Medical Education

CHOICE AND ORDERING OF MEDICAL SCHOOL APPLICATIONS: CAUSE FOR CONCERN

I. C. McManus
P. Richards
St Mary's Hospital Medical School, London W2 1PG

Summary
The probability of admission to medical school in the UK can be predicted from the choices of schools and their order on the UCCA form, even after academic factors have been taken into account. The effect may of itself influence a candidate's chance of admission by a factor of about four times. This situation justifies the recurrent complaints of applicants about the problems of medical school choice and ordering. The disadvantage imposed on many applicants would be reduced if rank ordering of choices was replaced by alphabetical ordering.

INTRODUCTION

Medical school applicants in the UK experience great difficulty in choosing and ranking their five choices of medical school.\(^2\) Two particular problems arise: some schools are more oversubscribed than others relative to the number of places available; and some schools are more likely to reject automatically those candidates who place them low on the list of choices. In this paper we examine all medical school applications in the UK for the years 1975–84, in order to assess the importance of these processes in successful application.

METHOD

UCCA (Universities’ Central Council on Admissions) provided computer readable summaries of university applications and eventual acceptances for 1975–84. Statistical analyses were done with the SPSS-X\(^3\) and GLIM\(^4\) packages. Except where otherwise stated, all analyses are restricted to "home" candidates, defined in terms of UCCA's residential category—a definition which helps universities to define the fees payable by students, and which relates closely to domicile and fairly closely to nationality.

RESULTS

721 573 university applications were made during 1975–84 by 1 556 309 applicants, some of whom applied in more than one year, and of whom 689 568 were accepted. 635 921 applications were from home candidates, of whom 643 478 were accepted. 425 973 home applications (80 157 non-home) were made for admission to medical schools, by 93 617 home applicants (18 162 non-home), of whom 31 911 (122 1 non-home) were accepted.

Applications to particular medical schools showed large variations from year to year (fig 1), although the number of entrants changed little, rising only by about 2.5% per annum. Fig 1 reveals several trends; applications to Oxford
TABLE I—ACCEPTANCES TO UK MEDICAL SCHOOLS IN 1975–84 ACcORDING TO POSITION OF SCHOOL ON UCCA FORM, AND CALCULATION OF LIKELIHOOD RATIO

<table>
<thead>
<tr>
<th>Rank</th>
<th>No accepted</th>
<th>No rejected</th>
<th>Total applications</th>
<th>% accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16 791</td>
<td>76 822</td>
<td>93 613</td>
<td>17.9%</td>
</tr>
<tr>
<td>2</td>
<td>17 703</td>
<td>82 331</td>
<td>90 294</td>
<td>8.8%</td>
</tr>
<tr>
<td>3</td>
<td>3714</td>
<td>82 971</td>
<td>86 685</td>
<td>4.3%</td>
</tr>
<tr>
<td>4</td>
<td>1961</td>
<td>78 194</td>
<td>90 155</td>
<td>2.4%</td>
</tr>
<tr>
<td>5</td>
<td>1482</td>
<td>73 744</td>
<td>75 226</td>
<td>7.7%</td>
</tr>
<tr>
<td>Total</td>
<td>31 911</td>
<td>394 062</td>
<td>425 973</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

Likelihood ratio: $24,754 \times 151,938 / 3443 \times 159,153 = 6.86 \times$

or Cambridge ("Oxbridge") increased slightly, on average by 11.1%, over the years 1975–84; applications to London medical schools increased substantially, by 50.2%, and those for other schools in England and Wales and in Scotland and Northern Ireland decreased by 21.1% and 16.9%, respectively. Within each group there were clear exceptions to these broad trends.

Applicants were more likely to go to schools placed high on their list of preferences (table 1). A conventional likelihood ratio shows that applicants are 6.86 times more likely to go to their first or second than to their fourth or fifth choice. Fig 2 shows likelihood ratios for individual medical schools, calculated separately for 1975–79 and 1980–84. A school rejecting all candidates placing it fourth or fifth would have a ratio of infinity; the highest value in fig 2 is a ratio of 68.1 for school 18 for the period 1980–84, during which time 564 out of 4460 applicants placing the school first or second were accepted, compared with 5 of 2344 (0.2%) applicants placing it fourth or fifth. Considering those five schools with likelihood ratios of greater than 20 during the five years from 1980–84, there were 8516 applications by candidates placing them fourth or fifth, of whom only 27 (0.3%) were accepted.

To all intents and purposes those applicants may be considered to have wasted their choices, in view of the very low probability of acceptance.

Fig 2 also shows that, during the decade, four schools became at least three times less likely to accept candidates placing them in low positions, and concurrently those schools changed their entries in the summary of selection policy published by the Secondary Heads' Association. This implies, when taken with the fact that in several universities medical applicants fared differently from non-medical, that rejection of candidates placing schools fourth or fifth is a result of policy, rather than appraisals of individual merit. Analysis by individual subjects shows that the effect is greater for veterinary medicine, dentistry, and medicine than for all other subjects.

The overall influence of the particular pattern of applications was assessed by calculating for each applicant an "estimated probability of acceptance" based solely on the medical schools chosen and the order in which those schools were placed. For example, if school A were placed third on the form by an applicant in 1980, we found how many applicants applying to A in 1980 had put the school third, how many were accepted, and hence the probability of an application being successful. The process was repeated for the other four choices and the five probabilities were summed to give the overall probability (table II).

The distribution of estimated probabilities for 59 622 home applicants who had made all five choices for medicine in 1975–84, and who had not included Oxbridge among the applications, was remarkably wide. It had a mean of 0.357 (SD 0.0804) with 2.5th and 97.5th percentiles of 0.23 and 0.54. This means that a candidate 2 SDs above the mean had a 3.9 times increased likelihood of acceptance compared with a candidate 2 SD below the mean.

A similar calculation considering only choice of universities and ignoring order gave a distribution with SD of 0.0649, implying that 65.2% of the variance in estimated probabilities is attributable to choice of universities, and 34.8% to their ordering on the UCCA form. Fig 3 shows a close relation between the actual proportions of candidates accepted and the estimated probability of acceptance calculated solely from the choice and ordering of schools.

Why the correlation of estimated and actual probabilities of acceptance? This might be because better qualified candidates receive better careers advice and hence are more likely to be accepted. We examined this possibility by reanalysing data from the St Mary's survey of medical student selection, in which the likelihood of acceptance at any UK medical school was related to O and A level achievement, early UCCA application, and having a
be that they, their parents, or their career advisers have taken note of such limited background information as has been available (eg, refs 5–7, 9, 10). That many candidates are ignorant of or ignore some factors is shown by the large numbers who continued to put particular schools fourth or fifth on the UCCA form even though those schools had stated in the readily available Secondary Heads' Association booklets,5,6 that they did not normally consider such applications. Applicants can, however, be forgiven some confusion: for example, although school 2 clearly rejected most fourth and fifth place applicants, it did not confess to such a policy in the 1982 edition of the Secondary Heads' Association booklet (although its prospectus did state that first consideration was given to candidates placing the school high in their order of preference).

We are reassured to find that the newly published University Entrance 1988: the Official Guide,11 makes readily available for the first time not only the numbers of applicants but also the A level grades achieved by entrants, as well as an indication of the weight actually given to preference ratings. Most of this information was unavailable to the individuals considered in this study. Even inspired use of this information is unlikely entirely to remove the injustice associated with rank ordering. A majority of university and school opinion on a UCCA survey was in favour of abolition of rank ordering,12 and we understand that the Council of UCCA is about to vote on the same issue.

We do not know of any analyses comparable with this one, but there is no reason why other workers should not use this method. We are uncomfortably aware, however, that more extensive studies involving linkage of records may not be feasible in future because of the decision by UCCA, arising from the provisions of the Data Protection Act of 1984, that data containing names will not be stored for more than three years. We wish to argue that the existence, analysis, and publication of such data is strongly in the interests of current and future candidates for university, and that the public interest is not best served by legislation whose consequence is to lessen the availability of such important information.

We are extremely grateful to Mr J. M. Hiscock, Mr S. Morris, and Mr D. J. Walter, and to the Universities, Central Council on Admissions, for their help in providing data for this and previous studies, and to Prof J. A. Sirs for his valuable criticisms of the script. We also thank Mr P. Taylor, Mr L. Nodes, Mr J. Anderson, and Mr G. Kingston and the staff of Royal Holloway and Bedford New College Computing Centre for their assistance with computing.

REFERENCES