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Supporting Medical Students Towards Future Careers in General Practice: A Quantitative Study of Irish Medical Schools

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Abstract

Aim

In Ireland there is a significant, and increasing, shortage of general practitioners. By 2025, this shortfall could be as high as 1,380, from a current workforce of 3,923. We aimed to determine the proportions of EU medical graduates from each of the six Irish medical schools who applied to the national GP Training Program for 2017-21 inclusive.

Methods

The Spearman rank correlation was used to examine the correlations between the proportions of graduate entrants, the number of weeks spent directly on GP placement teaching at each medical school and the proportions of applicants, to GP training, from each medical school.

Results

Between 2017-2021 inclusive, the average annual percentage of EU graduates applying to the national GP Training Program (n=1,302) ranged from 25-55% for each of the six Irish medical schools - a 2.2 fold difference. There was a strong correlation between the average annual percentage of EU graduates applying to the ICGP Training Program with the proportions of graduate entrants, but this did not reach statistical significance, (r=0.81; p=0.20) and no association with the number of GP placement weeks (r=0.2; p>0.50).

Conclusion

We found a marked difference in the proportions of EU graduates, from the six medical schools, opting for a career in general practice. Further work is required to inform how best medical schools can support the generation of tomorrows general practitioners.

Keywords: career destination; undergraduate teaching; education; students, medical

Introduction

Health systems globally are currently producing insufficient general practitioners (GPs) to sustain workforce requirements[1]. Ageing of populations and the medical workforce itself, will only exacerbate this shortage. The career choice of doctors is a complex phenomenon[2]. However, the length and quality of general practice (GP) experience at medical school is accepted as a key positive factor in promoting GP as a career[2]. Exposure to General Practice as part of the formal, informal, and hidden curriculum, and positive experiences and role models in GP have all been identified as contributing factors in young doctors choosing to undertake higher training in GP[3, 4].

The 2016 Wass Report[5] strongly highlighted the importance of medical schools in promoting GP as a career and noted that this impact remains largely under explored. Subsequent to the publication of this Report, research has explored the influence of medical schools including relevant systematic reviews[6, 7], national surveys of UK speciality training programmes[8] and specifically GP training[9]. Alberti[9] and Amin[6] both highlighted the importance of additional work to better understand the complexities of medical student career choice.

In Ireland it was estimated in 2015, that by 2025 the shortage of GPs could be as high as 1,380 – in a total workforce of 3,923, necessitating an increase in trainee places by 75%-142%[11]. We therefore aimed, utilising existent national data, to determine the proportions of EU medical graduates from each of the six Irish medical schools who applied to GP Specialist Training in Ireland for 2017-21 inclusive. A secondary aim was to determine, for 2021 only, the proportions of EU medical graduates from each of the six Irish medical schools who accepted a place onto the GP Specialist Training Programme.

Methods

Irish general practice training is a four year specialist programme delivered by the Irish College of General Practitioners (ICGP), the postgraduate specialist training and education professional organisation for GPs in Ireland (*https://www.icgp.ie/go/become_a_gp , accessed 21/09/22*). Training comprises two years in hospital rotations, followed by two years in GP, supported by a half day small group teaching programme weekly in the hospital years, increasing to a full day weekly programme in the GP years. Applications are open to qualified doctors who have satisfactorily completed foundation year and are eligible to register on the Medical Council trainee specialist register.

At the time of this study, as part of the national policy of self-sufficiency and in keeping with EU law, following competitive recruitment processes, available postgraduate specialist training places in GP (or any other speciality), were allocated in the first instance to those candidates who were citizens of Ireland, or nationals of another EU/ EEA Member State. This policy was why at the time of this study, international graduates from Irish medical schools rarely entered post graduate GP training. Hence this study focused specifically on EU medical students. This policy changed in 2022 whereby applicants with a Stamp 4 visa (which entitles holders to work in Ireland without a work permit) were included in the same category as the aforementioned.

Ireland has six medical schools located in the National University of Ireland Galway, University College Dublin, University College Cork, University of Limerick, Trinity College Dublin and the Royal College of Surgeons in Ireland University of Medicine and Health Sciences. Five of these schools have 'traditional' curricula with the vast majority of clinical teaching occurring in hospitals. Medicine is either a 5-6 year undergraduate degree programme - with applicants coming directly from second level school, or a 4 year graduate entry degree programme. The educational context in Ireland is notable in having large numbers of non-EU medical students – often 40% or more of the entire student cohort.

The ICGP provided anonymised data, listing the medical school of graduation for each applicant to the ICGP General Practice Specialist Training programme 2017-2021. Using the annual number of EU entrants to each medical school, we calculated, for each medical school, the annual percentage of EU graduates that *applied* to the ICGP general practice training program.

More detailed data were available from the ICGP for the year 2021. This provided the medical school of graduation for each EU graduate who *accepted* a place onto the ICGP training program. As described above, we then calculated for each medical school, the percentage of EU graduates that were *accepted* onto the 2021 ICGP training program.

Data was obtained from the Executive of the Association of University Departments of General Practice (https://www.audgpi.ie/) for each medical school regarding the number of weeks spent throughout the curriculum in 'authentic GP teaching'. This is defined by Alberti[9] as 'teaching in a practice with patient contact'.

Spearmans rank correlation was used to examine the correlations between the proportions of graduate entrants, the number of weeks of authentic GP teaching at each medical school and the proportions of applicants from each medical school.

Results

The proportions of students in medical schools who are graduate entry ranged from 0% to 100%, with a median of 32.5% (Table). The number of weeks spent in authentic GP teaching in each medical school ranged from three to eighteen with a median of four weeks.

Table 1: *An analysis of 2017-21 applications and 2021 acceptances to the ICGP Training Program.*

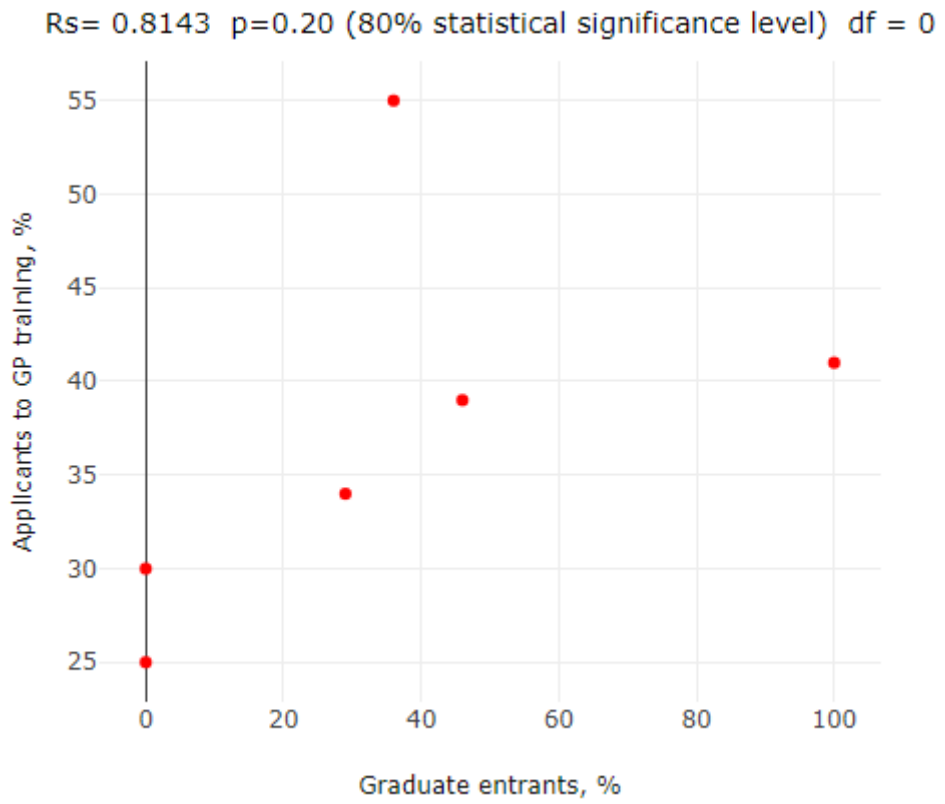
Annual no. of EU graduates *(n=717)*[1]	**Annual no. of school leavers (%) *(n=448)***	**Annual no. of graduate entry students (%) *(n=239)*[2]**	**No. of weeks spent in authentic GP teaching in entire curriculum**	**Total no. of EU graduates applying to ICGP Training program 2017-21 *(n=1,302)***	**Average annual % EU graduates applying to ICGP Training Program 2017-21 *(n=2,299* applications in total)**	**% EU graduates who accepted a place onto 2021 ICGP training program *(n=236* acceptances in total)**
Widen						
Medical School #1						
84	39 (46)	30 (36)	4	230	55	39
Medical School #2						
95	0 (0)	95 (100)	18	193	41	26
Medical School #3						
167	88 (53)	77 (46)	3	328	39	29
Medical School #4						
128	87 (68)	37 (29)	8	217	34	23
Medical School #5						
120	118 (98)	0 (0)	4	178	30	24
Medical School #6						
123	116 (94)	0 (0)	4	156	25	16

1. *This data is based on the number of entrants, but due to students who may have taken time out, or repeated a year, there may be small variations in the actual numbers of EU graduates each year.*
2. *Each year, between the six medical schools, there are 30 places reserved for mature entry students who are part of a national program to widen access to higher education. Due to their differing entry criteria, they are not further considered in this study. The proportions of school leavers and graduate entry students for each medical school may therefore not sum to 100%.*

Between 2017-2021 inclusive, there were a total of 2,299 applicants to the ICGP GP training program. The number of applicants increased each year from 286 in 2017, to 685 in 2021 – a 2.4 fold increase. The number of available training places also increased from 172 in 2017, to 233 in 2021.

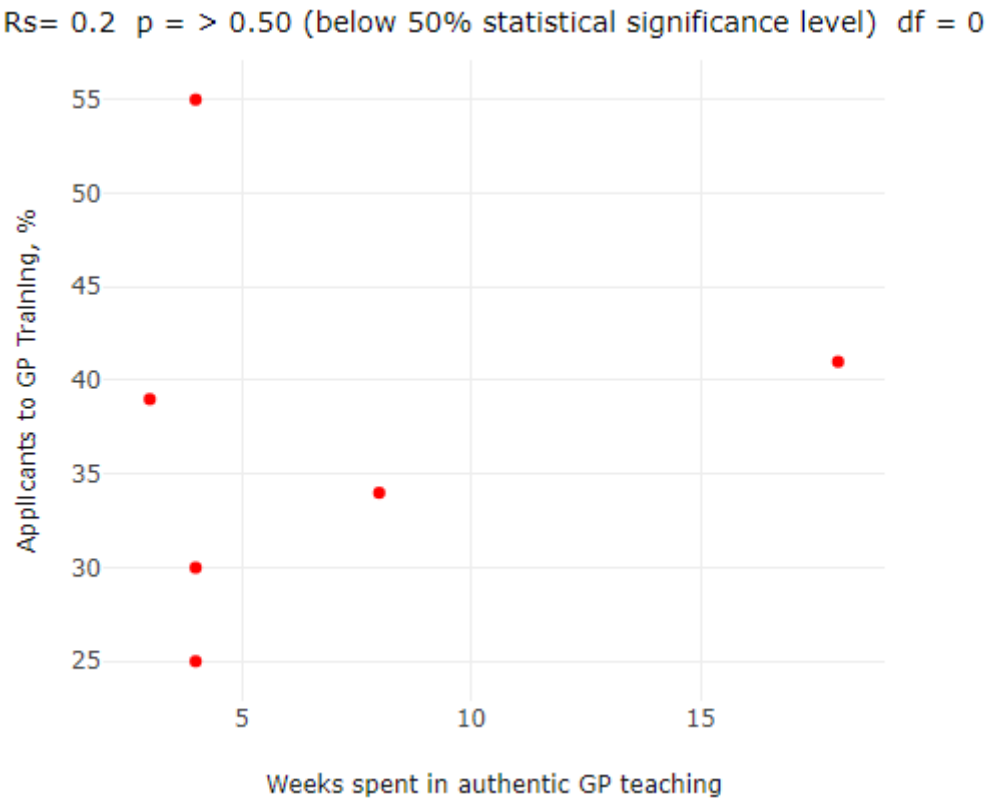
Between 2017-2021 inclusive, the average annual percentage of EU graduates *applying* to the program ranged from 25-55% for each of the six Irish medical schools (*Table 1*). This represents a 2.2 fold difference between schools. There was a strong positive, non-significant, correlation between the proportions of graduate entrants at each medical school and the proportions of applicants to the GP training program; (r=0.81; p=0.20) (Figure 1).

Figure 1: *Scatter diagram for each medical school of the proportions of graduate entrants, against the proportions of applicants to the general practice training program 2017-2021.*



There was no association between the number of weeks spent in authentic GP teaching in each medical school and the proportions of applicants to the general practice training program (r= 0.2; p>0.50) (Figure 2).

Figure 2: *Scatter diagram for each medical school of the number of weeks spent in authentic GP teaching, against the proportions of applicants to the general practice training program 2017-2021.*



For 2021 only, the percentage of EU graduates who *accepted* a place onto the ICGP Training Program ranged from 16-39% for each of the six Irish medical schools (*Table*) - a 2.4 fold difference. The rank order for applications stayed the same for accepted places for Schools #1 and #6, with minor re-ordering of schools #2 to 5. There was a moderate positive correlation between the proportions of graduate entrants at each medical school and the proportions of acceptances to the 2021 general practice training program; this was not significant (r=0.67; p=0.20). There was no association between the number of weeks spent in authentic GP teaching in each medical school and the proportions of acceptances to the 2021 general practice training program (r= -0.2; p>0.50).

Discussion

This national analysis has confirmed a sustained rise in applications for GP training over the study period. As the number of places in GP expanded, this was reassuringly matched by increased demand, a finding that demonstrates that medical graduates from Irish Medical Schools see GP as a viable and interesting career choice.

There was a more than two fold difference in the proportions of EU graduates from the various Irish medical schools who applied to GP training. There is a strong correlation with the proportions of students who are graduate entrants and no correlation with the number of weeks spent in authentic GP teaching. This may simply reflect our small sample size. Authentic GP teaching is limited in all but one of the six schools and overall falls far short of proportions of such teaching in UK medical schools. A similar, but much larger, national UK study of 29 medical schools[9] found a statistically significant correlation between the quantity of authentic general practice teaching and the percentage of graduates entering GP training. Alberti[9] called for further confirmatory research of this association, which our work in a different country and health system contributes to.

Strengths of this study include being the first time such a national survey over a five year period has been conducted in Ireland and the availability of both offer and acceptance data for one year. A key limitation is the small number of medical schools and applicants. This in particular could have attenuated the impact of the limited authentic GP teaching as there was relatively little variation in this between medical schools. Other limitations include referring to EU graduates only, not knowing the exact number of EU graduates for each medical school for each graduating year (see table for explanation) and possibly changing medical curricula with respect to authentic GP teaching. Ideally, data for the numbers of graduates who accepted places for the years 2017-2020 would also be available. Some applicants may be using general practice as a 'back-up option', with a more preferred choice in another discipline. In addition, some students apply to GP training after a number of years of postgraduate training in other disciplines or indeed apply to GP training outside of Ireland all together.

A systematic review of the effect of medical student debt – a key issue for graduate programs - on speciality choice, noted that the majority of studies found that debt was associated with the pursuit of higher paying specialities[11]. However, the authors noted conflicting results with most studies being conducted in the US and possibly limited generalisability to other countries. For example, a study of data from 136,232 physicians, who graduated from allopathic US medical schools between 1988 and 2000, suggested that high educational debt deters graduates of public medical schools from choosing primary care, but does not appear to influence private school graduates in the same way[12]. It is noteworthy that graduate applicants from widening access backgrounds are less likely than others to be offered a place at medical school[13]. Moreover, a study of UK GPs found an association between lower socioeconomic and more remote childhood backgrounds, and subsequent practice in deprived and more remote locations[14]. Therefore careful consideration of the potential impact on medical student diversification, needs to occur before any rapid expansion of graduate entry routes.

The Wass Report[5] presented a range, for thirty UK medical schools of the proportions of medical school graduates appointed to UK GP training of 7-30% - a 4.3 fold difference. Our equivalent range for six medical schools was 16-39%. This is despite much more limited exposure to authentic GP teaching in Ireland (see Table), as compared to the UK, which has a median of 106 GP sessions per medical school (range 44-376)[10].

The Wass Report[5] recommended that the UK General Medical Council should declare GPs as specialists. The Irish Medical Council has had a specialist register for GPs since 2007 – the first European country to do so.

Medical schools are complex institutions, with a reach extending far beyond the university campus. Wass[5] identified 'tribalism' as a very significant and deeply seated issue affecting students. This is when students experience an uncomfortable divide between primary and secondary care with comments perceiving general practice to be of 'lower status'. Carlin has shown that being a school-leaver entrant student compared with a graduate-entry student makes students more likely to be influenced by such comments[15]. This may be particularly apposite for Ireland with high numbers of school-leaver entrants. A recent small survey of medical students in Ireland reported that the perception of GP portrayed by other specialities and classmates was the most influential factor deterring students from GP[16]. Wass also suggested that *'Graduate students in contrast hold more life experience and some had already identified a career in general practice as their ultimate goal'*[5]. It is noteworthy that Alberti excluded from their national analysis a graduate only school[9]. Glynn reported that for Ireland's single graduate-only medical school, which has eighteen weeks of authentic GP teaching, 43% of their alumni were engaged in GP as a career 6-8 years after graduation[17].

The UK Department of Health in 2015 set a target of 50% of postgraduate medical training places to be allocated to general practice[18]. No similar target exists in Ireland and our figures suggest that Ireland is nowhere near achieving such a target. Alberti suggested medical schools need to seriously consider their role in addressing the medical service needs of the nation and the contributions they can make though revising their courses[9]. Another response would be to significantly increase the number of graduate entrants, whilst managing the inherent potential for disadvantaging students from poorer socioeconomic backgrounds. A more radical development would be to develop an entirely new medical school with a particular focus on addressing the recruitment and retention of GPs and generalists - such as the Scottish government has done with ScotGEM with 75% of clinical training in the community (https://www.st-andrews.ac.uk/subjects/medicine/scotgem-mbchb/; accessed 21/09/22). Such a radical approach may have an earlier impact than attempting to influence current medical curricula - some of which have evolved over 425 years. Further national and international work is required to inform how best medical schools can support the generation of tomorrows GP's. The current crisis in workforce planning in GP will require radical and effective solutions.

Declaration of Conflicts of Interest:

Six of the seven authors are GP's who believe that general practice can and should make a major contribution to undergraduate medical teaching. The seventh author, a medical student, shares this view. No other competing interests have been declared.

Ethical Approval:
Ethical approval was granted in October 2021 by the Research Ethics Committee of the ICGP ICGP_REC_21_0043.

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