

*J.I.A.* 120, III, 487-489

**THE ACTUARIAL USES OF HEALTH SERVICE  
INDICATORS FOR THE NATIONAL HEALTH SERVICE  
IN ENGLAND**

SEMINAR, 8 JULY 1993

A SEMINAR, described as pioneering and organised by the Health Working Party, was held at Staple Inn on 8 July 1993. The working party had been commissioned by the Health and Care Joint Committee of the Institute and the Faculty of Actuaries to produce a paper 'The Actuarial Uses of Health Service Indicators for the National Health Service in England'.

The seminar was designed for healthcare professionals, rather than actuaries, and invitations were sent to a wide range of relevant organisations and individuals. There were 25 delegates from outside the actuarial profession and 10 actuaries (37 actuaries had attended an 'actuaries only' seminar on 28 May).

The delegates were welcomed to Staple Inn Hall by the President of the Institute, Mr John Martin, who introduced Mr Paul Seymour, Chairman of the Seminar and of the Health and Care Committee. The objectives of the day were outlined by Mr George Orros, Chairman of the Health Working Party.

The underlying aim of the seminar was to describe, discuss and debate the potential role of actuaries in giving professional advice on healthcare in general and the use, in particular, of health service indicators (HSI). The HSI are a vital performance measurement tool for the comparative evaluation of each major purchasing authority and provider unit within the NHS. The HSI place local health data in a national context, enabling local managers to make comparisons with conditions and services elsewhere. These comparisons are possible and desirable because the NHS is a national service, with basic similarities in what is needed and provided in different localities. Actuaries have much to offer in future in the field of healthcare, because they are uniquely well placed to combine the financial, non-financial and human life factors involved in giving objective professional advice to the Department of Health, the NHS Management Executive, NHS senior managers, NH Trusts and, indeed, private providers. A further aim was to obtain feed-back from health service professionals and to gauge the level of interest in this and related information in order to provide guidance and to assess the wants and needs of health service professionals in this area.

As if to emphasise the importance of multi-disciplinary involvement, Mr Edward Colgan, Head of the Contracting and Purchasing Unit of the NHS Management Executive, spoke of the needs and requirements of the healthcare service, and provided an invaluable insight into the workings of his unit. He defined the goals of the purchaser in the context of the NHS as:

- (a) to improve the quality of care;
- (b) to improve health; and
- (c) to achieve greater efficiency in the use of resources.

It is in the third area that the more effective use of HSI was of direct importance, and benefits gained in this area would impact on (a) and (b). Mr Colgan saw the seminar as an opportunity to assess the contribution that actuaries could make in the more effective use of HSI.

In the next session, Mr Frank Guaschi described the history of the Institute and the work of the actuary, concentrating on the activities of the non-life specialist. This set the scene for Mr Robert Plumb to outline the actuarial aspects of the HSI. The HSI are prepared primarily for the benefit of the Department of Health, NHS managers and their support staff. Their most important use is to provide statistics relating to past performance. The main purpose is to facilitate the application of professional management techniques to the various operational management units of the NHS. Mr Plumb explained that actuaries can add an important contribution in interpreting the detailed source data, such as hospital episode statistics, but expressed concern that the data available to external users are likely to be reduced. Actuaries are well placed to advise on the management information requirements associated with the orderly financial management of the NHS, but emphasis was placed on the fact that this was only a 'tool', and the role of the actuary was to explain how it could best be employed by the healthcare professionals.

In the afternoon attention turned to the detail of the investigation into HSI, and other members of the Health Working Party concentrated on specific areas. Mr Colin Garlick introduced the Hospitalisation Study Report as an example of how the statistics can be used. This study provided illustrative data as a forerunner to the main thrust of the report, which was to show how the past statistics could help to build a model of the future, which could be refined as more and more information becomes available, in order to allow proper planning and control of service within the NHS. Several speakers emphasised the need for the model to be robust and yet flexible. The results were shown in a graphic form and demonstrated the need for careful interpretation and, indeed, a questioning approach to the accuracy of the basic data. Close liaison with healthcare professionals will be needed to ensure that anomalies are understood.

Following the analysis of the available data, Mr Ravi Manjrekar demonstrated how the information could be employed by using standard actuarial techniques to produce a hospitalisation model. This combines assumed hospitalisation experience and movements with a region specific population projection to provide a longer-term business tool. Data are only available in broad age groups (0-15, 16-64, over 65) and, since many conditions, recovery times, etc. are age sensitive, limitations are imposed. The need to encourage health service managers to record the more appropriate data required to undertake more sophisticated and beneficial analyses was emphasised. This will only be possible if

the beneficial features are evident and appreciated. The amenability of healthcare data to the application of actuarial techniques was demonstrated, and projections, using the broad age groups, for each of the 14 geographical regions were given.

Mr Michael Moliver then dealt with the Healthcare Utilisation Model, and his important message was that this was not simply an exercise in cost control, although costs had been introduced into the calculations. It must be recognised that both purchasers and providers of healthcare are concerned to combine best medical practice and patient treatment with efficient and cost-effective resource provision and management. Utilisation models should allow the consequences of different practice and care options on resource requirements and structures to be examined in a consistent and coherent framework. It was stressed that there should not be a conflict between 'best medical practice' and the efficient use of resources. The aims of the utilisation model are to match best medical practice and patient treatment with efficient, cost-effective resource provision and management by examining the consequences of different medical practices. The model is highly pertinent in the context of planning to build capital facilities.

The final speaker, Mr George Orros, summarised the various points made during the day. Although there had been some concentration on objective measures such as cost, a high degree of importance must be attached to non-monetary features, such as quality of life indicators. These must rank alongside indicators based on monetary costs. He made the following points:

- (1) Actuarial models can be developed to meet practical needs.
- (2) Actuarial models can be used for scenario testing.
- (3) Long-term financial appraisals are important to the NHS.
- (4) Resource management planning can benefit from actuarial techniques.
- (5) Uncertainty in health outcomes can be modelled and managed.
- (6) Actuarial adaptive control models are useful for project management.

All speakers returned for the open forum. This demonstrated that, for any planning model to be successful, close liaison between all disciplines and interests was essential. For example, the model scenarios used to demonstrate the healthcare utilisation model were based on future total hip replacements using current experience. However, recent developments in this area suggest that different methods will be employed in the near future, with possible dramatic changes in treatment times and costs. Introducing this information into the model would show the changed future demands on the NHS—and also demonstrate how actuarial techniques could benefit the NHS.

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