

MANPOWER PROBLEMS IN ANAESTHESIA*

N. T. MCPHEDRAN

THE REQUIREMENTS SUBCOMMITTEE of the National Committee on Physician Manpower reported^{1,3} in April 1976, on a study of the manpower needs of 33 specialties. This study involved thousands of man-hours of work donated by physicians appointed to working parties recruited from each specialty recognized by the Royal College and from Family Practice. The excellent report of the Anaesthesia Working Party projected an annual requirement of 105 anaesthetists to meet 1981 manpower requirements.

To assess the validity of these figures one must consider the methodology used. The Anaesthesia Working Party^{2,3} was provided with data on every anaesthetic given in Canada for the year 1972-73, including data on whether the service was provided by a certified or "other" anaesthetist. The Working Party was asked to estimate "average time" for these procedures and on the basis of records from Saskatchewan and Quebec and personal experience of members of the Working Party, it was estimated that the "average" anaesthetic time in a community hospital was 61 minutes and in a teaching hospital 78 minutes. Multiplication of these average times by number of procedures provided the total fee-for-service work-load for the specialty of anaesthesia in the base year. There were 1,304 full-time anaesthetists during this period and it was calculated that they worked an average of 55 hours per week in community hospitals and 57 hours per week in teaching hospitals, based on a 48-week work year. From the data on specialization it was determined that 2,726 physicians other than certified anaesthetists gave anaesthetics, and their total work-load was equivalent to the work-load of 445 full-time anaesthetists.

The Working Party proposed that the optimal workload for anaesthetists be 54 hours a week in community hospitals and 57 hours per week in

teaching hospitals, for a 45-week year. To achieve this level, postulating no change in the ratio of certified to non-certified anaesthetists, an additional 266 certified anaesthetists would have been required in the base year. This optimal requirement was projected to 1981, based on median population growth figures supplied by Statistics Canada. Assuming attrition at 3.5 per cent each year, an annual output of 105 anaesthetists per year would be necessary to meet this projected requirement.

The essence of the work-load method to calculate manpower requirements is described above. Calculations are based on the actual demand by a fully insured population. A number of assumptions must be made:

1. Under conditions of universal pre-paid medical care insurance demand for physicians services approximates the need.

2. All medical services rendered are reflected in medical care utilization data.

3. All medical services rendered were necessary and necessary services *not provided* approximately equalled unnecessary services which were provided.

4. Physician working-time is a useful common denominator to compare different medical procedures.

5. An average service time, in minutes, can be assigned for each service rendered by physicians.

6. For each specialty (including family practice) volume of services rendered multiplied by the service time for each reflects the total fee-for-service work-load.

7. There is an optimal average work-week, in hours, which can best be determined by consensus of representative physicians.

8. The actual work-load of physicians can be adjusted to determine the optimal work-load, and from this the optimal physician manpower requirement for the base year can be calculated.

9. Future requirements may be calculated by modifying optimal requirements for the base year to compensate for trends and developments considered likely to influence future manpower requirements and applying this ratio to the projected population.

10. In terms of level of care to strive for it is

*Paper presented at the Canadian Anaesthetists' Society Conference on Health Economics, Toronto, Ontario, November 11, 1977.

N. T. McPhedran, M.D., F.R.C.S.(C), F.A.C.S., Professor and Head, Division of Surgery, The University of Calgary, Co-Chairman, Requirements subcommittee on Physician Manpower, National Committee on Medical Manpower.

realistic to attempt to determine the physician manpower required to provide a reasonable quality of episodic and preventative care and health surveillance to most of the population of Canada.

Each of the 33 Working Parties was asked to review these assumptions. Each was provided with the number and character of procedures carried out by all members of their specialty and a list of procedures carried out by "other physicians". Using this data base and carrying out the calculation described above, each Working Party estimated the optimal physician requirements for the base year; then they looked at trends that might influence requirements between base year and 1981 and estimated the requirement for 1981. The annual supply to achieve this requirement was then calculated. When these figures from each Working Party were added it was found that the sum of the estimated annual requirements for each of the 33 Working Parties, including Family Practice, was 1,796 physicians. This is remarkably close to the 1978 output of 1717 from Canadian medical schools⁴ and explains the rationale for limiting immigration of physicians.

As stated previously, the calculated annual requirement for Anaesthetists was 105.

DISCUSSION

These figures have serious implication for anaesthesia. Already there is a shortage of certified anaesthetists and in 1976 only 49 of 127 candidates who tried Royal College certification examinations in this specialty were successful. This raises two questions. First, what to do about the obvious shortfall between 49 successful candidates and the 105 annual requirement projected by the Anaesthesia Working Party? Second, what became of the 78 fully trained but unsuccessful candidates? Will these men join the pool of "other physicians" who provide about one-third of the anaesthetics given in this country? Obviously the standards of the Royal College must not be lowered; equally obviously we need a way to salvage the knowledge and skill of unsuccessful candidates.

The calculated annual requirement of 1,796 physicians for all of Canada and for all specialties, including Family Practice, is remarkably close to the present annual output of Canadian medical schools. It is unrealistic to rely on immigration to fill residency positions or vacant posts in the specialty. Graduates of Canadian medical schools must be attracted to anaesthesia if the present shortage is not to become a disaster.

These problems must be settled by anaesthetists themselves. The excellent article by Rigg and Harris in the September 1977 issue of the Canadian Journal of Surgery suggested a number of solutions.⁵ To a surgical observer the best stimulus to recruitment of Canadian graduates is manifest enthusiasm for the specialty by individual anaesthetists interacting with medical students.

In conclusion, the Manpower Study carried out by the Anaesthesia Working Party provides the firmest guide to the number of anaesthetists required to alleviate present and future shortages. The effort to recruit and train the highly qualified anaesthetists who are urgently required must be solved by concerted efforts of the anaesthetists themselves. Surgeons will surely help. Most recruits must come from the graduates of Canadian medical schools. Recruitment depends most on the morale and enthusiasm of Canadian anaesthetists.

RÉSUMÉ

En avril 1976, le sous-comité des études sur les besoins en effectifs médicaux de trente-trois spécialités remettait son rapport. L'atelier de travail de l'anesthésie évaluait à 105 par année la production d'anesthésistes nécessaire pour faire face aux besoins de 1981.

Cet atelier avait à sa disposition toutes les données concernant l'administration de l'anesthésie au Canada pour l'année 1972-73 y compris la répartition des tâches entre certifiés et non-certifiés. Le calcul des effectifs a été fait selon une méthode d'assignation des services. Durant la période étudiée, on a déterminé qu'il y avait 1304 anesthésistes exerçant à temps plein et que 2726 autres médecins administraient l'anesthésie. Sur la base d'une semaine de cinquante-quatre heures dans les hôpitaux communautaires et de cinquante-sept dans les hôpitaux d'enseignement, et pour une année de quarante-cinq semaines dans les deux cas, un nombre additionnel de 266 anesthésistes aurait été requis pour cette année-là. Ces besoins optimaux furent ensuite projetés pour l'année 1981 en tenant compte du taux d'accroissement médian de la population compensé par le taux d'attrition et évalué à 3.5 pour cent par Statistiques Canada. Suivant cette projection, il fut alors établi qu'un débit annuel de 105 nouveaux anesthésistes certifiés serait nécessaire.

Ces chiffres ont des implications sérieuses pour l'Anesthésie. Nous faisons déjà face à une

pénurie d'anesthésistes certifiés et cette pénurie est aggravée par la triste constatation qu'en 1976 seulement quarante-neuf des 127 candidats à l'examen du Collège Royal ont réussi. Il serait irréaliste de compter sur l'immigration pour combler les postes vacants et les diplômés des écoles de médecine canadienne doivent être attirés vers l'anesthésie si on veut éviter que la pénurie ne se transforme en désastre. Les efforts déployés pour recruter et former des anesthésistes hautement qualifiés doivent l'être par les anesthésistes eux-mêmes. La majorité des recrues devrait provenir des écoles canadiennes et ce recrutement est intimement lié au bon moral et à l'enthousiasme des anesthésistes canadiens.

REFERENCE

1. Report of Requirements subcommittee of the National Committee on Physician Manpower (1976).
2. Anaesthesia Working Party Report to Requirements subcommittee of the National Committee on Physician Manpower (1975).
3. KORCOK, M. & GEEKIE, D.A. Report issued by Requirements subcommittee of National Committee on Physician Manpower. *C.M.A.J.* 115: 265-273 (1976).
4. INGLIS, F.G. Physician manpower planning: an urgent problem: Editorial. *Can. Jour. Surg.* 21: 7-8 (1978).
5. RIGG, J.R.A. & HARRIES, J.D. Future of anaesthesia. *Can. Jour. Surg.* 20: 467-470 (1977).