

Morbidity Statistics— Do We Want Them?*

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SEVENTY-FIVE years ago a certain Dr. William Farr—whom some of you will have heard of no doubt—wrote these words in the Supplement to the 35th Annual Report of the Registrar General of England and Wales.

“The thing to aim at ultimately is a Return of the Cases of Sickness in the civil population as complete as is now procured from the army in England. It will be an invaluable contribution to therapeutics as well as to hygiene; for it will enable the therapist to determine the duration and the fatality of all forms of disease under the several existing systems of treatment in the various sanitary and social conditions of the people. Illusions will be dispelled; quackery as completely as astrology suppressed; a science of therapeutics created; suffering diminished; life shielded from many dangers.”

Now when Farr wrote something as strong as that—and he frequently did—something generally came of it. There is still a saying among epidemiologists in England that if you think of writing a paper on any subject, the first step is to find out what Farr said about it. Experience has shown that it is dangerous not to do so, and I am taking the safe course. Why is it, we may ask, that not much notice seems to have been taken of this passage? I do not know what Farr meant by “ultimately,” or indeed whether he inserted the word on the advice of a more cautious administrative colleague. The benefits which he said would follow were not of the kind

people would be content to wait centuries for, and I conclude from his writings that patience was not outstanding among his virtues. Five years ago I quoted the passage in a paper to the Royal Society of Medicine in order to see what people thought of it after 70 years' reflection, and my impression was that the seed was then just beginning to germinate.

There are several reasons why morbidity statistics, although welcomed with enthusiasm in the abstract, often encounter heavy weather in practice. In England several attempts were made in the 19th century to collect fairly complete data from doctors or through Friendly Societies, in regard to illness in limited localities. They lasted only a few years and then expired, and other countries have had similar experiences. Little impression was left by these experiments because morbidity statistics need to be continued over a period of years before their value becomes evident. Contrast such failures with the very different history of mortality statistics—for example the London Weekly Bill of Mortality which, in rather different form, still goes on after more than 300 years. One reason is the magnitude of the data. Whereas a person dies only once, the average person in England consults a doctor about 300 times in a lifetime, and if records were to be assembled of the outcome of these consultations and nothing more, a multiplication of Pentagon Buildings might be required. And how should we deal with the ailments

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for which no doctor was consulted? It is hardly surprising that most of the morbidity statistics we have had up to now have been secondary products from data collected with incentives other than those which Farr enunciated so forcibly.

The first such incentive for collecting statistics of diseases was *protection of the community from infection*, which required the notification of certain infectious diseases. This has been going on for a long time and statistics derived from this source have proved of great value to epidemiology, apart from their immediate use in guiding action to be taken. It seems strange to me that so little serious attempt has been made to convert notification statistics into real morbidity statistics by ascertaining, or even estimating approximately, the proportion of notified incidence to total incidence of these diseases. After a discussion at the first meeting of the Health Statistics Committee of the World Health Organization, it was decided to ask nations publishing notification statistics to consider whether by any means estimates of the completeness of those statistics could be obtained and made known. There are ways of doing that, for example, for children entering and leaving school and men called up for military service information can be asked whether or not the child or man has ever suffered from certain diseases. Sampling surveys can be used for other diseases. In a recent study of "Sickness in the Population of England and Wales in 1944-47," I estimated that for acute poliomyelitis, meningococcal meningitis, and diphtheria, notifications after diagnosis correction by infectious diseases, hospitals provide good enough morbidity statistics, that measles is about two-thirds notified, whooping cough between a quarter and a fifth, respiratory tuberculosis about nine-tenths, and pneumonia from a third to a quarter at all ages, but varying greatly with age. I would like to urge that attention be given to this

problem, so that notification statistics may become something more than mere numbers indicating trends. This may not be possible for whole countries but for cities such as New York it should be practicable to obtain measures of completeness of notification for the principal infectious diseases.

A second incentive has been provided by the financial and administrative aspects of *social security*. Life assurance companies like to know the life expectancy of people with certain chronic ailments, and some have introduced periodical examinations of policy holders to encourage early detection and treatment of new diseases. Social security and veterans' organizations had to keep records of sickness benefits and pensions, and from those records statistics about the more serious illnesses have been and will continue to be produced. Here I may mention also that the severe rationing of milk and certain foods in England necessitated the granting of special food allowances to people certified as suffering from active tuberculosis, diabetes, peptic ulcer, and some other diseases, and a register of these had to be kept. From that register the Food Ministry was able to compile statistics throwing light on the incidence of those diseases, since milk became so short in supply that most sufferers claimed their allowances. It was possible to use the resulting figures as a useful check on the incidence deduced from our Survey of Sickness, as I have shown in the report I have mentioned.

A third incentive has been the desire to keep employees in a maximum state of physical efficiency, not primarily because of solicitude for the individual workers but in order to *conserve manpower*. Under this heading we have morbidity statistics of the armed forces and certain industrial sickness statistics.

A fourth incentive for collecting morbidity statistics has been to discover which of two *methods of treatment* of a

disease is the more effective. The outstanding example is cancer, for which radium and radiotherapy compete with surgery. Partly because these are expensive, but also for the patients' welfare, it is specially necessary to find out which gives the best results for each variety and site of malignancy. The answers could only be obtained from statistics of treated cases followed up for five or more years, and so radiotherapy institutes kept records and people tried to compare them with those of surgeons. The frailty of human nature being what it is, answers obtained in that way have not inspired great confidence. The Radium Commission in England consequently set on foot in 1945 a large-scale plan to register cancer patients presenting themselves for treatment, and laid it down that if centers wanted the loan of radium they must keep very precise records. The General Register Office is now receiving the cards and following up in the statistical sense over 50,000 new cases registered annually, including surgical cases.

A fifth incentive has been to aid administration and *improve efficiency of health services*. It is now being realized, in England at least, that the most effective and economical treatment is unlikely to be found in hospitals which do not keep good records. Some hospitals have had good internal records for a long time, but it has never been possible either to pool or compare them. Now that we have the *International Statistical Classification of Diseases*, an experiment is being made by which the General Register Office receives standard records of all inpatients discharged from each of the teaching hospitals of England and Wales, and also from hospitals of all types within a sample county and a sample city. The morbidity statistics accruing from this source have many aims in view, including pure research: but their indirect effects on the hospitals producing them and on the teaching of medical

students are by no means the least important.

Mental hospitals and mental deficiency institutions throughout England and Wales have also, from the beginning of 1949, been sending to the General Register Office a detailed record card for each patient admitted. These cards give social and genetical data, diagnosis and history of mental illness. After transferring the data to punch cards, the original cards are returned to the hospital to be completed and sent in again when the patient is discharged or dies. The Ministry of Health will thus be able to see what happens to mental cases of all kinds admitted to the great bulk of mental hospitals and institutions. Although efficiency of administration was one incentive, the principal aim underlying these statistics of mental disorder is to increase our knowledge of their epidemiology with a view to prevention.

This brings me to the final incentive, namely, *to find out how the general health of the people is faring* in times of adversity and how it responds to measures intended to improve it. There is really only one practicable method of doing that, namely, a survey at regular intervals of different representative samples of the whole population. We started such a survey in England and Wales late in 1943, and it fulfils very well the purposes for which it was intended. Early in each month, a fresh sample of 4,000 persons over 16, properly distributed and randomly chosen within representative localities, is visited by field workers of the Social Survey. Details are taken of all ailments during the last two calendar months, together with social information. Participation is voluntary but the proportion of refusals is negligible. This survey provides us with about 100,000 months' experiences of over 50,000 separate individuals during a year, and now that most of the teething troubles are over we have an accumulating body

of statistical data to which we can turn in order to answer a multitude of questions. For general sickness trend curves, we have the monthly and quarterly rates, and for detail of morbidity by age, disease, occupation, income, housing, and so on, we can aggregate the data for one or more years.

Taking a few questions at random, how many adults suffer from migraine in the course of a month, how many from hemorrhoids, and how many suffer a burn? The answers from a year's statistics are 1 in 400, 1 in 170, and 1 in 300. How does the incidence of duodenal ulcer change with age? It increases up to middle age and then falls greatly. Do rural residents suffer as many colds as people living in towns? The answer in 1944 was yes, rather more. Are size of family and number of persons per room correlated with the frequency of sickness? Yes, but not so markedly as the death rate. How do agricultural workers compare with miners, clerks, transport and factory workers, and how do different income groups vary as to sickness rates, days of incapacity and visits to doctors? The answers from the data of 1947 and 1948 are that, if the sickness and injury rate of male agricultural workers is taken as 100, male transport workers were 103, clerks 104, factory workers 110, and miners 122. The rate for men in families having less than £4 per week from the chief wage earner was 25 per cent greater than in the group with over £5-10-0 per week. Annual days of incapacity of men range from 8 for men in agriculture, clerical and distributive occupations, to 11 for factory workers, and 21 for miners; and from about 10 for the high income group to 21 in the low income group. Annual medical consultations range from 2.6 for agricultural workers to 4 for factory workers and 6.3 for miners.

How did adults react to the new Health Service during its first six months? There was no appreciable

change in the frequency with which men consulted doctors; but women under 65 reported an increase around 10 per cent, and older women an increase around 25 per cent in their visits compared with the same period of 1947. At the working ages, men recorded no increase in days of incapacity, but women did; and at ages over 65 women reported having been kept indoors by illness twice as many days as in the second half of 1947. The amount of sickness was not changed, and the provisional conclusion was that women, as a consequence of taking more medical advice took more care of their ailments.

I have tried, in this brief discussion, to show how far we have moved in England in recent years toward the fulfillment of Farr's ideal. It may seem a piecemeal approach, and some of it is experimental, but nothing is to be gained by amassing any more records than are capable of producing the morbidity statistics we really need. Sampling processes are very suitable in parts of this field, though for data requiring a follow-up such as mental diseases and cancer we do not consider them to be practicable. If, after several years' trial, any part of such a program proves to be unproductive it will give place to something else.

The labor involved in collecting morbidity records is large, and the guiding principle must generally be, not whether it would be interesting to have them, but whether they can confidently be expected to furnish knowledge which will repay the labor of their collection. Pooled morbidity statistics from general hospitals are on their trial in this respect and their worth has to be proved during the next few years. That is a problem which the Health Statistics Committee of the World Health Organization is beginning to study; and I hope that we in Britain, America, and Canada will work together on it, profiting by each other's ideas and mistakes.