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Increasing medical student interest in general practice in New Zealand: where to from here?

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Abstract

Introduction To meet increasing health demands, increasing the proportion of local graduates entering general practice is imperative.

Methods Students entering or exiting The University of Auckland's medical programme from 2006 to 2008 were invited to complete a tracking project survey. Levels of interest in general practice were determined along with characteristics associated with a greater or lesser interest in this career.

Results 712 students replied—a response rate of 80%. At entry, 40% of students had a *strong interest* in a career in general practice, and at exit, 29% ($P=0.003$). A quarter at each time point had *no interest*. The proportion of domestic students born outside NZ or Australia was 160/376 (42.5%). There were significantly higher levels of interest in general practice among females, students born in NZ, and those from outside Auckland - especially rural origin. Flexibility in career was more important to students with a *strong interest* in general practice than those with *no interest*.

Discussion Auckland medical students have levels of interest in general practice comparable with international data. Increasing this interest further may require admission of a greater proportion of students from those groups with higher interest levels, greater emphasis on the positive aspects of general practice, and on GPs as equals to other specialists.

In New Zealand (NZ) and globally, health care delivery is jeopardised by shortages in the general practitioner (GP) workforce. In 2008, a third of the doctors in NZ were GPs (3435/10,552 or 32.5%).¹ This proportion has been stable in recent years, however, it masks vulnerability in this workforce.

The GP recruitment rate is lower than the leaving rate; almost one-third of GPs, mostly male, intend to retire or emigrate in the next 5 years,² compared to about a quarter of GPs in the UK.³ Over 40% of NZ GPs are international medical graduates with this factor being associated with a lower likelihood of staying in NZ in the longer term.¹

Over the past 8 years, the average number of hours worked by GPs, on average, has fallen from 42 to 38 per week.² General practice is a popular specialty for women doctors in NZ. However, as women work about seven hours fewer per week than their male counterparts¹, shortages will be further exacerbated as the proportion of women in general practice approaches 50%.

Specific initiatives that may address GP shortages in NZ are underway:

- Since 2004 there have been 40 extra places per year for rural origin medical students;
- Up to 300 new student places will be created over the next few years;
- The number of GP registrar training places has increased;
- The NZ government has offered \$30,000 financial incentives to doctors who work in hard-to-staff regions then train in general practice, general medicine, general surgery, psychiatry or pathology.⁴

Recently, the Medical Training Board noted—‘of special importance is the need to direct much more of the medical school intake of the future into general practice.’⁵ To inform medical schools’ contribution to increasing the number of GPs, this study aimed to use student data from one NZ school to:

- Identify student characteristics at entry associated with greater or lesser interest in general practice;
- Compare interest in general practice between entry and exit cohorts, and explore possible reasons for any difference.

Methods

The University of Auckland has one of two NZ medical schools for a population of over four million. A quarter of NZers live in the greater Auckland area, with another half outside the major cities. Students for the six-year Auckland programme are selected after one year at university, or a prior degree.⁶ The majority are domestic students: i.e. NZ or Australian permanent residents or citizens. In 2009, applicants competed for 155 domestic places, 30 of which were reserved for Māori and Pacific admission scheme students (MAPAS), and 20 for students of rural origin (ROMPE).

Since 2006, medical students have been invited to participate in the Faculty of Medical and Health Sciences Tracking Project, described previously.^{7,8} This study used data from medical students completing a Tracking Project questionnaire at entry or exit in 2006, 2007 or 2008. Both entry and exit questionnaires have a similar question on career intention: for a range of 18 specialties (including general practice), students indicated whether they had a *strong interest*, *some interest* or *no interest* in pursuing that career. The entry questionnaire also asks about student background and demographics. Purposive subgroups were chosen for further analysis: entry pathway, place of birth, home address and gender. The exit questionnaire includes questions about impacts on career choices.

All students returning a survey and completing the relevant question were included in the analyses, except for the comparison between those from within and outside Auckland, from which full-fee paying international students were excluded. Categorical data were analysed using Pearson’s chi-square except where Goodman and Kruskal’s gamma test was used.

Results

Response rates averaged 82% (397 students) in the three entry cohorts and 79% (322) in the three exit cohorts, however not all students answered every question. The levels of interest in a GP career of students at entry and in selected admission subgroups are shown in Table 1.

Table 1. Levels of interest in general practice at entry, overall and by entry pathway - number (%)

Variables	Strong interest	Some interest	No interest	Comparison with other students
Entry (all)	157 (40%)	129 (33%)	102 (26%)	
- ROMPE	31 (61%)	10 (20%)	10 (20%)	$P = 0.006$
- MAPAS	32 (52%)	13 (21%)	17 (27%)	$P = 0.059$
- Graduate	41 (51%)	21 (26%)	19 (23%)	$P = 0.102$

Of the 397 entering students, 187 (47%) were born in a foreign country but of these, 6 (1.5%) were born in Australia, and 21 (5%) were international full-fee paying students. The proportion of domestic students not born in Australia or NZ was 160/376 or 42.5%. The levels of interest in a general practice career by country of birth, home address in NZ, and language spoken at home are shown in Table 2.

Table 2. Levels of interest in general practice by birthplace, address in NZ and language spoken at home—number (%)

Variables	Strong interest	Some interest	No interest	Comparison
NZ-born	99 (47%)	60 (29%)	51 (24%)	$P = 0.005$
Born outside NZ	58 (31%)	70 (37%)	59 (32%)	
From out of Auckland	61 (48%)	28 (22%)	39 (30%)	$P = 0.006$
From Auckland	81 (34%)	89 (37%)	71 (29%)	
English main language at home address	127 (44%)	87 (30%)	74 (26%)	$P = 0.011$
English not main language at home address	30 (27%)	43 (40%)	36 (33%)	

A comparison of the levels of interest at entry and exit, by gender, is shown in Table 3. Factors at exit such as marital status and having children were not associated with the level of interest in general practice (data not shown). Levels of interest in general practice in exiting students were significantly lower than in students at entry ($p = 0.003$).

Table 3. Levels of interest in general practice at entry and exit, overall and by gender—number (%)

Gender	Strong interest	Some interest	No interest	Responses	Gender comparison
Entry (all)	157 (40%)	129 (33%)	102 (26%)	388 (100%)	
Female	100 (48%)	61 (29%)	48 (23%)	209 (63%)	$P = 0.006$
Male	57 (32%)	68 (38%)	54 (30%)	179 (37%)	
Exit (all)	89 (29%)	136 (44%)	83 (27%)	308 (100%)	
Female	61 (32%)	90 (47%)	42 (22%)	193 (63%)	$P = 0.027$
Male	28 (24%)	46 (40%)	41 (36%)	115 (37%)	

Students at entry indicated a *strong interest* in four disciplines on average; in the exiting students this was three disciplines, but the range was wide. At entry, general practice was the fourth most popular speciality of the 18 listed; behind medical

subspecialties, general surgery and surgery subspecialties. At exit, it was second only to medicine subspecialties.

In response to the exit survey question, ‘please rate the extent to which your interest in [general practice] was determined by your clinical attachment’, 172/315 (55%) of students reported a *positive effect* of the general practice attachment on their career choice, 96/315 (30%) *little or no effect*, and 47/315 (15%) a *negative effect*.

Students were asked in another question to ‘rate the importance of selected factors on their career choices’. We compared how students with a *strong interest* in general practice and those with *no interest* rated each of the factors (see Table 4). Compared with those with *no interest* in general practice, students with a *strong interest* were significantly more likely to rate ‘flexibility’, and ‘area of need in health system’ as important factors in career choice, and ‘experiences in lectures / teaching’ as less important. The other differences were not significant.

Table 4. Comparison of factors affecting career choice between those with *strong interest* in general practice, and those with *no interest*

Factors affecting career choice	Strong interest in general practice (n = 92)			No interest in general practice (n = 92)			Statistical significance	
	Positive Effect	Little/No Effect	Negative Effect	Positive Effect	Little/No Effect	Negative Effect	Gamma	P
Positive experience during clinical attachments	88	4	0	91	1	0	-0.61	0.17
Flexibility of specialty	87	5	0	67	23	2	0.73	< 0.001
Positive experience of lectures/teaching	53	39	0	67	25	0	-0.33	0.03
Medical role models	76	14	2	84	8	0	-0.38	0.07
Area of need in health care	47	43	2	34	54	4	0.28	0.04
Remuneration available	32	58	2	29	58	5	0.11	0.15
Friend/Family in area	21	67	4	16	69	7	0.19	0.23
Extent of student debt	8	73	11	9	70	13	0.028	0.868

Discussion

Current levels of interest in general practice —In recent years, 40% of medical students at entry to one of NZ’s two medical schools signalled a *strong interest* in general practice. Over the same time period, the proportion of graduating students expressing a *strong interest* was 29%. Just over a quarter of both entering and exiting students reported *no interest* in a GP career. Allowing for differences in definitions and study methods, the proportion of Auckland students with a *strong interest* is consistent with levels of interest shown by UK and Australian medical students.

A quarter of medical graduates in the United Kingdom (UK) list general practice as their first choice of career, however this varies by medical school from 12 to 32%.⁹ A recent report from Australia suggests 25% of graduates anticipate a GP career.¹⁰ These levels are higher than seen in the USA, where the proportion of medical

students interested in a GP career reportedly dropped from 35.6% in 1999 to 21.5% in 2002.¹¹

The response rate was about 80% however we believe the results are generalisable to all Auckland students for two reasons: firstly, the student backgrounds are representative of the medical student body at large; secondly, in the questions about career, general practice appeared as one specialty in an alphabetical list with 17 others.

The major limitation of this study is that it does not yet allow paired comparisons between intentions at entry and exit intentions, and thence with longer term data on eventual location and vocational scope of practice. For example, the observed drop in interest at exit may be explained by cohort bias. As an example, the introduction of ROMPE from 2004 may have prompted greater interest in a general practice career outside urban centres in the entry cohorts.

Despite the limitations we believe that the study is large and robust enough on which draw some conclusions as to what schools might do to increase further the proportion of medical students predisposed to a general practice career in NZ. These are considered under student and curriculum factors.

Student factors—There were definable subgroups of Auckland students with a greater or lesser interest in general practice. Students with a *strong interest* were more likely to be born in NZ, to speak English as a primary language at home, and to have come from outside the Auckland region.

Nearly two-thirds of ROMPE students had a *strong interest* in general practice and levels were significantly higher than in non-ROMPE students. This is consistent with other studies which show student background is three times more important than curriculum experiences in a rural career choice.^{12, 13} Indeed, other recent data from Australia and NZ confirm the strong relationship among rural background, intention to work outside major centres and generalist career intent.^{14, 7}

There were higher levels of interest in general practice among MAPAS students, but this did not reach statistical significance. This may be a Type 2 error based on small numbers, as current Māori and Pacific doctors are more likely to work in general practice than other disciplines.¹ increasing the number of Māori and Pacific students is a priority based on equity grounds,⁶ but these data may provide another argument to do so.

With respect to graduates, our findings are consistent with others: graduates may have greater interest in general practice at entry than their peers, but their career paths ultimately prove similar to other doctors.¹⁵ The pros and cons of increasing the number of graduate entrants in NZ were discussed in this journal recently.⁶

At both entry and exit, females had significantly higher levels of interest in general practice than their male peers. Additionally, a desire for flexibility was the strongest differentiating factor in career choice between those with a *strong interest* in general practice and those with *no interest*. These are not new findings; general practice has long been the career choice for a higher proportion of women than men and the first choice for women. Women doctors seem prepared to trade some career aspiration for career flexibility.¹⁶ Given the biological and social realities for women with children,

continued promotion of the flexibility of training and work, and career opportunities in general practice, seem paramount.

An unexpected finding of this study was that such a high proportion of domestic students in this programme was born outside NZ or Australia, with South Africa and Asia (including India) being the most common regions of origin. The proportion is similar to that reported in Australian medical schools in the 1990s¹⁷ with both being approximately double the proportion of overseas-born domestic medical students reported in the UK.¹⁸

As in the current study, overseas-born medical students in the UK are less likely to indicate an interest in general practice, with one explanation offered being the low prestige of general practice their birth countries.¹⁸ Over 60% of medical students in this programme come from the Auckland area where there has been rapid diversification in the population in recent years. In the 2006 census, only 64% of the Auckland population identified as New Zealand European or 'New Zealander' compared with 76% in 1991.¹⁹

Some might regard our findings as a reason to reduce the numbers of overseas-born students selected for the programme on the basis they are less likely to indicate a *strong interest* in a career in general practice. It should be noted, however, that the great majority of overseas-born domestic medical students are now NZ citizens. As such, they have demonstrated commitment to NZ, and are subject to the same rights as other citizens. At this stage we would argue that the evidence is yet not strong enough for such a step - two thirds of students born overseas have at least *some interest* in general practice.

Curriculum—The determinants of a student career choice in general practice are complex.²⁰ A recent review found factors intrinsic to the student to be the most important, although external factors such as learning experiences and serendipitous events, especially advice that general practice is a career of 'last resort', also have an impact.²⁰ One study reported only 30% of those initially interested in primary care remained interested at all three time points in the curriculum, compared with 68% of those interested in non-primary specialties.²¹ In that study, the proportion interested in primary care declined from 44% at entry to 32% in the final year.²¹

A negative effect of a general practice attachment on career choice was reported by 15% of our students, although it is not possible to determine from this study why this was. Others have voiced concerns regarding systematic bias in the medical education continuum towards careers in non-primary care fields.²² The importance of optimism of GPs about their specialty in their interactions with students cannot be overstated.²³

The footprint of general practice in the Auckland programme has been similar since 2000, apart from the introduction of a Year 5 regional-rural pathway for 20 volunteer students from 2008.²⁴ Students undertake general practice attachments in Years 4 (4 weeks), 5 (2 weeks) and 6 (6 weeks). The Year 4 and 6 attachments are further subdivided into urban and rural components. The optimum undergraduate student experience (e.g. timing, length, curriculum, and environment) for promotion of a general practice career is not well defined, especially for those students who do not have a *strong interest* in general practice to start with.

Evidence is mounting that to stimulate a career in rural general practice, an attachment needs to be at least a month long,^{25, 26} but much of this evidence comes from rural immersion programmes for which students have self-selected. Fewer and longer primary care attachments in urban areas may be better than repeated short ones, but this needs further study. Others have suggested engagement of students in general practice interest groups throughout their programme is useful.²⁷

Conclusions

Medical schools have been challenged to ensure a greater proportion of medical graduates enter general practice. The students in this study will become specialists between 2012 and 2020; NZ needs all those signalling a *strong interest* in general practice to enter it, and many more.

In time, data from this project and the Australasia-wide Medical Student Outcome Database (MSOD) will help confirm the optimum configuration of clinical attachments for promoting a general practice career, and how student intentions relate to eventual practice.¹⁴

Our study suggests the following approaches would be useful immediately:

- Increasing the proportion of domestic students from outside Auckland, especially from rural areas;
- Highlighting the positive aspects, flexibility and range of GP careers;
- Ensuring GPs engaged in primary health care are consistently seen by students as equivalent to other medical specialists.

To achieve the second and third point will require synergy of effort among medical schools, the RNZCGP, DHBs, MCNZ and the new Ministry of Health workforce agencies.

Disclaimer: The opinions are those of the authors and not necessarily those of the University of Auckland.

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