Part I of Membership of the Faculty of Public Health Medicine (MFPHM).
Trends over time and factors associated with success in recent years

Phil Ayres, Alan S. Rigby and Rhys Williams

Abstract
Background The examination for Membership of the Faculty of Public Health Medicine (MFPHM) Part I, has been held for nearly 20 years. It aims 'to test the candidate's knowledge and understanding of the basic sciences of public health'. This paper presents simple statistics from the earliest years up to June 1995 and additional information on more recent sittings.
Method The number of people taking the examination and the proportion passing were obtained for every sitting from February 1978 to June 1995. Further data have been extracted for all sittings of the examination since the current regulations were introduced. The variables included were pass or fail as the outcome variable, date of birth, gender of candidate, postgraduate qualifications, present post or employer, and attendance at a formal academic course.
Results The number of candidates has ranged from 12 to 115, the proportion passing from 42 per cent to 93 per cent. During the period from June 1992 to June 1995, 472 people applied to sit the examination. Of these 33 withdrew, leaving 439 person attempts. The overall proportion passing was 270/439 (61.5 per cent). Factors associated with success include being female, being a UK graduate, attending an academic course and having more experience in the specialty.
Conclusion Candidates and their tutors are reminded of the need for adequate preparation for the examination. The authors welcome comments on how monitoring should be carried out in the future.

Keywords: education, examination, public health medicine, proportion passing

Introduction
The examination for Membership of the Faculty of Public Health Medicine (MFPHM) is in two parts. Part I, the subject of this paper, is a written examination, which has been held for nearly 20 years, and aims 'to test the candidate's knowledge and understanding of the basic sciences of public health'. Part II, currently a dissertation and an oral examination, is concerned with testing the application of that knowledge. In June 1992, the format of the Part I changed in an effort to come closer to the stated aim. More recent changes have been introduced, principally to make the examination applicable to sites other than the United Kingdom, and to candidates working in disciplines relevant to public health, but outside public health medicine.

This paper presents simple descriptive statistics which are available from the earliest years up to June 1995, and additional analyses using more detailed information systematically collected since 1992.

Examination structure and marking scheme
Paper I (three hours) is intended to test the candidate's knowledge across the whole of the syllabus, and takes the form of eight compulsory short answer questions.

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and health psychology, social policy and health economics, and the organization and management of health care. Paper III (three hours) is also in two parts: one which tests the critical reading skills of the candidate (appraisal of a paper from a journal), and the other which tests the ability to apply knowledge to a given health service 'scenario'.

Each question is marked on a ten-point scale giving a pass mark of 40 (out of a possible 80) for both Papers I and II. In both of these papers, a minimum of five marks must be scored on at least six out of the eight questions to achieve a pass. In Paper III, the pass mark is ten (out of 20), but there is no requirement to pass both sections of the paper. To achieve a pass in the examination, candidates must pass all three papers and must not score two or less on more than one question.

Data collection methods and analysis

The number of people taking the examination and the proportion passing were obtained from Faculty records. Further data, taken from the application forms submitted by those sitting the examination and the mark sheets used for recording candidates' scores, have been extracted for all sittings of the examination from June 1992 (when the current regulations were introduced) to June 1995. The variables under study are pass or fail as the outcome variable and date of birth, gender of candidate, medical qualification, postgraduate qualifications, date of first medical degree and conferring body, category of GMC registration, present post or employer, and academic course attended.

Data were entered onto an Epi-Info database from which they were written to the GLIM program for statistical analysis. The data were analysed as odds ratios (ORs - odds of passing vs failing), calculated using unconditional logistic regression. Both univariate (unadjusted) ORs and multivariate (adjusted) ORs were calculated, along with the 95 per cent confidence intervals (95 per cent CI) for the multivariate analysis only.

Results

1978–1995

The numbers taking the examination and the proportions passing at each of the 36 sittings from February 1978 to June 1995 are shown in Figs 1 and 2. The number of candidates (Fig. 1) has varied from a minimum of 12 (June 1979) to a maximum of 115 (June 1991). The proportion passing the examination (Fig. 2) has varied from a minimum of 42 per cent (June 1979) to a maximum of 93 per cent (February 1987). There were no significant differences between the proportions passing the June and the February examinations over all the years.
PERCENTAGE PASSING
(1978-1995)


AGE OF APPLICANTS AT EXAM DATE
(June 1992–June 1995)

FIGURE 3 Age of applicants at examination date (June 1992–June 1995).
YEARS SPENT IN PUBLIC HEALTH
(For candidates 1992-1995)


1992–1995

Applications
During the period from June 1992 to June 1995, 472 people applied to sit the examination, of whom 214 (45-3 per cent) were female and 258 (54-7 per cent) were male. The age profile of these applicants is shown in Fig. 3 (range: 25-53 years, mean: 33-4 years, median: 31 years).

Where data were available (n = 307), the numbers of years spent in public health medicine (to the nearest half-year) before taking the examination ranged from zero to 30 years. The mean number of years was 2-3 and the median was 1 year (see Fig. 4).

Data on region or country of employment were available for 452 candidates (Fig. 5). Forty-four (9-8 per cent) applicants were from outside the United Kingdom, 39 (8-6 per cent) from Scotland, 24 (5-3 per cent) from Wales, and 3 (0-7 per cent) from Northern Ireland. In the English regions the greatest number of applicants came from the North Thames Region [62 (13-7 per cent)], and the smallest from Trent [21 (4-6 per cent)].

Person attempts
Of the 472 who applied to sit the examination, 33 withdrew before the assessment (reasons not known) leaving 439 person attempts (some individuals are represented more than once). Twenty-six (5-9 per cent) of these person attempts took place in Hong Kong and Singapore, 68 (15-6 per cent) in Scotland, and 344 (78-5 per cent) in London. Two did not attend. The overall proportion passing between 1992 and 1995 was 270/439 (61-5 per cent).

The factors associated with success in the examination are shown in Table 1 where, for each variable (e.g. gender of the candidate, or attendance at an academic course), one of the possible responses is taken as the reference value (OR = 1-0) with which the odds of passing in the other response(s) is compared. The 95 per cent confidence interval shown refers to the adjusted OR.

Of particular interest are the significantly higher odds of females passing than males, UK graduates passing than non-UK graduates, those passing who have attended an academic course than those who have not, and an increasing odds of passing with increasing experience in the specialty.

Discussion

1978–1995
The peak of candidates sitting the examination in 1991 (Fig. 1) could be due to several factors. First, this examination was the last to be sat in the summer before the current regulations were introduced. Second, the increase in recruitment following the publication of the Acheson report may have contributed. Also,
### TABLE 1 Factors associated with passing the Part I MFPHM

<table>
<thead>
<tr>
<th>Factor</th>
<th>Level</th>
<th>Total</th>
<th>No. passing</th>
<th>OR</th>
<th>OR*</th>
<th>(95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>235</td>
<td>132</td>
<td>1.0</td>
<td>1.0</td>
<td>(1.1-2.5)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>196</td>
<td>134</td>
<td>1.7</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>UK graduate</td>
<td>No</td>
<td>105</td>
<td>25</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>329</td>
<td>242</td>
<td>8.9</td>
<td>5.9</td>
<td>(2.9-11.9)</td>
</tr>
<tr>
<td>No. of attempts</td>
<td>1st</td>
<td>334</td>
<td>223</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>68</td>
<td>31</td>
<td>0.4</td>
<td>0.5</td>
<td>(0.3-1.0)</td>
</tr>
<tr>
<td></td>
<td>3rd +</td>
<td>37</td>
<td>16</td>
<td>0.4</td>
<td>0.6</td>
<td>(0.2-1.4)</td>
</tr>
<tr>
<td>Academic course†</td>
<td>No</td>
<td>49</td>
<td>17</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>346</td>
<td>237</td>
<td>4.1</td>
<td>1.8</td>
<td>(0.8-3.9)</td>
</tr>
<tr>
<td>No. of years in PHM</td>
<td>&lt;1</td>
<td>101</td>
<td>65</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1–2</td>
<td>133</td>
<td>102</td>
<td>1.8</td>
<td>1.9</td>
<td>(0.7-5.0)</td>
</tr>
<tr>
<td></td>
<td>&gt;2</td>
<td>53</td>
<td>27</td>
<td>0.6</td>
<td>2.8</td>
<td>(1.1-7.4)</td>
</tr>
<tr>
<td>Other college membership</td>
<td>No</td>
<td>186</td>
<td>95</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>203</td>
<td>148</td>
<td>2.6</td>
<td>2.2</td>
<td>(1.3-3.9)</td>
</tr>
<tr>
<td>Year sat</td>
<td>1992</td>
<td>77</td>
<td>55</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1993</td>
<td>129</td>
<td>65</td>
<td>0.4</td>
<td>0.6</td>
<td>(0.3-1.2)</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>136</td>
<td>95</td>
<td>0.9</td>
<td>1.9</td>
<td>(0.9-4.1)</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>97</td>
<td>55</td>
<td>0.5</td>
<td>1.3</td>
<td>(0.6-3.0)</td>
</tr>
</tbody>
</table>

† Attended an academic course specifically in preparation for taking the MFPHM Part I examination.

OR, odds ratio unadjusted. OR*, odds ratio adjusted for age, sex, full registration, UK graduate, years in public health, number of attempts, year sat examination, job status, and membership of another Royal College or Faculty. It should be noted that missing data in each category are excluded from the analysis.
increased number of academic courses may have just been coming 'on stream' at this time, though there is no published evidence to support this. The decline in the number of candidates in recent years has preceded the expected decline predicted from knowledge of recruitment to the specialty.

The proportion of candidates passing the examination is frequently afforded more importance than it deserves. Many prospective candidates and some of those advising them may draw, from these data, conclusions related to the degree of difficulty of the examination and may indeed be surprised by the amount of variation in the proportion passing. However, as the examination is criterion referenced and not norm referenced, the proportion passing will vary and will be determined by the calibre of the group of candidates sitting on each occasion, provided the criteria for success adopted by the examiners remain reasonably constant.

June 1992–June 1995

The fact that females had greater odds of passing than males could be due to general trends toward greater academic achievement in this former group generally. Further analysis on the data (not included in the table) shows that for non-UK candidates the reverse is true – males have greater odds of passing than females (adjusted OR = 1.6, 95 per cent CI = 0.6–4.5).

The category of non-UK graduate is heterogeneous, but in spite of this a clear advantage is conferred to those candidates who (we can reasonably assume) have a working knowledge of the National Health Service, and access to advice from trainers who are equally familiar with it. As the examination is designed as an objective test of knowledge about basic public health sciences, this apparent bias toward UK graduates may be worthy of comment to the specialty.

Although at first sight, having attended an academic course appears to confer advantage, there was systematic bias in the way these data were recorded on the application forms; the most recent form was used for every recorded attempt of previously failed candidates, so by the time they came to pass, some had ceased entering the name of the course. The possession of membership of another Royal College or Faculty may be a surrogate marker of previous 'general experience' which one might expect would lead to a greater odds of passing.

Validity

It is reassuring to note that there is no trend in the odds of passing from year to year (the examination may therefore have a degree of internal validity), and that sub-group analysis of the three papers marked separately revealed no real differences from the main factors outlined in Table 1. Of equal significance is the fact that candidates are more likely to pass the longer they have been practising public health medicine (an indication of external validity). Those who wish to take the examination very early (under one year) should consider this carefully, as the chances of failing are higher.

Many of the above findings are predictable. However, the fact that they have been revealed by this analysis (the first of its kind) is both reassuring and of considerable importance for the future. Some aspects of the validity of the examination are supported, and areas for action are highlighted (in relation to non-UK candidates, for example). Suggestions on how these areas can be taken forward are welcomed, and further systematic evaluation of the results of the examination are recommended for the future, with enhanced routine data collection.

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References


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