ANAESTHESIA IN THE WESTERN REGION OF SCOTLAND

G. D. PARBROOK AND W. NORRIS

SUMMARY

A comparison of consultant anaesthetic staffing in the Western Region with that of Scotland shows that the West has its proportionate shortage of anaesthetists. This shortage is exacerbated by an inadequate supply of trained anaesthetists in the region. Training programmes are successful, but there is an inadequate number of junior staff when allowance is made for the special factors applying in the region.

Following the Royal Commission on Medical Education (Todd, 1968) and the recent survey of postgraduate training in anaesthesia (Vickers, 1971), there has been an intensification of interest in region training schemes.

In the Western Region of Scotland day release courses and specialist secondments have been arranged for several years, but nevertheless some problems have arisen which appear related to an imbalance between the number of trained staff available and the number of consultant vacancies appearing.

In this paper this aspect of the balance between consultant vacancies and numbers of trainees is considered, with special relevance to the problems applicable in the Western Region. Before considering the numbers of junior staff needed one must first consider the consultant staffing in the area and then the numbers of vacancies which are likely to arise. From such figures one may obtain some estimate of the number of trainees required.

The initial consideration will be limited to a comparison of the Western Region with the rest of Scotland, as a comparison of Scotland with the rest of Britain has been made elsewhere (Parbrook, 1971).

Current consultant staffing.

Before consideration of the expansion in the number of consultants needed one must assess the current level of anaesthetic staffing in the Western Region, as compared to the rest of Scotland.

Table I shows comparisons based on several yardsticks:

(1) The ratio of consultant surgeons to consultant anaesthetists (Parbrook, 1971).
(2) The ratio of consultant obstetricians/gynaecologists to consultant anaesthetists.
(3) The ratio of inpatient operations per consultant anaesthetist.
(4) The ratio of inpatient operation time per anaesthetist.

This last technique is described elsewhere in detail (Parbrook and Steel, 1972) and the figures provide an indication of part of the anaesthetic workload. Although all these techniques have limitations in their interpretation, there is evidence to suggest that the Western Region is similar to Scotland as a whole. In addition the relative proportions of consultants to other grades of anaesthetic staff are not markedly different in the Western Region (table II).

<table>
<thead>
<tr>
<th>TABLE I. Consultant anaesthetists staffing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Ratio surgeon*: anaesthetists (1970)</td>
</tr>
<tr>
<td>Ratio obstetricians/gynaecologists: anaesthetists (1970)</td>
</tr>
<tr>
<td>Ratio No. of inpatient operations per anaesthetist (1968)</td>
</tr>
<tr>
<td>Ratio inpatient operation time per anaesthetist (1968)</td>
</tr>
</tbody>
</table>

* including general, orthopaedic, neuro, thoracic plastic and paediatric surgeons, e.n.t. and urology.

All figures are given as WTEs (whole time equivalents).

<table>
<thead>
<tr>
<th>TABLE II. Anaesthetic consultants and supporting staff in regions (1970) WTEs (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Consultants</td>
</tr>
<tr>
<td>SHMOs</td>
</tr>
<tr>
<td>General practitioners</td>
</tr>
<tr>
<td>Medical assistants</td>
</tr>
<tr>
<td>Trainee staff</td>
</tr>
</tbody>
</table>

As over half the medical staff and over half the work load are in the Western Region this would imply that over half the shortage of anaesthetists in Scotland lies in this area.

Assessment of the need for doctors on a population basis (Godber Report, 1969) is misleading. This would only be a valid yardstick if morbidity were uniform throughout the United Kingdom. That such is not the case has been clearly shown by Howe (1970) who demonstrated marked differences in the incidence of illness in various areas. Thus the average morbidity in Scotland is very much higher than in Northern England and Wales, which in turn have a higher morbidity than the South East of England. There are many factors which account for these variations between regions, all outwith our control. This need is reflected in the higher number of beds relative to the population in Scotland. It has been shown (Practitioner, 1972) that where beds are available they are fully used and the admissions per 100,000 of population are directly related to the beds available.

Where adequate surgical and nursing staff are available, the combination of an increased morbidity rate and greater availability of beds inevitably calls for increased anaesthetic services.

Future trends of consultant staffing.

Although an increase in consultant staff of 4 per cent per annum is recommended (Brit. med. J., Suppl., 1971) some specialties are less adequately staffed than others and it is anticipated that rates of expansion will vary above and below 4 per cent in accordance with the specialty. In the case of anaesthetics the expansion rate in Scotland has been at about 6 per cent per annum for the last 20 years (fig. 1). Demand for anaesthetic services continues unabated and an expansion rate of this size seems likely to continue for the immediate future (Parbrook, 1971).

Demands for anaesthetic services are no longer limited to surgeons, as there are increasing demands for anaesthetists to assist with intensive care units, epidural services and recovery areas. In addition to these fresh commitments anaesthetists are being expected to play a greater part in the preoperative and postoperative period and to assist to a greater extent with teaching of the medical and nursing staff in aspects such as resuscitation and intensive care.

Assuming a 6 per cent expansion rate on the current consultant anaesthetist figures, approximately 5 new appointments per year will be needed in the immediate future, rising to 7 a year in 7 years' time. Published tables show that there will be approximately 2½ additional vacancies per annum in anaesthesia from retirements (Scottish Home and Health Department, 1968) and one can estimate 1 vacancy in addition from other causes, such as emigration, illness, etc. The number of consultant vacancies is consequently likely to be 8½ to 10½ per year over the next 7 years. As it takes a minimum of 6 years to train an anaesthetist, immediate forward planning is necessary to assess the size of intake into training appointments at the present time.

Adequacy of junior anaesthetic establishment.

Although practical training is important, it lends itself less readily to statistical analysis than do the
records of anaesthetists obtaining the F.F.A.R.C.S. In the four years 1967 to 1970, 22 candidates from the Western Region passed the Fellowship examination, an average of 5½ per year. This is well short of the above estimates of our present needs (assuming that they will proceed to consultant-status) and perusal of the vacancies advertised in the medical press over the past few years shows that many posts have been readvertised for lack of suitable applicants.

To consider whether more anaesthetists can be trained, the registrar establishments in 1968 and 1970 are taken as representative (table III). Senior house officers are not included as some do not continue in anaesthesia.

<table>
<thead>
<tr>
<th>Date</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>18 (4)</td>
<td>21 (3)</td>
</tr>
<tr>
<td>1970</td>
<td>26 (9)</td>
<td>20 (5)</td>
</tr>
</tbody>
</table>

(Overseas graduates in brackets)

In calculating the numbers of anaesthetists in training one must make allowance for the proportion of women and overseas graduates. Timbury and Ratzer (1969) have shown that after 15 years only 31 per cent of Glasgow women medical graduates will be working full time and the percentage of women trainees from the Western Region who pass the F.F.A. also indicates a loss of about this size. If the corrected total of registrars in training in 1968 is 25 (18 plus one-third of 21) and the duration of training in the registrar grade three years, then 8 anaesthetists per annum could be trained. Such a calculation is optimistic as it includes a proportion of overseas graduates, many of whom come for shorter term training and do not intend taking the F.F.A.R.C.S. In addition several UK graduates leave the specialty or emigrate prior to obtaining the F.F.A.R.C.S. In view of these factors it is doubtful if the recent level of output of 5½ qualified anaesthetists per year can be improved upon with the existing registrar establishment.

The number of registrars was greater in 1970. This may not lead, however, to a corresponding increase in the number of potential consultants because of the rise in the proportion of overseas graduates, many of whom may not wish to remain in the West of Scotland after completion of training.

The main problem in the Western Region has been the shortage in the number of registrar trainees with similar shortages at senior house officer and senior registrar level. This shortage is principally caused by a shortage of junior training posts.

Estimate of future needs in junior staffing.

Present junior staffing levels are inadequate and, in assessing these future requirements, some special factors applying in the Western Region must be taken into account. The majority of junior staff recruited to anaesthesia in this region graduate in the University of Glasgow and recruitment is therefore affected by the policies of the University. It has long been a principle that women medical students are recruited solely on academic merits without restriction of numbers and currently the percentage of women entrants has increased to 38 per cent (fig. 2).

As promotion to consultant status is virtually barred to women in some specialties, many are consequently recruited to anaesthesia where prospects are more favourable. At present approximately half the registrar anaesthetists are women and the figures given in the histogram suggest that the proportion may increase over the next six years.
Another factor affecting the future recruitment to anaesthesia and the number of registrars required is the number of overseas trainees. These are indicated for registrars in figure 3. Properly staffed and equipped departments of anaesthesia are scarce in many countries and there is an acute world-wide shortage of medical teachers, particularly in anaesthesia (Royal Commission on Medical Education, 1968). In view of these factors it is not surprising that there has been a steady rise in the number of overseas trainees, both in England and in Scotland. Scotland has lagged behind England, possibly owing to the relative shortage of trainee appointments, but, if the number of appointments increases, the proportion may rise closer to that in England. In 1970 in the Western Region 14 out of 46 of the registrars were from outwith the U.K. and Eire and a level of 33\% per cent trainees from overseas seems a modest allowance to make in the immediate future. In a future staffing structure these trainees may be supernumerary to the career grade establishment if their intention is to return to their home country after a period of training.

Some of the anaesthetists from overseas may stay in Britain and take up consultant appointments, but a recent survey from Edinburgh (Petrie, 1970) indicated that only 25 per cent of the overseas medical staff hope to stay in Britain. Of these a proportion will be women, in the case of anaesthesia, and consequently the number available for consultant appointments will be much fewer than 25 per cent. Even in the registrar grade we lose a proportion of our graduates by emigration and it could be that the loss of graduates from emigration will be compensated by the retention of overseas graduates, similar to the overall picture of emigration (Ash and Mitchell, 1968).

In the Western Region therefore we may anticipate a future pattern of junior staffing at registrar as follows: one third male graduates (UK and Eire) will be training for consultant appointments; one third female (UK and Eire) graduates, of whom only one-third will be likely to stay in anaesthesia permanently; and finally one-third overseas graduates. From this it can be predicted that approximately 40 per cent of registrar trainees in the West can be regarded as potential consultants. Based on these considerations a table of estimated junior staff requirements is shown (table IV).

| TABLE IV. Estimated consultant vacancies and junior staff requirements. |
|---------------------------|---------------------------|
| Present requirements (per annum) | Requirement in 7 years time (per annum) |
| Vacancies from annual retirals | 2½ | 2½ |
| Other factors (emigration at consultant level, illness, etc.) | 1 | 1 |
| Expansion of specialty | 5 | 7 |
| Total vacancies | 8½ | 10½ |
| No. of registrars needed allowing a 3 year duration in grade | 64 (46) | — |
| No. of “registrars” needed allowing a 2½ year duration in grade (last 2½ years general professional training) | — | 65 |
| Senior registrars* allowing a 2 year duration in grade | 19 (10) | — |
| “Senior registrars” (higher professional training) allowing a 3 year duration in grade | — | 35 |
| SHOs† allowing a 1 year duration in grade (or first year general professional training) | 27 (16) | 33 |

*10\% additional staff allowed for emigration at Senior Registrar level.
†20\% additional staff allowed for transfer at SHO level to general practice and other specialties.

1970 staffing figures are provided in brackets.
Two columns are given in the table; the first one giving the immediate needs in terms of junior staffing, based on the present staffing structure. In this we make an allowance of 5 new consultant appointments per year and the junior training includes 1 year senior home officer, 3 years as registrar and 2 years as senior registrar level, giving six years training in all, the minimum recommended by the Faculty of Anaesthetists. The second column projects the training arrangements in seven ‘years’ time. The number of consultant appointments per year is higher and one has a different proportion in the junior (general professional training) and senior registrar (higher professional training) levels to meet the future recommendations by the Faculty (Newsletter, 1969, and Royal Commission on Medical Education (1968)).

Although a period of 3 years general professional training is recommended, a total of 34 is indicated in the table. The additional time is needed as an interim period for a trainee to obtain his fellowship and secure a higher training appointment. The passing of the examination will be a prerequisite to the senior appointment. Study of the table illustrates the undesirability of having too rigid an establishment in anaesthesia. Changes in the establishment of junior staff will be required if there is any marked alteration in the proportions of women and overseas graduates. Nevertheless, the proportion of women for the next 6 years can be predicted from the University undergraduate entrance policy and a moderate fall in the number of overseas graduates of itself would not markedly affect the final percentage of consultants available. Thus a reduction in overseas graduates to, for instance, 20 per cent would probably result in a 40 per cent male: 40 per cent female ratio for UK graduates and in consequence greater losses from uncompensated emigration of the male graduates and the proportionately higher loss of women trainees.

Difficulty might be anticipated in recruiting the additional trainee anaesthetists, but if adequate career guidance is given to undergraduates and graduates then this problem of recruitment could well be solved. The Royal Commission on Medical Education (1968, paragraph 197) recommended that the vocational aspect of undergraduate medical education should not be ignored for it states that “the student clearly has a professional career in view, his education must be biased in this direction”. In keeping with these recommendations all medical undergraduates should have a period of attachment to anaesthetic departments for teaching in appropriate aspects of anaesthesia, including intensive care and resuscitation. In addition to improved vocational training and guidance, correction of the current over-recruitment to other specialties and an increased number of medical graduates should both aid in providing applicants for entry to anaesthesia.

We conclude that the level of trainee staffing in anaesthesia in the Western Region is inadequate and marked expansion in all grades is needed. Fixed establishment levels are undesirable and should be kept under continual review to take into account the variations in the proportion of female doctors and overseas anaesthetists in training.

ACKNOWLEDGEMENTS

We are grateful to Professor A. C. Forrester for help in the preparation of this paper. Some statistical data were kindly provided by the Scottish Home and Health Department and percentage of women medical graduates by the Medical Faculty of Glasgow University. The Faculty of Anaesthetists assisted with the provision of Fellowship pass lists.

REFERENCES


Scottish Home and Health Department. Hospital medical and dental staff: Scotland as at September 30, 1968.


ANESTHESIE EN ECOSSSE OCCIDENTALE

SOMMAIRE
Une comparaison des équipes de consultants-anesthésistes dans les régions occidentales à celle de l’Écosse montre que l’occident est en déficit proportionnel pour le nombre d’anesthésistes. Ce déficit est exacerbé par la présence insuffisante d’anesthésistes entrainés dans la région. Des programmes d’entraînement réussissent mais il y a un nombre insuffisant de membres-juniors des équipes si on tient compte des facteurs spéciaux applicables à cette région.

ANAESTHESIE IM WESTLICHEN TEIL SCHOTTLANDS

ZUSAMMENFASSUNG

ANAESTESIA EN LA REGION OCCIDENTAL DE ESCOCIA

RESUMEN
Una comparación del personal médico para anestesias en la región occidental y en el resto de Escocia muestra en la región occidental una falta de anestesistas. Este déficit es agudizado por el número insuficiente de anestesistas experimentados. Los programas de instrucción tienen éxito, pero la cantidad de personal nuevo resulta insuficiente cuando se tiene en cuenta los facteurs especiales que rigen en esta región.

NORTH OF ENGLAND SOCIETY OF ANAESTHETISTS

President: DR JOHN MATHESON

Programme 1972-3

1972
Tuesday, October 24
President’s Night—Guest Lecturer: Professor J. J. Bonica, University of Washington, Seattle, U.S.A.
Friday, November 10
Dr J. Edmund Charlton, University of Newcastle upon Tyne Hospitals Group, “With Blowpipe and Camera through the Neurological Jungle”.
Friday, December 8
Dr John S. Inkster, University of Newcastle upon Tyne Hospitals Group, “Little Things...”

1973
Friday, April 13
Professor Cecil Gray, Dean of Medicine and Professor of Anaesthesia, University of Liverpool, “A for...?, B for Baloney, C for Crile, D for Dreams, etc.”
Friday, May 11
Dr David C. White, Department of Anaesthesia, Medical Research Council Research Centre at Northwick Park, “Lights Under Anaesthetic Bushels”.

There will not be an ordinary meeting of the Society in March 1973 but arrangements are in hand with the University Department of Anaesthesia for a one-day Symposium on “Anaesthesia and Special Surgery” on Saturday, March 24, 1973.

Meetings are normally held on Fridays in the New Lecture Theatre, R.V.I., Newcastle upon Tyne at 8 p.m. Buffet suppers will be available as previously in the Board Room from 6.30–7.30 p.m. and coffee in the ante-room to the New Lecture Theatre from 7.30 p.m. onwards.

President’s Night will this year be held on a Tuesday at 8.15 p.m. The buffet supper will be at 7 p.m. and coffee at 8 p.m.

All communications should be addressed to the Honorary Secretary: Dr W. Ryder, Department of Anaesthesia, Royal Victoria Infirmary, Newcastle upon Tyne, NE1 4LP.