MEDICAL UNDERGRADUATE CAREER PREFERENCE ENQUIRY

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INTRODUCTION

CHOICE of specialty among medical students and qualified doctors has for some time presented a subject of research in Great Britain and elsewhere. In no other discipline do graduates from a common vocational degree course enter such diverse occupations as, for example, surgery and general practice or psychiatry and laboratory medicine, where the working environment, ‘job’ content and personal attributes required of the practitioner vary so enormously. The reasons why one doctor should choose to enter community medicine and another anaesthetics have been explored from various standpoints by doctors themselves, by psychologists, sociologists, educationalists and administrators. In recent years a growing concern about the problems within the National Health Service, the number of doctors leaving this country and the difficulty in recruiting staff to shortage specialties has precipitated a number of studies of choice of specialty in England and Scotland. The most comprehensive and detailed study of the determinants of choice of specialty so far undertaken is currently being carried out for the DHSS by the Institute of Manpower Studies at the University of Sussex, with the approval of the British Medical Association. This survey will cover 7,500 qualified doctors.

Little work, however, has been done in this field in Northern Ireland. One of the main functions of the Northern Ireland Council for Postgraduate Medical Education is to provide a careers information and advisory service for recent graduates. This service is limited by a lack of basic information about the factors which influence young doctors in choosing a specialty and deciding in which part of the world they will practise. There is no reliable information available about the career preferences of Queen’s medical students; how these preferences may be influenced by academic achievements and home backgrounds or how preferences may change as students are exposed to various specialties and aspects of medical practice during their undergraduate and early postgraduate years. It is often said that only one third of the medical graduates of Queen’s remains in the province, one third going to Great Britain and the other third to Canada, the United States and elsewhere in the world. This, however, has been a matter of conjecture as no reliable information is available.

In an attempt, therefore, to obtain a better understanding of the subject, Council has undertaken a twofold survey with the assistance of the Faculty of Medicine. In general terms the objectives of the survey are:
1. To collect information on career preferences and their determinants and the desired location of practice among Queen's medical undergraduates and how far these are or can be fulfilled.

2. To collect information on the chosen specialty and on the destination (transient and permanent) and its determinants of Queen's medical graduates. This paper is an interim report on the first aspect of the study, and includes references, where relevant, to other work done in Great Britain and the United States. A paper concerning the graduate survey will appear at a later date.

METHOD

Since undergraduate preferences and intentions can be expected to change as more experience is gained, a longitudinal study was planned to cover the 1976/77 second, fourth and final year students. It is intended that these three cohorts should be reviewed at two-yearly intervals, their preferences being monitored through postgraduate training to eventual career commitment. It is envisaged that the project should span at least eight years, since previous research has shown that the usefulness of a study of undergraduate career choice alone is limited, the preferences of even final year students having little predictive value, (Last and Stanley, 1968; Last and Brodie, 1970).

The first batch of questionnaires was distributed in May 1977 to 154 second year students, 147 fourth year students and 141 final year students. The number of questionnaires returned were 153, 143 and 138 respectively, giving percentage response rates of 99.4, 97.3 and 97.9 per cent. The questionnaires were distributed to each student at the beginning of a lecture, with an explanation about the purpose of the exercise from the Dean of the medical faculty, which undoubtedly contributed to the pleasing response rate. Those who were absent received their questionnaire by post, with a reminder letter at a later date, where necessary.

The questionnaire covered:

(1) background information (age, sex, marital state, place of residence, subjects taken at 'A' level and grades obtained, and the occupation of parent or guardian.)

(2) current career preferences.

(3) intended place of work, in the long term.

RESULTS

Figures which appear in brackets in the tables represent the preceding number as a percentage of the total, unless stated otherwise.

Background Information

Age

Students who were nineteen on beginning their degree course made up 56.9, 51 and 50.7 per cent in the second, fourth and final year groups. Mature students,
defined as those aged twenty-three years and four months or over on entry numbered only 2, 9 and 6 in the three groups.

Sex

Female medical students represented about one third of the total and appeared to decline progressively in number from final to second year, but the chi squared test indicates that the decrease is not statistically significant (0.20 > p > 0.10).

Marital Status

The large majority of the students were single, though, predictably, the percentage of married students increases towards the final year with 1.3, 7.7 and 18.1 per cent in the three classes.

Place of Permanent Residence

Table I illustrates the place of permanent residence of the respondents. The small percentage of students classified under “elsewhere” came, in descending order of numbers, from various parts of Asia and Africa, from Norway and from North and South America. Although the slight increase in the number of students coming from outside the province in the past few years is not statistically significant, (0.7 > p > 0.5), it is interesting to note, nonetheless, that the political disturbances do not appear to have discouraged students from elsewhere.

| Place of permanent residence | Second year | Fourth year | Final year |
|-----------------------------|-------------|-------------|------------|
| Northern Ireland            | 140 (91.5)  | 132 (92.3)  | 131 (94.9) |
| Rest of U.K. and Eire       | 3 (2.0)     | 3 (2.1)     | 1 (0.7)    |
| Elsewhere                   | 10 (6.5)    | 8 (5.6)     | 6 (4.3)    |
| Total                       | 153 (100)   | 143 (100)   | 138 (100)  |

Educational Qualifications

The average number of subjects taken at ‘A’ level per student was 3.4. All had taken the obligatory physics and chemistry either at ‘A’ level, or, in the case of foreign applicants, at an equivalent level in their own country. The majority had also taken biology and/or maths. Other subjects taken in descending order of frequency were: other maths, (applied, further etc), English and geography, while a very few people in each year took one or two foreign languages, history, art, music, general studies, religious education or zoology. The grades obtained appear to drop a little from 1971 to 1973, then rise again in 1975. At the same time, it must be remembered that ‘A’ level standards generally have risen in recent years, and that lower grades might not necessarily signify less ability.
It is planned at a later stage in this survey to examine whether there is any correlation between examination results (using results of ‘A’ levels, the main undergraduate class examinations and finals) and consistency of career preference or choice of specialty.

**Social Class**

The occupations of the students’ parents or guardians were categorized in accordance with the social class classification as defined by the Office of Population Censuses and Surveys in its publication “Classification of Occupations 1970”. Table II shows the total number and percentage of students in all three years, grouped by social class, in comparison with the expected number and percentage, as calculated on a proportional basis of the 1971 census figures for Northern Ireland, which are the latest available ones.

**TABLE II**

| Social class          | Actual numbers and percentages | Expected numbers and percentages |
|-----------------------|--------------------------------|---------------------------------|
| I & II                | 289 (66.6)                     | 89.9 (22.8)                     |
| III non-manual        | 56 (12.9)                      | 63.2 (16.1)                     |
| III manual, IV and V  | 49 (11.3)                      | 240.9 (61.2)                    |
| (i.e. all manual workers) |                                |                                 |

Clearly a disproportionately high number of the medical students come from professional homes. Of the 39, 43 and 40 students in second, fourth and final year, respectively, whose parents are categorized as social class I, 14, 18 and 21 had parents who were medical practitioners.

**Students’ Current Career Preferences**

Table III sets out the numbers of students who have definitely decided on a field of medicine in which they wish to make their career; of those who are interested in particular fields of medicine but who are still undecided; of those who have no particular preferences but have decided against certain types of practice; and of those who are completely undecided.

**TABLE III**

| Whether decided | Second year | Fourth year | Final year |
|-----------------|-------------|-------------|------------|
| Yes, definitely| 7 (4.6)     | 6 (4.2)     | 9 (6.5)    |
| Interested in particular fields but undecided | 77 (50.3) | 89 (62.2) | 109 (79) |
| No, but have decided against certain fields | 27 (17.6) | 36 (25.2) | 17 (12.3) |
| No, completely undecided | 42 (27.5) | 12 (8.4) | 3 (2.2) |
Not surprisingly the proportion of students who have firm preferences (or who claim to have) increases significantly towards final year. This shows up more clearly if the top two lines of figures (i.e. those which indicate a preference: 54.9, 66.4 and 85.5 per cent) are taken in aggregate against the bottom two lines (i.e. those which indicate no preference: 45.1, 33.6 and 14.5 per cent); (p<0.001). Previous studies in Great Britain and America have shown, however, that even firm career preferences stated in the undergraduate years are likely to alter. Held and Zimet (1975) found that the majority of even those students who are highly certain about their future change directions. Last and Stanley (1968) concluded that changes of opinion about eventual career are the rule rather than the exception. (See also Zinny and Senturia, 1974). It will be interesting to see in the future stages of this survey whether Queen’s students will be any more consistent in their preferences.

Variables influencing Decision Taking on Career Preferences

The data for sex, marital state, maturity and for those with medical parents were analysed in an attempt to ascertain whether these factors have any bearing on the stage at which preferences begin to emerge. However, it must be emphasised that the numbers involved in all of these groups are so small that it would be wrong to base any firm statistical conclusions on them.

It would appear that Queen’s female students are no more (or no less) resolute in their career decisions than their male counterparts. Dr Conrad Harris, St Mary’s Hospital Medical School, who is currently engaged on the analysis of data gathered in a longitudinal study of the career preferences of 120 students who entered the medical school at Manchester University in 1971 through to qualification in 1976, found otherwise. Preliminary results of his survey showed that, although males and females were equally undecided before the beginning of first year (around 44 per cent of each) a difference had emerged by final year, only 9 per cent of the females being undecided, in comparison to 18 per cent of the males.

It is also apparent that the responsibilities of marriage do not induce earlier career decisions among our sample. Marriage is probably a less urgent influence towards reaching a decision before qualification than after. Stanley and Last (1968) found that more than 63 per cent of married men qualified for one to five years said that they had made a definite decision, whereas only 43 per cent of single men had.

From the data, it could not be assumed that the mature student is ready to commit himself earlier than those who enter straight from school.

When the students whose parents were medical practitioners were isolated as a group, the figures suggest that, although probably better informed about the various career options than the other students, they were no more ready to state firm preferences in second and fourth year (0.95>p>0.90 and 0.90>p>0.80 respectively). In final year, however, more students in this group had made up their minds about the fields of medicine which interested them (p=0.31).

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Preferences in Broad Areas of Medical Practice.

The next question on the form asked students who had either decided on, or were interested in, a particular field, to list in order of preference six broad areas of medical practice. Medicine, the surgical specialties, obstetrics and gynaecology, paediatrics and psychiatry were grouped under the general heading “Clinical hospital work with continuing responsibility for patients”. “Clinical hospital work without continuing responsibility for patients” was used in a broad sense to refer to radiology, anaesthetics and laboratory medicine, although it is acknowledged that these specialties also involve a certain amount of continuing responsibility. The results are given in Table IV.

**Table IV**

| General field of interest (First preference) | Second year | Fourth year | Final year |
|---------------------------------------------|-------------|-------------|------------|
| General practice                            | 15 (9.8)    | 28 (19.6)   | 35 (25.4)  |
| Clinical hospital work with continuing responsibility | 58 (37.9)   | 58 (40.6)   | 69 (50)    |
| Clinical hospital work without continuing responsibility | 2 (1.3)     | 2 (1.4)     | 5 (3.6)    |
| Academic medicine and research               | 4 (2.6)     | 2 (1.4)     | 3 (2.2)    |
| Community medicine                          | 4 (2.6)     | 2 (1.4)     | 2 (1.4)    |
| Others                                      | 1 (0.7)     | 3 (2.1)     | 4 (2.9)    |
| Total number who stated first preference     | 84 (54.9)   | 95 (66.4)   | 118 (85.5) |

(In the above and following tables in this section, the percentages quoted are based on the total number of students in each year, not on the number stating a preference.)

The majority are interested in clinical hospital work with continuing responsibility and interest in this area grows towards final year. Second most popular is general practice, interest in this field also increasing towards final year. Relatively few students indicate a preference for clinical hospital work without continuing responsibility, academic medicine and research, community medicine or others. Many feel that this pattern is almost inevitable given the present emphasis on these fields in the undergraduate curriculum. It has been suggested that more medical graduates might be attracted to specialties which have found difficulty in recruiting in recent years, for instance, radiology, laboratory medicine and community medicine, if they are exposed to them more during undergraduate training.

Students were then asked to indicate a second choice (Table V). General practice emerges as the most popular second preference, and more students are
willing to consider as a second choice the fields which scored so little on first preference.

### Table V
**General field of interest — second choice**

| General field of interest (Second choice) | Second year | Fourth year | Final year |
|------------------------------------------|-------------|-------------|------------|
| General practice                         | 32 (20.9)   | 36 (25.2)   | 42 (30.4)  |
| Clinical hospital work with continuing responsibility | 13 (8.5) | 28 (19.6) | 32 (23.2) |
| Clinical hospital work without continuing responsibility | 10 (6.5) | 11 (7.7) | 14 (14.5) |
| Academic medicine and research           | 11 (7.2)   | 9 (6.3)     | 6 (4.3)    |
| Community medicine                       | 9 (5.9)    | 6 (4.2)     | 4 (2.9)    |
| Others                                   | 3 (2.0)    | 2 (1.4)     | 2 (1.4)    |
| Total number with second preference      | 78 (51.0)  | 92 (64.3)   | 106 (76.8) |

A declining number indicated a third choice (Table VI). Community medicine loses in favour of clinical hospital work without continuing responsibility after second year.

### Table VI
**General field of interest — third choice**

| General field of Interest (Third choice) | Second year | Fourth year | Final year |
|------------------------------------------|-------------|-------------|------------|
| General practice                         | 13 (8.5)    | 16 (11.2)   | 18 (13.0)  |
| Clinical hospital work with continuing responsibility | 3 (2.0) | 4 (2.8) | 4 (2.9) |
| Clinical hospital work without continuing responsibility | 12 (7.8) | 24 (16.8) | 29 (21.0) |
| Academic medicine and research           | 5 (3.3)     | 11 (7.7)    | 10 (7.2)   |
| Community medicine                       | 14 (9.2)    | 10 (7.0)    | 6 (4.3)    |
| Others                                   | 1 (0.7)     | 2 (1.4)     | 1 (0.7)    |
| Total number with third preference       | 48 (31.0)   | 67 (46.9)   | 68 (49.3)  |

**Preferences for Specific Specialties**

The next question on the form invited students who had a preference for a broad area of practice to be more specific, if they wished, listing up to three specialties, in order of preference, from a given list. (Table VII)
### TABLE VII

**Detailed Preferences — first, second and third choice**

| Specialty                          | Second year choices | Fourth year choices | Final year choices |
|------------------------------------|---------------------|---------------------|-------------------|
|                                    | 1 2 3               | 1 2 3               | 1 2 3             |
| **Academic medicine & research**   | 3 2 3               | 2 5 3               | 4 1 3             |
| **Anaesthetics**                   | 0 1 3               | 1 8 7               | 3 10 8            |
| **Community medicine**             | 2 2 5               | 2 2 6               | 2 4 2             |
| **General practice**               | 11 6 10             | 25 15 17            | 33 17 18          |
| **Medicine**                       | 9 10 6              | 17 21 10            | 28 22 11          |
| **Laboratory medicine**            | 0 1 0               | 0 0 3               | 1 1 1             |
| **Obstetrics & gynaecology**       | 9 9 6               | 3 5 9               | 9 19 6            |
| **Ophthalmology**                  | 0 3 0               | 0 2 2               | 0 2 3             |
| **Otolaryngology**                 | 0 1 0               | 0 0 0               | 0 3 3             |
| **Paediatrics**                    | 5 10 6              | 8 16 6              | 10 14 18          |
| **Psychiatry**                     | 5 5 1               | 2 3 6               | 5 4 6             |
| **Radiology & radiotherapy**       | 1 1 1               | 1 0 3               | 1 2 5             |
| **Surgery**                        | 16 9 6              | 28 10 6             | 16 12 8           |
| **Others**                         | 3 1 0               | 2 2 1               | 3 0 2             |
| **Total with first, second or third choice** | **64 61 47 91 89 79 115 111 94** |

Surgery is the most popular first choice in second year (10.5 per cent) followed by general practice (7.2 per cent), then medicine and obstetrics and gynaecology (each 5.9 per cent). Medicine, paediatrics, obstetrics and gynaecology and surgery receive most interest (all around 6 per cent) as second choices, and even as third choice none of the other specialties figure much. Surgery remains the most popular first choice in fourth year, again followed by general practice and medicine (19.6, 17.5 and 11.9 per cent). Medicine, paediatrics and general practice (14.7, 11.2 and 10.5 per cent) were the most commonly quoted second choices. A few more people at this stage have started to consider academic medicine and research, anaesthetics, community medicine, laboratory medicine, ophthalmology, psychiatry, radiology and radiotherapy as second or third options, but the numbers remain small.

The distribution of preferences between hospital specialties and general practice in second and fourth year does not accord with the ratio of the numbers holding career posts in these two broad areas in Northern Ireland at the moment. In May 1978, there were a total of 573 career posts in hospital medicine (484 consultant and 89 medical assistant posts) and 736 in general practice (i.e. principal posts). However, the preferences of the final year students appear...
more tempered by realism, general practice emerging as the most popular first choice, and medicine as second (23.9 and 20.3 per cent). Surgery, traditionally the most competitive specialty, drops to third and paediatrics is fourth (11.6 and 7.2 per cent). Medicine, obstetrics and gynaecology, general practice and paediatrics (15.9, 13.8, 12.3 and 10.1 per cent) receive most attention as second options. A few more people are prepared to consider otolaryngology as a second or third option, but on the whole the students remain biased in the direction of two or three mainstream hospital specialties, and general practice.

Their preferences are actually very similar to those of other newly qualified doctors elsewhere in Britain. In their study of all 2348 pre-registration doctors who had graduated from medical schools in England, Scotland and Wales in 1974, Parkhouse and McLaughlin (1976) also found that general practice, medicine, surgery and paediatrics (32.9, 22.5, 15.9 and 6.4 per cent) were the most quoted first choice preferences. Queen’s final year students differ, however, from the national pattern indicated by Parkhouse and McLaughlin in that a sizeable proportion (13.8 per cent) were considering obstetrics and gynaecology as a second choice, as compared to 5.7 per cent of the latter group. One might possibly attribute this to a difference in emphasis in the undergraduate curriculum, or to the influence of the teaching staff in obstetrics and gynaecology at Queen’s.

*Variables influencing Decisions on General and Specific Fields of Medical Practice*

As before, data on the broad and specific fields of medical practice as influenced by sex, marital status or a doctor parent must be interpreted with caution as the numbers are very small.

In second, fourth and final year, the distribution of male and female preferences is largely similar, general practice being second in popularity to clinical hospital work with continuing responsibility. A slightly higher proportion of women were attracted to general practice in final year. One might have hypothesised that more women, in anticipation of future domestic commitments, might have been interested in clinical hospital work without continuing responsibility: however, this is not the case. A few more women than men in second year were interested in community medicine, a field which, given the more regular hours and the nature of the work, might be also regarded as more compatible with domestic commitments. Female interest in community medicine however, waned after second year, while a few more men expressed an interest. The detailed specialty preferences reflect, of course, the general fields of interest, general practice, the second most popular male choice is second and fourth year (9.1 and 17.9 per cent), being less favoured by female students (2.3 and 16.7 per cent). However, as shown previously, female interest in general practice exceeds that of the male students in final year (30.2 as opposed to 20 per cent).

The specialties where the choice of male and female students differ most consistently and strikingly from second to final year are surgery and paediatrics. Surgery, one of the most popular specialties with the male students (13.6, 25.3 and 14.1 per cent), does not attract even half as many females (2.3, 8.3 and 7.5
This lack of female interest in surgery could possibly be attributed to the competition for surgical posts and the long intensive training which does not lend itself to interruption or part-time work. Or one might postulate that it is not so much the job conditions as the episodic nature of the work and the technical skills involved which appeal less to women. Again from the traditionally accepted viewpoint of the respective rules of male and female in society generally, it is not unnatural, perhaps, that more women students than men should be drawn towards work with children, the female percentage for paediatrics being 9.3, 12.5 and 15.1 per cent as compared with the male figures 0.9, 2.1 and 2.4 per cent. If one might draw any conclusions from the small numbers involved in our own survey and from the findings of other researchers, it would appear that the sex of the medical student does influence his/her career preferences. The female undergraduates in our sample appear to be drawn to certain areas of practice as a result of their innate personal attributes or aptitudes and seem little influenced at this stage by the fact that other fields might offer conditions more compatible with domestic responsibilities. This is probably natural as many of the girls may have no immediate plans for marriage, yet we know from the law of averages that most of them will marry eventually and be forced to make compromises in their career.

The findings of the A.S.M.E. survey (Royal Commission on Medical Education, 1968) were similar to ours in that more women students preferred general practice and paediatrics and fewer chose surgery, although, in contrast to our group, more women also chose community medicine. Studies of the occupations of qualified woman doctors, however, reveal a somewhat different pattern. Stanley and Last (1968) noted that “women, on the whole inclined towards careers either outside hospital or in specialties within the hospital system that were less demanding in terms of clinical responsibility”. Scottish Council's survey (1977) of doctors who had qualified seven and twelve years previously likewise showed that more women preferred general practice than other types of work and that the next most preferred area was family planning/child health. Research done in the United States (Kosa & Coker, 1965; Phelps, 1968; Westling-Wikstrand et al, 1970; Shapiro et al, 1968; Powers et al, 1969) confirms this pattern which is probably due in both countries to the resistance in hospitals to more flexible working hours and part-time training, and to the lack of provision for child care.

While it would be unrealistic to generalise on the basis of the very small numbers involved in this survey it would appear that marital state has little bearing on career preference, at least during the undergraduate years. Analysis of our data showed no correlation between general fields of interest or specific specialty preferences and marital state. Previous research with postgraduates, however, leads to the somewhat unexpected conclusion that more married male as well as female doctors tend to follow a career outside the hospital, or, if inside, in specialties not involving continuing clinical responsibility. (Stanley and Last, 1968; Flynn and Gardner 1969).

General fields of interest as expressed by those with a medical practitioner parent were compared with those of other students who have no medical
practitioner parent. Clinical hospital work with continuing responsibility still dominates as the most popular choice with both groups: 21 out of the 39 with doctor parents who answered this question and 164 of 258 with no doctor parent made it their first choice. A higher proportion of students with a doctor parent (15 of 39) gave general practice as their first choice (as compared with 63 of 258 with no doctor parent). When the more detailed preferences of the same two groups are compared, general practice ranks equal with medicine as first choice in second and fourth year among students with a doctor parent, while for those without a doctor parent, general practice is second most popular, rating some way behind surgery. By final year, general practice emerges clearly as the most popular specialty with both lots (7 of 20 with doctor parents and 26 of 95 with non-doctor parents making it their first choice). Surgery, the most popular specialty with non-doctor-parent students in second and fourth year, and third most popular specialty in final year, receives less interest from those with a doctor parent. These variations might possibly be attributed to a greater awareness of the relative availability of career posts in general practice and surgery among students with doctor parents. Another possible interpretation is that offered by Kritzer and Zimet (1967) who found a negative correlation between the socioeconomic status of the fathers of their subjects, and the specialties they chose. Demonstrating that the fathers’ occupational level was considerably lower for surgeons than for other specialty groups, they hypothesised that another, possibly unconscious, influence in a student’s specialty selection is his past life situation and the need for prestige. As a group the students in our survey with a doctor parent are no more willing than the other students to consider a career in any of the shortage specialties.

Types of Work and Specialties decided against

The next question on the form asked those who had stated earlier that they had decided against certain broad areas of practice to indicate these fields on a given list, (27 in second, 36 in fourth and 17 in final year).

| Type of work decided against               | Second year | Fourth year | Final year |
|-------------------------------------------|-------------|-------------|------------|
| General practice                           | 21 (13.7)   | 16 (11.2)   | 14 (10.1)  |
| Clinical hospital work with               |             |             |            |
| continuing responsibility                 | 1 (0.7)     | 2 (1.4)     | 5 (3.6)    |
| Clinical hospital work without            | 33 (21.6)   | 51 (35.7)   | 55 (39.9)  |
| continuing responsibility                 |             |             |            |
| Academic medicine and research            | 40 (26.1)   | 72 (50.3)   | 74 (53.6)  |
| Community medicine                        | 24 (15.7)   | 72 (50.3)   | 94 (68.1)  |
| Others                                    | 0           | 1 (0.7)     | 4 (2.9)    |

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The percentages for clinical work without continuing responsibility (0.01 > p > 0.001), academic medicine and research (p < 0.001) and community medicine (p < 0.001) are all statistically significant. The reasons why an increasing number of students should rule out these fields of practice before qualification would appear a fruitful subject for investigation. The commonly accepted explanation is not that there are factors influencing the student against, but rather, that there is a lack of factors influencing him in favour of these areas of practice as he progresses through medical school. In other words, the areas which decrease in popularity are those which are accorded less priority on the undergraduate timetable. That there are other contributing factors seems likely: it is difficult to avoid the conclusion that certain specialties hold less interest intrinsically for the medical student from the outset of his studies through to qualification and specialisation. Why this should be so has not been sufficiently explored by researchers.

The figures in table IX show that the specialties most frequently dismissed by the final year students are laboratory medicine and community medicine, two of the specialties which suffer the most acute staffing shortages.

| Specialties decided against | Second year | Fourth year | Final year |
|-----------------------------|-------------|-------------|------------|
| Academic medicine and research | 35 (22.9) | 70 (49) | 67 (48.6) |
| Anaesthetics | 20 (13.1) | 41 (28.7) | 49 (35.5) |
| Community medicine | 21 (13.7) | 60 (42) | 86 (62.3) |
| General practice | 19 (12.4) | 13 (9.1) | 12 (8.7) |
| Medicine | 1 (0.7) | 8 (5.6) | 8 (5.8) |
| Laboratory medicine | 46 (30.1) | 73 (51) | 101 (73.2) |
| Obstetrics and gynaecology | 2 (1.3) | 8 (5.6) | 35 (25.4) |
| Ophthalmology | 6 (3.9) | 16 (11.2) | 49 (35.5) |
| Otolaryngology | 6 (3.9) | 18 (12.6) | 70 (50.7) |
| Paediatrics | 2 (1.3) | 4 (2.8) | 20 (14.5) |
| Psychiatry | 21 (13.7) | 53 (37.1) | 47 (34.1) |
| Radiology/radiotherapy | 16 (10.5) | 40 (28) | 64 (46.4) |
| Surgery | 9 (5.9) | 12 (8.4) | 28 (20.3) |
| Others | 0 | 1 (0.7) | 2 (1.4) |

**Intended Location of Practice**

Table X summarises the intentions about location of practice and includes, in brackets, the numbers of students originating from Northern Ireland, the rest of the United Kingdom and Eire, and from elsewhere. Clearly the two sets of figures must be taken in conjunction when interpreting the emigration figures, since it is natural that students from outside Northern Ireland might wish to return to their place of origin.

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TABLE X
INTENDED LOCATION OF PRACTICE

| Intended location of practice | Second year | Fourth year | Final year |
|-----------------------------|-------------|-------------|------------|
| Northern Ireland            | 41 (140)    | 48 (132)    | 59 (131)   |
| Rest of U.K. & Eire         | 8 (3)       | 15 (3)      | 14 (1)     |
| Elsewhere                   | 22 (10)     | 30 (8)      | 14 (6)     |
| No strong feelings          | 82          | 50          | 51         |
| Total                       | 153         | 143         | 138        |

The continents/countries specified by those intending to emigrate were Canada and the United States, Australia and New Zealand, Western Europe, South America, Africa and Asia, in descending order of popularity, while a few people in each year stated simply that they intended to work abroad. It is inappropriate to draw firm conclusions about this question because of the very high percentage of students who are still undecided (53.6, 35 and 37 per cent in second, fourth and final year) but the figures do not look encouraging from the standpoint of the health services in Northern Ireland. Less than half the final year students feel committed to working here, and it is likely that the proportion remaining here, in the long term, will be even less.

Although our figures cannot be compared directly with those quoted by Parkhouse and McLaughlin (1976) from their study of the 1975 pre-registration doctors in Great Britain mentioned previously since their question on intended location of practice was worded differently, it is obvious that fewer of the pre-registration doctors in Great Britain wished to leave the country. Asked whether they intended to practise permanently in the United Kingdom, 32 per cent said "definitely yes", another 49.9 per cent said "probably yes", 7.5 per cent said "probably no", and only 2.5 per cent said "definitely not". A further 7.7 per cent were undecided. Parkhouse and Palmer (1977) did a similar survey on the 1976 pre-registration doctors, this time including Queen's medical graduates and, for the first time, Nottingham. Their findings from the second study showed no evidence of any increasing inclination to emigrate.

Returning to our own survey, about 12, 25 and 16 per cent of the second, fourth and final year students who originate from Northern Ireland are, at this stage, intent on leaving. If the preferred places of practice are divided into what might generally be accepted as developed countries and underdeveloped or developing countries, the results are as follows. Approximately 13 second year, 23 fourth year and 17 final year students plan to go to developed countries, whereas no second year students are interested in the under-developed or developing countries, and only about 7 fourth year and 3 final year students are. It would appear, then, that the chief motivating factors behind emigration for this group relate to professional advancement, good working facilities and higher financial rewards. Four of those who are still uncommitted claimed that any decision to leave the province would depend almost entirely on our political
stability. It is hoped that more relevant information will emerge in the follow-up studies, and that the postgraduate survey currently under way will throw some light on the reasons for emigration.

Specific Comments made by Respondents

Comments did not vary a great deal among the three cohorts, most of them falling into one of a few broad categories. Predictably, most of the comments (about 15) from second year were to the effect that it was much too early to say what one wanted to do, having had little exposure to the range of possibilities. Another eight expanded on their career preferences or the reasons for their choice and three commented on their intended place of work, e.g. reasons for wishing to leave Northern Ireland. A few people who wished to go to North America realised they might have difficulty in obtaining work permits/visas. The questionnaire seemed to arouse most interest, and certainly most comment, from the fourth year students. About 20 observed that they would feel in a better position to answer the questionnaire in final year, after they had benefitted from more attachments to the various specialties. Seven enlarged on career preferences and four on intended place of practice. Only six students in final year felt moved to make any comment — three enlarging on their career preferences and three noting that it was very difficult at this stage to decide.

DISCUSSION

The most striking fact which emerges from the figures concerning career preferences is the discrepancy between the students’ ambitions and potential openings in the health services. While we know from experience and previous research that these preferences will change, we know also from experience that the discrepancy will remain.

A paper produced earlier this year by the Department of Health and Social Services (N.I.), entitled “Career opportunities in medicine in Northern Ireland”, suggests that, in choice of career among newly qualified doctors, insufficient emphasis is given to the prospect of obtaining a career post on completion of training. Obviously, the more popular a hospital specialty is, the greater the competition for consultant posts. The paper comments on career prospects in the various hospital specialties, general practice and community medicine, and includes tables estimating consultant requirements to December 1982, calculated by summing anticipated wastage (due to retirements, deaths and emigration), and the number of doctors required to provide for recommended growth and fill established vacant posts.

The following broad classification of career prospects in the different specialties is taken directly from the Department’s paper.

Specialties with outstanding career prospects

- Geriatrics
- Laboratory medicine
- Radiology
Specialties with better than average career prospects

- Otolaryngology
- Psychiatry (including special care)

Specialties with average career prospects

- Anaesthesics — prospects could become less certain if the present high emigration rate in the specialty significantly decreased.
- Medical specialties (excepting geriatrics) — prospects could be less favourable in some of the small sub-specialties.

Specialties with less certain career prospects

- Obstetrics and gynaecology
- Ophthalmology
- Surgical specialties — of the sub-specialties prospects in orthopaedic surgery would appear to be the best.

General practice

Career prospects . . . are likely to be good for the foreseeable future.

Community medicine

. . . Career prospects in this specialty are currently outstanding.

The Department’s paper provides information which should clearly be of interest to all medical students and young doctors who are undecided about choice of specialty.

It is obvious, however, that career decisions in medicine, as in all other walks of life, are not based purely, or primarily, on such logical considerations as career prospects. Two sociologists, Malcolm Johnston and Mary Ann Elston (Nuffield Centre for Health Services Studies, University of Leeds), are at present working on the report of a study of the career development of seven hundred 1954 and 1964 medical graduates from five British medical schools, which examines not only “work careers” but other major life events such as marriage and family, and important non-work activities such as involvement in sport, politics, etc., (which they class as “sub-careers”.) Their study is concerned with “biographies”, this approach being essential, in their estimation, to the understanding of personal decision-making, preferences and priorities.

Rosemary Hutt, who is heading the research team at the Institute of Manpower Studies on the previously mentioned survey, published a most interesting and comprehensive paper in 1976, entitled “Doctors’ Career Choice: previous research and its relevance for policy-making”. In her introduction, she sees the main factors which interact to determine choice of specialty as follows:

(a) Background factors

(Sex, parental occupation, social background, nationality and marital state — i.e. the aspects covered by this survey).
(b) Personality and attitude factors
   e.g. Attitudes towards patients, death, problem-solving, team-work, decision-making and exercise of authority.

(c) Factors relating to the educational system
   e.g. School record, careers advice, the selection system, examination performance and medical training.

(d) Career factors
   e.g. Pay, promotion prospects, the possibilities of emigrating, opportunities for private practice and prestige.

(e) Working conditions
   e.g. Area of residence, type of hospital, facilities available, length of working day, regularity of hours and effects on family life.

(f) Intrinsic differences between the specialties themselves
   e.g. Amount of patient contact, the extent to which they are research or science-orientated, their relative "success" rates in terms of curing, the skills they require, and the kinds of satisfaction, social or intellectual, to be derived from them.

Considering the imbalance of staff between the specialties, Rosemary Hutt suggests that, of the above, career factors and working conditions are the influences which can most easily be changed if the manpower situation demands it. She is of the opinion that, while it might theoretically be possible for medical schools to accept relatively more students with personality characteristics and personal backgrounds of a kind which increased the likelihood of their choosing particular specialties, it is unlikely that this would be acceptable in practice. On the other hand, she argues, a change in relative pay or conditions or in the educational system, could, though not always easily, be brought about.

Another school of thought has been advanced by Dr Julian Tudor Hart, a general practitioner in Glamorgan (1974), who points to the very large proportion of the medical school population coming from professional and executive classes (two-thirds, in our sample). It is natural, perhaps, that students from social classes I and II should be motivated by social status, professional advancement and expectations of a good income, as well as altruistic factors. It is hardly surprising, then, that many of our doctors gravitate towards the large teaching centres and the more desirable parts of the country, socially and geographically, or that many emigrate as a result of dissatisfaction with working conditions and levels of remuneration in the United Kingdom. Dr. Hart suggests that, if 20 per cent of the annual intake of medical students were reserved for N.H.S. workers of three or more years standing, a stronger element of vocational commitment might be established in the medical profession and our present staffing problems eased a little.

The researchers quoted in this section represent widely differing approaches and theories for improving distribution of staff within the medical profession.
Obviously a better understanding of the factors which influence doctors' career decisions is essential before any changes in policy can be made. The results of Rosemary Hutt's major study and of the Johnston/Elston survey should contribute a great deal to the subject.

SUMMARY

Questionnaires were distributed in May 1977 to 154 second year, 147 fourth year and 141 final year medical students in the first stage of a longitudinal survey concerning the factors which influence choice of specialty and place chosen for practice by Queen’s medical graduates. There was an average response rate of 98.2 per cent. As expected, the proportion of students with, or claiming to have, firm career preferences rose significantly towards final year.

The sex, age or marital state of the student did not appear to affect the firmness of his/her career decision, but a greater number of those with a medical parent had made a positive decision by final year.

When asked to list in order of preference six broad areas of medical practice, the majority ranked clinical hospital work with continuing responsibility as first choice, and second most popular was general practice, interest in both these fields increasing towards final year. On a more detailed list of specialties, surgery, general practice and medicine (in that order) were the most popular first choices of second and fourth year students but in final year the order changed to general practice, medicine and surgery. Few students in any year were prepared to consider the shortage specialties, laboratory medicine, radiology, community medicine and psychiatry.

The sex of the student was found to influence his/her choice of specialty. Speaking in terms of percentage throughout this paragraph, surgery attracted an average of three times as many males as females and paediatrics attracted an average of seven times as many females as males. Marital state appeared to have no influence on choice of specialty. Students with a medical parent differed from the others in that a higher percentage of them were interested in general practice, and only an average of one third as many were interested in surgery.

The percentages of students deciding against any form of work in hospital without continuing clinical responsibility, academic medicine and research or community medicine rose significantly towards the final year. In the detailed list of specialties, the percentage deciding against academic medicine and research, anaesthetics, community medicine, laboratory medicine, obstetrics and gynaecology, ophthalmology, otolaryngology, paediatrics, radiology/radiotherapy and surgery all rose significantly. The specialties dismissed most by the final year students were laboratory medicine and community medicine, two of the specialties which suffer the most acute shortages.

Under 40 per cent of the students felt committed to working in Northern Ireland and it is likely that, in the long term, the proportion remaining here will
be even less. Including foreign students, 18 per cent are intent on leaving, the desired location of practice for the majority being developed countries outside the United Kingdom. The few who commented on their decision to leave gave as a reason either pay, tax and working conditions or the political situation in Northern Ireland.
ACKNOWLEDGEMENTS

This work forms part of a project funded by the D.H.S.S.(N.I.) to whom I am greatly indebted.

I express my sincere thanks to Dr. J. E. McKnight, Northern Ireland Council, for his continuing constructive criticism and encouragement and to Dr. J. D. Merrett, Department of Medical Statistics, Q.U.B., who gave so freely of his time in processing the data and advising on the statistical analysis. I am grateful also to Professor P. Froggatt, Vice-Chancellor, Q.U.B., and Mr. H. M. Pyper, D.H.S.S.(N.I.) for their advice, to Professor R. G. Shanks, Department of Therapeutics and Pharmacology, Q.U.B., and Professor I. C. Roddie, Dean of the Faculty of Medicine, Q.U.B., for their helpful comments on the manuscript, to Professor J. E. Morison, the Laboratories, Belfast City Hospital, for his advice on the preparation of the text for publication, to the secretarial staff of Council, particularly Mrs. Rita Graham, and, of course, to the students who furnished the data.