67	53	63.86
Community [b]	22	64.71	8	28.57	17	80.95	47	56.63
Social [c]	16	47.06	14	50.00	5	23.81	35	42.17
Seeking change/new experiences	7	20.59	5	17.86	9	42.86	21	25.30
Quality of training/education [d]	6	17.65	0	0.00	1	4.76	7	8.43
Employment conditions [e]	0	0.00	2	7.14	0	0.00	2	2.41

[a] Career progression including lack of specific subspecialty rotations, difficulty accessing rotations, promotion to PHO/registrar, professional connections and exposure, specialty training program not available, networked college training program or college requirement, practice primary care (e.g. GP registrar)

[b] Community lifestyle factors outside of work (culture, food, activities) e.g. closer to city, time off to travel and locum, long flights/limited availability of flights

[c] Moving for family/friends/partner / partners career / lack of socialisation or sense of community in medicine

[d] Quality of training/education including supervisor feedback and research opportunities

[e] Employment conditions including flexibility to work part time and remuneration.

REASONS FOR LEAVING

Data analysis revealed five main themes from the reasons given for leaving a regional hospital. A summary of these themes and examples of participant quotes can be found in Tables 6 and 7.

Career opportunities were the most common reason for leaving described by participants overall across the three regions (64%). Participants described a variety of push and pull factors stemming from a desire for career progression. A lack of specific subspecialty rotations, or difficulty accessing a limited number of highly sought-after rotations, led some participants to seek alternative employment. Other participants left the regional hospital due to a lack of availability of their desired speciality training program, or the inability to fulfil certain speciality training requirements. Opportunities such as promotion to a more senior position, and the desire to develop professional connections in a particular field, were also

described as incentives to relocate. This theme was underscored by more than half of participants (51%) choosing to relocate to metropolitan hospitals (Figure 1).

Bigger department and training opportunities.

I want to experience more diverse rotations and subspecialties that we don't have here.

Community and lifestyle factors were identified by 57% of participants as a reason for leaving. Some participants felt that relocating would provide better access to culture, food and activities outside of work. Participants expressed a preference live closer to the city, or have better access to international or domestic airports. In particular, it was noted that some International Medical Graduates left their regional setting due to a lack of availability of international flights:

Being closer to an international airport makes it easier to travel home to see family more often.

My partner's family are in Sydney, so it will be cheaper and closer to catch a flight there.

Family or partner considerations were cited as a motivating factor for leaving by 42% of participants. Participants spoke of their desire to move closer to family members or their network of friends, with some alluding to the value of strong social support structures whilst undertaking speciality training. For many participants, their medical or non-medical partner's career was the deciding factor in relocating:

My partner had limited job options and was offered a job elsewhere.

I think it is the strong family pull... I can't move my whole family up here.

The desire for change was highlighted as a reason for leaving by 25% of participants. Participants emphasised the value of new professional experiences and exposure to different health services, often after spending years at the regional setting. Some participants articulated the need to step out of their comfort zone to gain new skills or perspectives.

This is the only health service I've experienced as a medical student or doctor, I want to grow and challenge myself as a doctor and try working in a different hospital.

I've spent two years here so have learned all I can from this place.

The quality of training or education was cited as a reason for departure by 8% of participants. Some participants perceived that a metropolitan setting would offer better quality specialty training or research opportunities:

I think I would get better training in Brisbane where the registrars are more experienced.

I had trouble starting research for anaesthetics.

Data analysis revealed no significant differences between the regions in motivations for leaving ($\chi 2=2.72$, $P=0.257$). This finding indicates similar challenges in workforce retention across the three regions, potentially pointing to consistent factors affecting intern and RMO turnover.

MOST VALUABLE ATTRIBUTES, AREAS FOR IMPROVEMENT AND RETENTION FACTORS

Table 8 shows the most valuable attributes, or the greatest strengths of each participant's experience, across the regional hospitals. Positive workplace culture was cited most commonly overall by participants across the three regions, followed by supervision and senior support, high-quality teaching and training, practical clinical experience, and exposure to a broad mix of patient presentations and pathology.

There is a wide variety of presentations including tropical diseases.

Supportive, good work culture with good relationships between doctors and nurses that felt less hierarchical.

[The hospital] has some really good mentors who are patient centred.

The rural experience of stepping up making decisions and opportunities for procedural skills.

There were no significant differences between regions on what doctors found their most valuable during their employment at the hospital. The health service areas for improvement were specific to each region and data was utilised for internal quality improvement processes. Areas for improvement revealed significant differences between regions ($\chi 2=8.64$, $P=0.013$). Further analysis using post hoc Chi-Squared tests, adjusted with the Bonferroni correction, pinpointed significant differences between THHS and WBHHS (Adjusted $P=0.024$). Analysis showed no statistically significant difference between regions with regards to retention factors. This aligns with the findings on motivations for leaving, with similar rationale underlying the decision to leave across regions.

TABLE 6 – THEMES: ATTRACTION FACTORS

Themes	Quote
Hospital reputation	"I asked around about where is a good place to be a junior doctor, and heard reports from multiple different people that {this] hospital has a good environment and supportive system for junior doctors." "... has a great reputation for being a supportive, friendly environment, especially for IMGs" "I know a few people who work here and really like it"
Familiarity with hospital or region	"I had done 2 years of medical school here... so felt this was a comfortable, familiar place to step up to being a doctor." "I already knew people up here, my partner had done Internship here and liked it." "We wanted to spend a year somewhere I was familiar and comfortable... because it would be a smooth transition for internship." "I went to the local clinical school so it just made sense to do internship here"
Moving for friends/family/partner	"I had a few friends that were also keen on making the move as well, so that was probably a big part of it. Not going alone." "It was easy for my partner and I to both get jobs here"
Looking for a change of scenery/new experiences	"My partner and I were looking for a lifestyle change with warmer weather, more outdoor activities, and were not sure what we wanted to do so, so it seemed like a good opportunity to move somewhere else and work in a different environment." "My partner and I wanted to get away from living in a big city and felt like this could work well for our lifestyle... lots of outdoor things to do here"
Access to desire or prerequisite rotations	"I was offered a job with really good terms…I've been doing ACRRM Training... and was given rural, anaesthetics, ED and O&G terms" "The main thing that bought me here was I needed a paediatric rotation for RACGP training. It was difficult to get in {previous hospital} because there are limited spots." "The opportunity for a GP rotation was pretty cool"

TABLE 7 – THEMES: MOTIVATIONS FOR LEAVING

Themes	Quote
Career opportunities	"I can't get more than a 10 week O&G rotation here and I wanted to get more experience in O&G to gauge interest in this as a career pathway. I also want to do a certificate of women's health or the diploma, and I'm not able to do this unless I'm on a longer O&G rotation" "Bigger department and training opportunities." "I want to experience more diverse rotations and subspecialties that we don't have here"
Community lifestyle factors	"My partner's family are in Sydney, so it will be cheaper and closer to catch a flight there." "There's nothing to do outside of work." "For me I wanted to go to a place with more diversity, with Asian stuff, yeah because I get homesick a lot... I wanted to go somewhere a bit more familiar." "Being closer to an international airport makes it easier to travel home to see family more often"
Family or partner considerations	"My partner wants to pursue radiology and has exhausted all the options here." "I think it is the strong family pull... I can't move my whole family up here." "My partner had limited job options and was offered a job elsewhere." "My partner got into specialty training in the city"
Seeking change/new experiences	"I want to have a different year, take time off, travel, see different hospitals." "This is the only health service I've experienced as a medical student or doctor, I want to grow and challenge myself as a doctor and try working in a different hospital." "ACRRM would have been good to do here. But there is also have good training in NSW so why not." "I've spent two years here so have learned all I can from this place"
Quality of training/education	"I had trouble starting research for anaesthetics." "I think I would get better training in Brisbane where the registrars are more experienced"

TABLE 8 – THEMES: MOST VALUABLE ATTRIBUTES

Themes	Quote
Workplace culture	"Supportive, good work culture with good relationships between doctors and nurses that felt less hierarchical."
Supervision and senior support	"[Hospital] has some really good mentors who are patient centred." Supportive senior staff and good supervision."
Quality teaching and training	People respected protected teaching time
Practical clinical experience	"The rural experience of stepping up making decisions and opportunities for procedural skills." 'Good autonomy for junior doctors."
Broad mix of presentations/ pathology	"There is a wide variety of presentations including tropical diseases." "The hospital has provided new and different experiences with uncommon pathologies."

DISCUSSION

The majority of prevocational doctors participating in our exit interview left regional areas for work in metropolitan regions or locum positions. This preference has been consistently shown in other international studies that medical schools produce graduates who strongly prefer to work in metropolitan areas, with urban areas seeing a concentration of the medical workforce [2, 21]. Addressing medical workforce maldistribution and building a sustainable workforce across Australia's vast geographical regions is a longstanding challenge. The problem is not unique to Australia but is also shared by other countries with large geographical coverage, such as the United States, as well as by smaller low-income countries [17-18, 21]. The responsibility for overcoming these challenges should not lie with remote, rural, or regional services but is instead a shared responsibility across the health, social, and political sectors. Accordingly, the World Health Organisation (WHO) in 2010 produced global policy recommendations to assist countries in increasing the attraction and retention of health workers in remote and rural areas [18].

The three participating regional sites in this project vary in terms of hospital size, services, and factors influencing place attractiveness, such as affluence, isolation, amenities, and spousal employment opportunities. The statistically significant difference in the reasons doctors chose to work in these regions echo previous findings that location-related factors, including hospital reputation, family ties, and lifestyle play a role in these decisions [22-24]. This finding highlights the importance of tailored recruitment strategies for prevocational doctors that promote a region's unique strengths. A nuanced understanding of regional attributes and how they align with doctors' personal and professional goals could be pivotal in workforce planning [9, 22-23].

Over half of the doctors who chose to work at CHHHS and WBHHS cited the hospitals' strong reputations as their primary reason for starting, while familiarity with the hospital and region was the most common reason (38%) for THHS participants, likely due to its proximity to and affiliations with a medical school. The association between familiarity with the Townsville region and the decision to start work at THHS concurs with the existing body of literature advocating for recruiting medical students of rural-origin, rural clinical schools and rural health exposure [21, 23, 25-26]. Despite these well-established findings and WHO recommendations, many medical students in Australia, particularly those in metropolitan-based medical schools, do not receive adequate rural exposure, with 29% of final-year students having no rural placement experience in their final two years [4, 18]. Similarly, a study by Meade and colleagues reported only 36% of US medical student survey respondents received any rural practice exposure [21]. When one considers the demonstrated influence of rural healthcare exposure on a medical student's choice to work in rural healthcare after graduation, there appear to be opportunities for policy reform and the implementation of broader support for rural and regional training pathways to begin to address the maldistribution of the medical workforce [11, 17, 27].

Career progression opportunities were the most frequently cited reason for leaving overall across the three regional hospitals. This finding aligns with well-documented barriers to workforce retention, particularly the limited availability of specialist training posts in regional areas [11]. The imbalance in specialist training opportunities between metropolitan and regional sites remains a critical issue in Australia, as highlighted in the 2021-2023 National Medical Workforce Strategy [2]. Current retention initiatives, such as bonding schemes and rural allowances, vary across regions, but long-term solutions require consideration of the life and career stage of the targeted workforce [17, 28]. For prevocational doctors, interventions that focus on career progression, such as collaboration with specialist colleges to establish accredited training posts in regional centres, would be a meaningful step towards improving retention [11].

Lifestyle factors, particularly access to direct flights and metropolitan amenities, were common factors influencing doctors leaving regional areas, despite the attraction of coastal living. This outcome highlights the need for broader stakeholder engagement and regional workforce planning that addresses social, economic, and lifestyle factors to create environments where doctors and their families can thrive [22]. Despite significant differences across the three regions in reasons for starting, no statistical difference was found in the reasons for leaving or retention factors. This consistency, despite regional variations, highlights the potential for system-level retention strategies [2, 29].

The consistency in participants' responses for valued workplace attributes could be explored further in future research and used to inform universal strategies to enhance prevocational doctor workforce engagement and potentially improve retention. Most (83%) of participants across all three regions expressed a willingness to return for future employment, which is an encouraging result for the three regional areas. Of the 12% who would not consider returning, 75% were IMGs and 87.5% had trained or identified their hometown as interstate or overseas. These data support previous research emphasising the need for targeted strategies and investment in career pipelines for locally trained doctors to build a sustainable rural and regional workforce [11, 26].

Australia is heavily reliant on IMGs to address current medical workforce maldistribution [2]. Based on internal medical workforce estimates, the participant demographics suggested an over-representation of IMGs leaving the three sites. Future research could improve understanding of the overall profile of the prevocational medical workforce and any unique characteristics associated with the reasons IMGs leave regional areas, providing important information if this cohort are to be a sustainable solution to Australian's workforce shortages [28]. From an ethical perspective, the use of IMGs to support developed countries such as Australia should be undertaken with an understanding of the WHO Global Code of Practice on the International Recruitment of Health Personnel and conducted in a way that collaborates with developing nations to strengthen all health systems [30].

This study provides valuable insights through semi-structured exit interviews, offering a nuanced understanding of why prevocational doctors leave regional hospitals. While the focus was regional hospitals, a limitation is the lack of comparison with metropolitan hospitals, which could provide a more comprehensive understanding of workforce challenges. Although the study is specific to Queensland, Australia, the findings may be relevant to other developed countries facing similar issues of workforce maldistribution in geographically dispersed areas, such as that experienced in the United States and Canada [17].

LIMITATIONS

Despite robust standardisation efforts, the potential for interviewer bias cannot be eliminated. All four interviewers were Australian-trained doctors working in education or administration fields within the hospitals where interviews were conducted. Reflexivity was managed by interviewers asking the preselected questions prior to prompting participants for a more in-depth answer. The timing of the interviews, conducted during the last month of employment, may also have affected the extent to which participants disclosed reasons for leaving, particularly for those considering returning to the hospital. While the high participation rate is a strength, this timing may have led to less candid responses, despite efforts to reassure participants through de-identification of data. There is further self-selection bias to be considered in interpretation of the results.

The limited sample size of 83 participants across three sites and the dilution of the results through multiple themes and sub-divisions has impacted the power of the results, however the authors wanted to reflect the multitude of factors that influence the decisions of prevocational doctors, to inform future work and quality improvement.

CONCLUSION

While the findings of this study echo the well-established challenges of recruiting and retaining doctors in regional Australia, they also bring to light opportunities for system-level strategies.

While each health service offers distinct attraction factors, the retention barriers in these regions are thematically consistent. A key driver of departures is the pursuit of career progression opportunities in metropolitan hospitals, along with lifestyle factors beyond the control of individual hospitals. Even a regional tertiary referral hospital with specialist training positions experienced a similar trend, underscoring the complex dynamics influencing prevocational doctor retention.

Prevocational doctor workforce shortages need to be addressed by collaborative effort between local and state health services, medical schools, and policy review at federal government level. Expanding opportunities for career progression,

sustained investment in regional infrastructure and optimising the attractive nature of regional areas will be crucial to building and maintaining a sustainable regional medical workforce.

DECLARATIONS

Ethics approval and consent to participate

The study was approved by the Townsville Hospital and Health Service Human Research Ethics Committee (HREC approval: THHS EX/2024/QTHS/108407). In accordance with the Declaration of Helsinki, all participants provided informed consent prior to participating in the study, and their responses were anonymised to ensure confidentiality.

Consent for publication

The authors sought permission from their respective health services to publish.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

EH, AT, LM, LY all worked on the project design, data collection, manuscript write up and editing. EH conducted the data analysis.

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APPENDIX 1

Interviewer: **Date:** **Participant:**

What brought you to this hospital initially?	
What are your plans after leaving?	Hospital: Position: Training:
What is your motivation for leaving?	☐ Family ☐ Rotations ☐ Lifestyle ☐ Specialist training program ☐ Other:
What did you find most valuable about your experience here?	
Are there any factors, if different, that would have kept you here?	
When considering your career and lifestyle factors, what influences your decision to work somewhere?	
Would you consider returning to this health service?	☐ Yes ☐ No Reason:
Any other comments?	