

precipitate. Since the report of the Tunbridge committee was in itself so reasonable and logical, and since an acceptable middle path had been proposed, it is a pity that the Ministry's anxiety to foster this long-needed reform allowed no time for a preliminary trial on a narrow front, which could have clarified these points of difficulty which today still inhibit implementation in many quarters. In spite of this obvious disarray, an advisory committee on hospital medical records, under the chairmanship of Dr. F. AVERY JONES, is now considering the standardisation of yet more forms.

The time is therefore right for a further report<sup>7</sup> on this subject, this time from the standing medical advisory committee of the Scottish Health Services Council, under the chairmanship of Prof. JAMES WALKER. The Scottish team, drawing heavily on the pioneer work of the Tunbridge committee, and perhaps noticing the difficulties being encountered in England, have been able to devise a modified standardisation procedure which should meet most objections. Furthermore their terms of reference were not limited to standardisation, but included general developments in the records field. Professor WALKER's committee believes that rigid standardisation of every document within the case folder would be positively detrimental to patient-care, to experiment, and to future advance within the Service, and would result in compromise at the lowest common level. For this reason it recommends that standardisation on a national basis should be confined to five forms only: case folder, summary sheet, prescription sheet, mount sheet (for diagnostic reports), and the general practitioner's letter of referral. A whole series of other forms, many of which are intended to be standardised under the English report, are judged suitable for standardisation only within hospital groups. This useful compromise seems to offer the possibility of a record whose general form, order, and summarisation are in accord with national policy, but most of whose component forms are designed to meet local clinical need.

The report is critical of the medical record as it is today, which owes much more to past custom than to present needs, and states bluntly that the Service is nowhere ready to accept mechanical processing, nor are the records themselves suitable to be so processed. Indeed, the perfection of mechanical systems may far exceed the accuracy or value of the information stored. Thus the mechanics of handling medical data will proceed more rapidly than the development of techniques to handle the clinical information derived; yet we are rightly reminded that the most important aspect of the medical record is still the clinical information which it contains, and that since the primary purpose of the hospital service is the care of the patient, then whatever mechanical devices may be used, the system adopted must be clearly shown to be of immediate advantage to the individual patient. The English and

Scottish committees share a concern that the kind of record adopted should be readily assimilable to automatic data processing when the time comes. It is sad to have to agree with the Scottish conclusion that there is at present a huge accumulation of information in medical records, stored in narrative, tabular, and graphic form, often without any link between various items of information and without attempt to correlate information either between specialties or even within the same specialty; and that the usefulness of the record even for clinical use is now becoming questionable because of the very volume of recorded information, the insufficient time and care spent in arranging the contents of the case folder, and the frequent absence of a truly accurate summary.

This severe criticism of the existing state of affairs emphasises the need for a properly designed medical information system (such as that described by ACHESON<sup>8</sup>) using automatic data processing to achieve linkage and coordination; but even more important it underlines the need for better primary records to begin with. The members of the Scottish committee, who were mostly doctors, express the old-fashioned but nevertheless sound view that the consultant in administrative charge of a unit should be responsible for the quality of the medical records maintained in his unit; the accuracy and completeness of the summary sheet and the clinical summary lies with him and not with the medical-records officer. But this return to the traditional duty implied in his very title of registrar will call for good and sufficient clerks to work under consultants and registrars in the wards, if our consultants and registrars are not themselves to become clerks.

## Annotations

### PREVENTION OF CANCER

THE day of the simplest hypothesis of cancer aetiology—one cause, one disease—has passed. In its stead we face a myriad of causative agents and mechanisms and virtually unlimited possibilities for complex interactions between them. Dr. Richard Doll has the enviable skill that enables him to stand back from the confused scene and thereby to view it strategically. Simplicity of concept and authority are two notable features both of his many contributions to cancer epidemiology and of his new monograph<sup>9</sup> on the prevention of cancer, the outcome of his Rock Carling fellowship.

Here he is concerned primarily with the possibilities of preventing cancer in the light of epidemiological inquiries of three kinds. The first is the study of cancer incidence in different communities, or at different times in the same community. When the incidence of different types of cancer in different parts of the world is shown diagrammatically (as it is in an appendix to Doll's book), the range sometimes seems astonishing. For example, the incidence of cancer of the oesophagus per 100,000 persons varies

7. Hospital Medical Records in Scotland: Development and Standardisation. Report of the Subcommittee of the Standing Medical Advisory Committee of the Scottish Health Services Council. H.M. Stationery Office, 1967. 4s.

8. Acheson, E. D. Medical Record Linkage. London, 1967.

9. Prevention of Cancer: Pointers from Epidemiology. By RICHARD DOLL, M.D., F.R.C.P., F.R.S. London: Nuffield Provincial Hospitals Trust, 1967. Pp. 143. 7s. 6d.

from less than 4 in Norway and Sweden to over 128 in certain communities in South Africa and Soviet Asia. The range is almost as wide for lung cancer; and, in this case, the incidence is highest in Britain and lowest in parts of Africa. For cancer of the stomach and breast, rates range between less than 16 and more than 128 per 100,000, while for liver cancer in different geographical areas the figure varies over a range of more than a thousand-fold. The extent and pattern of these differences in many cases point strongly to environmental rather than genetic influences. But, as Doll points out, for large areas of his world maps, there is no meaningful information, and there is good reason to hope that as more facts from developing countries become available, new clues to cancer aetiology will come to light.

In the second type of epidemiological study, hypotheses of cancer causation are tested by trying to link the occurrence of the disease to exposure to a potentially carcinogenic factor. This investigation may be retrospective or prospective and, if possible, it should include information on extent of exposure. The third kind of inquiry sets out to measure the effect on cancer incidence of changing the level of exposure to a suspected agent. If it is shown that cancer has been effectively prevented, the evidence for a cause-and-effect relation between the agent and the cancer is much strengthened. But proof of a causal connection as compelling as the fulfilment of Koch's postulates in microbiology is usually impossible for cancer, even if evidence from epidemiological studies is supplemented by experimental work on animals. The reasons for acceptance or rejection of evidence are many and variable, and it is impossible to devise general rules applicable to the interpretation of all types of epidemiological study or of evidence otherwise obtained.

Concerning this problem, Doll sets out clearly the questions to be answered before an epidemiologically demonstrated association between cancer and a suspect agent can be accepted as real. How strong is the association? Is there a dose/incidence correlation? How specific is the association? Does the observation accord with evidence from other epidemiological surveys? Is the suspected causal relationship biologically plausible? Can any alternative hypothesis explain the finding as well or better? But at the end of this exercise, some unresolved doubts usually remain so that, as in civil cases in a court of law, judgment has to be made, not on the basis of proof but on "a balance of probabilities."<sup>10</sup>

Doll states some principles upon which practical measures to prevent cancer should be based. First, it is impossible to be certain that an agent is carcinogenic for man unless the test has been made on man. On the other hand, it is not necessary to wait for proof of human hazard before acting to remove a suspect agent from the environment. Where such action is taken on incomplete evidence, however, it is specially desirable that the effect of the preventive measures should be capable of assessment. Second, no dose of a carcinogenic agent may be regarded as safe for any individual. In so far as individuals differ genetically in their susceptibility to the induction of cancer, it is reasonable to devote some resources to the detection of "high-risk" phenotypes so that special precautions may be taken. But there is no reason to hope that this approach to prevention will pay high dividends.

Referring particularly to the British Isles, Doll observes that present knowledge could enable us to prevent 40% of

cancer in men and 10% in women. Moreover, there are good grounds for believing that much of the rest of cancer is, in principle, preventable. Surprisingly perhaps, even if all cancer was prevented the average male expectation of life in Britain would be extended by no more than 2½ years, because mortality from cardiovascular disease rises so steeply in old age. But for the 1 in 5 men who at present die from cancer the average gain would be 12½ years. An even more pressing reason for putting the greatest effort into the prevention of cancer is that it is now a main cause of death in childhood.

It is no accident that two books on the prevention of cancer appeared almost simultaneously. Over several years both knowledge in this area and awareness of the value of the preventive approach have steadily increased to a point where authoritative books were needed. The two books are, in fact, complementary, and that edited by Raven and Roe<sup>11</sup> is a systematic compilation of knowledge concerning different types of hazard and the prevention of cancer of different organs and sites. Doll's monograph, on the other hand, is essentially a philosophical dissertation on the use of epidemiological methods and on their practical application to the many problems of cancer prevention.

#### MINDING AND FOSTERING

ACCOUNTS in the Press and on television of the conditions in which many small children are looked after while their mothers are at work are more likely to evoke criticism of the minders and the mothers, than any analysis of the economic and social reasons that has led to the present unhappy situation. A report<sup>12</sup> on the care of pre-school children shows that the real background to the problem is the grossly inadequate provision made for the proper care of children whose mothers, for whatever reason, work outside their homes.

During the 1939-45 war many day nurseries were opened for the children of mothers at work in factories. In 1945 there were 143 nurseries, with accommodation for nearly 70,000 children; last year 448 nurseries had under 22,000 places. The closure was deliberate and was justified on the grounds that children under two should be with their mothers. In practice the tendency for mothers of pre-school children to go out to work has increased rather than diminished. Few mothers can find places for their children in day nurseries and so more and more ask relatives or neighbours to look after them. But, as the report points out, it is not only the needs of working mothers and children that are neglected. The young mother isolated with small children in new estates and blocks of flats is given practically no help to leave them to visit a friend or to go shopping. A few leave their children alone while they go out, some serious and some fatal accidents are the inevitable result.

These are examples of support that mothers lack. The needs of the children themselves are also neglected. Many are given scant opportunities to meet other children and to have space and proper supervision to play and learn. The nursery-school provisions of the 1944 Education Act are still almost entirely unfulfilled, and the Plowden report stressed the urgency of providing nursery-

11. *The Prevention of Cancer* (edited by R. W. Raven and F. J. C. Roe). London: Butterworths, 1967. Pp. 397, 120s.

12. O-5. By SIMON YUDKIN. From the National Society of Children's Nurseries, 45 Russell Square, London W.C.1. 5s. 6d. post free.

10. Halsbury's Laws of England; vol. 15, p. 272, para 496. London, 1959.