TALKING POINT

Simple model for medical manpower studies

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Most medical manpower forecasts simply try to give a total figure for the future number of doctors, making certain assumptions. Sometimes the estimates focus on one main group, such as general practitioners, but they give little idea of what is likely to happen in all the important parts of the profession. On the other hand, detailed studies of the expected movements of doctors—for instance, from one grade or specialty to another—give an almost impossibly complicated picture.

A simple compromise is to regard NHS medical staff as being in boxes, or cells, representing major groups. Some acceptable approximations can then be made. For instance, the inflow of new doctors will always be to the cell representing junior hospital doctors (including the preregistration year), and will come either from overseas or from our own medical schools. Losses from each cell will be made up of deaths, retirements, emigration, part or full unemployment of women doctors, etc. The major movements of doctors into, out of, and within the system can thus be shown by arrows, and available data enable numbers to be put to these arrows. No such model can hope to be completely accurate but it can give a good idea of the system. It is easy to play with and to adapt for the analysis of special problems (see figure).

junior hospital staff cell would then be depleted by $460 + 306 = 766$ doctors from this cause. Further depletion would occur in order to keep up or increase the stock of GPs and other career grades. By working through the model in this way all the appropriate numbers—for example, the new total for junior hospital staff—can be assigned to the cells and arrows. The result shows whether it is sensible to continue for another year—for example, until 1977—along the same lines or if an impracticable position is developing.

Given the above diagram for 1975, which is a reasonably fair starting point, readers may like to build up their own models and make their own predictions. It is better to do this than to believe what other people say, but some general conclusions might nevertheless be helpful.

Conclusions

If the inflow of overseas doctors falls while the annual loss stays the same, a fall in the total number of doctors will occur until some time about the mid 1980s, when our output of British graduates catches up with the losses. If the inflow and outflow of overseas doctors both go down to about 1000 a year by 1978, the total stock of doctors, however much

growth" scene is to see how many overseas doctors can be fitted into NHS posts after the legitimate career aspirations of British graduates have been satisfied. On this basis it can be shown that all the expected output of the British medical schools can easily be assimilated and promoted at least as well as at present until 1984. There is then no room to accept any more overseas doctors or any increased output of British graduates unless the total number of NHS doctors is at last allowed to rise above the 1975 figure. Dependence on overseas doctors has been reduced by over 7000 by 1984 and the percentage of British graduates in the junior hospital grades has risen to 87. Redistribution in favour of more senior hospital posts is also possible.

This is a clear refutation of the claims that we are in danger of producing too many doctors¹ but it implies active control over the numbers from abroad obtaining employment.^{2,3} This is important, since anxieties about overproduction of British doctors largely derive from papers which either admit continuing dependence on overseas doctors in hospitals while discussing other sectors of the service,⁴ or overtly accept such dependence as a potentially good thing.⁵ For instance, the BMA's evidence to the Royal Commission on the NHS,⁶ when subjected to the type of analysis described here, shows that the consultant and GP expansion rates assumed for continuing NHS growth imply an increasing dependence on overseas doctors, by almost 4500 by 1981, even with the planned output of our own medical schools.

Longer-term estimates of required medical school output, beyond the mid-1980s, might well incline towards a substantial reduction. This can again be seen by experimenting with the simple model proposed. This shows the fallacy of attempting long-term predictions based on a fixed annual output⁷ and it emphasises the need for continuous review of the medical manpower position.

These examples may be enough to provoke thought and to suggest alternative assumptions worth testing. The preregistration year still seems to present the worst threat of a dangerous bottleneck. How tragic and how absurd it would be to allow a job crisis to develop at the very point of entry to a profession which needs the new graduates we have taken pains to produce.

NHS medical manpower, Great Britain, 1975.

We can now build up various pictures of the future, depending on the gains and losses, and the expansion that is required in the size of each cell. For example, losses of senior hospital staff, mainly due to death and retirement, seem to be about 3% a year. This would mean a loss of approximately 460 doctors between 1975 and 1976. To keep the number of senior hospital staff constant, therefore, the junior grades would have to supply a movement of 460 doctors along the arrow to the senior staff cell. If an expansion of 2% was required in the number of senior hospital staff, this would need an extra 306 doctors, who would also have to be drawn from the junior grades. The

money is available to pay them, cannot grow at the current rate (up to 1975) until at least the mid 1980s. If, however, inflow and outflow of overseas doctors both fall, as above, and there is no growth in the total number of doctors, various hypothetical things can happen. Expansion of the consultant grade can only occur by the junior grades becoming smaller. They might not then accommodate all the output of the British medical schools, together with the incoming overseas doctors. But it would be absurd to force British graduates out of the system to accommodate however many overseas doctors choose to come. A more realistic vision of the "no

References

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