

THE PROBLEM OF DEFINING THE EXTENT OF MORBIDITY IN GENERAL PRACTICE

C. R. G. HOWARD, M.B., B.CH.

Burley, Hants.

The recording of 'health' versus 'sickness' bristles with difficulties. The deeper one goes into it the greater the problems. At first sight, to collect the details of the incidence of every sickness met with in a year would seem to be a simple but tedious toil. But if diagnostic honesty and statistical analysis are the yardstick of advance in medical knowledge it soon becomes apparent that the variable factors affecting such an investigation are considerable, and without detailed analysis of those variables any figures recorded are of partial value. What steps can the general practitioner take to solve this problem?

The writer attempted to find out objectively, with supporting statistics, what was a family practitioner's work. What kind of sickness does he see, and what is its incidence? The following observations reveal some of the unexpected difficulties encountered in trying to achieve this object.

In time his personal objective in practice began to formulate. Was it to 'cure disease'? To 'help humanity'? To keep people 'healthy'? Or to keep them at their job in society?

Whatever the answer to the aim of a family doctor, it was apparent that the first difficulty was to decide what the general practitioner should be and do and then, whatever it is, do it properly (Hunt, 1950).

Prior to the 1939-45 war his idea of a doctor's work had been restricted to the hospital viewpoint of curing disease or doing research into the cause of a disease. During the war, the doctor's aim in the Services was uncomplicated. His job was to keep men able to fight, and when damaged to return them to duty as soon as possible. In family practice what was his object? He was seeing a mass of apparently unexplained sickness, much of it undiagnosable and much of it self-limiting. Could he find any guiding light by which he could lay a course? The alternative was to fall back on 'humanity' as a woolly objective, and tack back and forth among the minor ills of his parish with no sense of direction.

The following is an attempt to view statistically this personal problem of what is the family doctor's work—'To state the problem before solving it'.

Morbidity in general practice was, until the last 10 years, largely

a matter of conjecture, having a specialist prejudice. Statistical knowledge was lacking, as was shown by Collins (1950) and the failure of the Cohen Report (1950) to state anything but generalizations.

With the advent of the National Health Service in 1948, it seemed that the major job of the doctor was to reduce the sickness rate of the population by modern drugs and operations, without regard to financial cost. This should result in more people remaining at work and the total wealth of the country increasing, thus offsetting the cost of keeping them (the patients) at work, i.e., curing them. In addition, it was clear that it was to the financial advantage of the doctor to reduce his rate of sickness. He was paid at a flat rate for 99 per cent of his patients, which meant that the more sickness he saw, the greater his expenses and the less his income. Every telephone call made, letter written or gallon of petrol used in making a visit was a direct reduction of his net income, not an increase. The busier he was for a given number of patients, the less was his total income. His only way of increasing his standard of living was to increase the number of his N.H.S. list and to cut his expenses by either doing less work for them or keeping them healthy. His economically profitable patients were the ones he did not see! (Howard, 1951). It certainly paid him to keep his patients well for the first time since the Chinese system of doctor-patient relationship was invented. Health immediately became more important financially than disease.

What is Health? What is Disease? How could each be defined? In the sphere of general practice of the Welfare State there was no authoritative definition. An example of this quandry presented during the war on a large isolated air station: the average attending list in the mornings averaged about 20 to 30 men or women. They were not 'chronics'; they had 'diseases' and were not malingering. When the time of sick parade was put to the dog watches, that is non-working hours, the average attendance dropped to six. What had happened to those who had previously produced diseases? Were they now healthy? There was no barrier to their reporting sick, except a priority of interest in going ashore for relaxation. However, if an investigation had been conducted by social workers, health visitors and so on, on the lines of Backett *et al.* (1953, 1954), their diseases would have been recorded as 'concealed' and needing attention. Were these diseases just variations from normal health, which did not bother the individual when there was something he liked doing better? Under Service conditions one could make an experiment such as this in reducing morbidity; in keeping people 'healthy' as defined by the World Health Organization—'A state of bodily and mental activity than enables them to do their work in

society'. Health is certainly not absence of disease. It is a dynamic concept of a balance between a purposive organism and its environment.

It was a layman, Sir Geoffrey Vickers (1955), who presented this new idea of health. Doctors have been so dazzled by the achievements of the pathologists and biochemists that they still tend to cling to the old negative concept of health as an absence of disease. They assert that the role of science should be to remove hazards rather than fit us to face them. The dynamic concept of health, which is still unorthodox, is to accept the environment and learn to be equal to it.

As a preliminary step in finding out the aim of family doctoring, a record was begun of all the diseases encountered. Soon after this Logan in 1951 instituted his *Studies of General Practice*, and I was fortunate to be included in his pilot surveys, so that my recording accuracy could be checked against other practices.

History of efforts to record Morbidity in General Practice in England

From the beginning of the nineteenth century there were organized attempts at 'collective investigation', which may be defined as an inquiry, by means of circulars or questionnaires in which large numbers of practitioners take part under the direction of a central committee. An excellent survey of these efforts was given by McConaghey to the Royal Society of Medicine (1955). He traced their rise and fall, their meagre positive results and their spread from England to the Continent. They failed to thrive and the central direction was disbanded in 1888 with the observation of an original member that they had been too ambitious, seeking to obtain too much information.

This collective investigation gave some information about specific diseases met with in general practice, but no picture of general morbidity.

It seems that prior to the Collins report in 1950, there was no recorded complete picture of what kind of work was done by different types of general practitioner in England. Specific diseases or interests had been written about by older general-practitioner consultants as their speciality overcame them. Pickles (1955) gave an up-to-date picture of the possibilities of research in a country practice in the nineteen thirties, but one had to go to the novelists' powers of observation, to de Balzac's *Le Medecine de Campagne*, to *Rab and His Friends* or to Francis Brett Young's *Portrait of a Village* for a view of his work and the diseases treated. This was unsatisfactory, for it emphasized the doctor facet of ill-health, a facet that is predominant in any disease that attacks a family or, in the modern scientific idiom, sociological unit.

Apart from Pickles' account of his country practice in the nineteen thirties, with its contributions to the exact incubation periods of zymotic disease, nothing but generalities were recorded about family practice. Even in the authoritative Cohen Report on General Practice the words 'accurate and prompt diagnosis', 'failure of early diagnosis', 'the treatment of common ailments, minor illness and chronic disease' recur with frequency. However, they had no positive weight, for nowhere in the report are figures given of morbidity in general practice.

Pemberton (1949) and MacGregor (1950) were the first to publish articles about the actual incidence of disease as seen in general practice. They were followed by Fry (1952) who worked with Logan and the Registrar-General Survey of 1951-54.

The Survey of Sickness (Studies on Medical and Population Subjects No. 12, General Register Office), published in 1958, revealed that the attempt to estimate morbidity by means of sample questioning of patients could only show broad outlines of serious morbidity in the populace. It had three inherent defects:—

- (1) It depended on the patients' statements and memory, and these must be erroneous in spite of the elaborate measures taken to minimize this factor, because even a change in the order of questions could produce different statistical results.
- (2) The incidence of minor illness was admittedly fallacious. 'There seems little doubt that the number of minor ailments reported varies directly with the intensity of questioning, and that by spreading the net sufficiently wide, most people could be got to confess to some minor complaint. It is debatable, however, whether such intensive questioning is bringing us nearer to a true picture of the state of health of the community'.
- (3) It excluded the ages 0 to 16 years of the population.

Stephen Taylor (1958) comments on its history and its use. Deductions drawn by him, such as the work-load of doctors on the introduction of the National Health Service increasing by only 10 per cent, are debatable, and show its limited scope. It is unfortunate that statements like this were not verified from available records of general practitioners.

Two studies in general morbidity were done 30 to 40 years ago in America (Frabul 1,000 and Sydenstraker 1,000). They were not compiled from doctors' records. Stocks (1944) and Slater (1946) also give accounts of the picture of general morbidity in a population, but not the morbidity as seen by the general practitioner. Morbidity, in general practice, was unknown until the Collins report stimulated accurate investigation into its medical problems. In 1950, the Cohen Report on *General Practice and the Training of the General Practitioner*, (chapter on the Nature of General Practice), is only able to give a weekly visiting list of a rural practice during an influenza epidemic. The report stated: 'The Committee's enquiries confirmed the view that, arranged in diagnostic groups, the largest number pre-

senting for treatment are respiratory, digestive and circulatory disorders; rheumatic diseases, skin complaints, children's diseases, and minor psychological disorders'. This may very well be true, but there were no objective figures to substantiate it. Again, in Chapter 9 on the trainee-assistant, they are forced to quote a stanza of poetry which, appropriately, begins: 'When I begin to enquire'!

Thus the pilot survey by Logan of eight practices was the first real attempt to study morbidity in general practice by objective recording. This experiment showed it was possible under the conditions of the National Health Service to collect records of morbidity in general practice. It also showed that unforeseen difficulties were encountered in evaluating results (these difficulties will be discussed later in this paper).

Since the formation of the College of General Practitioners in 1952, the investigation of the technical problems has been accelerated. Large-scale surveys and different methods of recording have been planned, and the results are in the process of maturation. The impact on this unknown field of the problem of morbidity in general practice of 'a community banded together for the promotion of knowledge—critical, rapacious to correct error, yet tolerant from knowing that error is an inevitable step in acquiring new knowledge', has still to be felt.

Difficulties Encountered

The general practitioner's attempt to record morbidity presents certain difficulties which can be summarized under four headings:—

- Lack of previous experience of the scope involved and the discipline required to record observations
- Nomenclature
- Personal relations that defy statistical analysis
- Lack of time.

Lack of Previous Experience

Although individual accounts of particular outbreaks of disease in a general practice had been given, it was soon apparent that one of the major difficulties was to select what was of value from records. Was it the incidence of disease in age-groups that was required; the factor of past history or heredity; the seasonal incidence of disease; environmental factors; the length of incapacity due to an illness; or the number of visits? What was the range of normal 'health' and so on? Was the result going to be compiled for the use of a medical historian, or a scientific observer, or an administrative bureaucrat? The possibilities of extracting interesting information appeared to be endless. Fortunately, at this stage (1950) Logan of the Registrar General's Office was interested in investigating the possibilities of collecting information about morbidity statistics relating to incidence of disease of all kinds within the community.

He produced an ingenious scheme which had the merit of being adaptable to 10 types of practices and the 10 types of different personalities of the doctors concerned. It gave latitude in the method of recording, yet a fair consistency of the material recorded. It is described in detail by Logan in *Studies on Medical and Population Subjects* No. 7.

Considerable teething troubles were experienced by all practices in this unaccustomed addition to one's work. To record objectively what the family practitioner had previously stored in his mind subjectively, needed discipline. To record that 'Harriet P. with pigtails' had acne, and that 'Harriet-Anne P. with red hair' had a sebaceous cyst, was an effort when they, in the doctor's mind, could not possibly as patients be confused.

Although the subsequent surveys (Logan and Cushion, 1958, and the unpublished Abercrombie Pilot Punch Card Survey) have accustomed one to the scientific recording of morbidity, at first it was a considerable effort. It may be noted that of the 10 original practices, one doctor withdrew, not being able to record consistently, and one doctor died before the completion of the survey—a 20 per cent casualty rate.

Since this survey, two other types of recording have been tried out in this practice: a pilot system designed by the Records Department of the College of General Practitioners in which the doctor did the coding, which was transferred centrally to a punch card system for mechanical analysis, and a direct punch card system. Both involved the mental effort of pigeon-holing a clinical picture into a disease index. Both personally gave a sense of frustration and proved a burden rather than a help to one's work.

Nomenclature

At the start of the investigation classification or nomenclature seemed to present no difficulties, once the 35-odd major divisions had been condensed from the Registrar General's *Table of Diseases*. It was at once apparent from the first three months' trial run in 1951 that either the observer was in error, or that he was either ignorant or dishonest. A total of 751 patients was seen, involving 1,957 consultations. No less than 18 per cent of these were not classifiable (appendix 1). The reasons and implications of this will be discussed later.

Multiple diagnosis—that is, the patient with more than one disease presents difficulties. Which disease is going to be recorded as the major cause of morbidity in that individual person? As the extreme of this common problem is the example of a 60-year-old grandmother who suffers from hyperpiesia, rheumatoid arthritis, seborrhoeic dermatitis, paroxysmal tachycardia, indigestion, obesity

and diabetes, and an over-attentive daughter. The recording by an entry into each disease group is a procedure that is simple, that will give a record of the disease incidence, but it will not give a record of true morbidity as seen in general practice.

Subsequent history showed that it was probably the over-attentive daughter that was the major element in this lady's deviation from health and happiness. This fundamental difficulty of recording the total 'morbid' picture of a patient may prove insuperable. It is a factor that should be kept in mind in examining any records of general practice.

Training and Personality of the Doctor

This soon made its influence felt in the naming of a disease. This variable in recording will be discussed later on in this paper. It will always be a personal continual variable in any records.

Lack of Time

The time factor presented a real obstacle to accurate recording. The method used must be very simple. It is obvious that at peak periods of work 60 to 70 consultations per day may occur. If only 30 seconds are occupied by recording, this may involve the doctor in three hours more work per week. Even more pertinent is the fact that the family practitioner has to work against the clock to see all his patients in the day. Unlike other research workers, he cannot put off the uncompleted work till the next day. However, Logan's method solved this difficulty as far as is possible. The classification and coding of the diseases were done centrally.

Fry (1957) who perhaps has produced the largest series of statistical figures for various diseases in general practice admits to spending an extra half-hour every day on this work of classifying and coding by a punch card system, using only very broad classifications. This time being extra to that of routine essential clinical recordings.

Critical Appreciation of Previous Work

Until the Registrar General's and the College of General Practitioner's survey of over 100 practices is completed, there will be no yardstick of the incidence of any particular disease in general practice. At present, published work on the subject is liable to give distorted figures owing to lack of knowledge of the following four variables, or indeterminate values. These variables cannot be assessed without reference to some basic yardstick. This yardstick must be the morbidity figures from a large number of other practices. Personal experiences by individuals will only give a distorted piecemeal picture of morbidity. These variable factors, experienced by the writer, affecting record keeping are described with their application to published work on morbidity in general practice.

The four variables affecting the keeping of records in family practice are:—

Classification of disease (nosology)
Bias of figures, due to 'interest'
Parochial element
Observer error.

Classification of Diseases

The pioneer work of Pemberton (1949) and McGregor (1950) largely ignored the discussion of this problem, which is to fit 'a person' into 'a disease complex'. One can box them into very broad classification groupings, as Fry did in his first assay of morbidity, or confine one's investigations to particular diseases as Pickles did; but it is exceedingly difficult to design a system which fits every clinical picture in general practice. This factor has been discussed by Logan who reaches the challenging conclusion that a satisfactory complete system may never be worked out. It may be that the ideal system would result in a collection of figures which will take an impracticable time to resolve into a useful analysis.

Backett *et al* (1953) tackled the problem in a different way, doing a specialized survey in which the doctor was only one of a team collecting information about not only patients, but their families and the work and medical services that were required by them. They carefully defined illness, duration, medical services and work involved. They considered that any classification code should accept at least 90 per cent of the diagnoses made, using only 27 diagnoses. They produced valuable figures relating to the morbidity of the population grouped by sex, age, and illness, classified as serious or not, acute infections, or chronic states of disease. They tried to estimate the potential and actual consumption of the health services, and from that point discussed the unmet medical need of families, and the factors which determine the threshold beyond which the attitude and feelings of people towards their doctors, the health service and their hospital, must be disturbed in order to 'recognize the existence of ill-health'. Some of the information was provided by a social worker. A cynical but fair comment would be: 'Carried to its logical conclusion, this is finding out when people want their noses wiping'. (The dangers of this type of investigation are also stated in *Survey of Sickness*, 1958, by Logan and Brooke, page 24). Their work, in spite of lack of appreciation that morbidity in practice is a dynamic equilibrium of patients and their environment, was useful in high-lighting the complications involved in diagnosis.

Clarke-Kennedy (1953), in a paper entitled *The Nature of Disease* clearly states the difficulties involved in a classification of disease. He writes in his first paragraph that doctors are 'apt to evade the question of the real nature of disease by giving names to certain

states of body and mind as if these had an independent existence apart from the patients who suffer from them'. He attacks the problem of classifying morbidity in a holistic fashion. After discussing the reaction of body and mind, and the pathological processes evoked by environment, he gives a definition of disease running to some 100 words, ending up by saying 'certain types of reaction justify the abstract conception of the real existence of diseases, apart from the patients who suffer from them'. He presents only three broad 'box' classifications of disease: somatic, psychoneurotic and psychosomatic. However, even these are not wide enough, and he adds a section on unclassifiable disease.

Querido (1957), on psychiatry in the home and in hospital, stresses the relativity of diagnosis in clinical problems in this field. He comes to the conclusion that it is more important to evolve a dynamic picture of the total related condition rather than to reach a clinical diagnosis—a conclusion which clearly applies to much of general practice. It is also a conclusion which may be the despair of the tidy-minded statistician, but should also be a spur to designing methods of collecting information rather than to an ostrich attitude of defeat to holism in diagnosis.

The Practitioner (1955) discusses historically and critically the whole problem of nosology in general practice. The author finds little help from standard text-books, or past and present nomenclatures of disease. He states there are no guides to clear definitions, only custom and tradition. The problem of a variation from normal health becoming 'an illness' is tackled. What is the range of normal health in an organism living and dying in a changing environment? Questions such as this lead to morbid anatomy or the presence of infective organisms being rejected in favour of some kind of dynamic picture presentation of nosology, very analogous to Querido. He ends on a remarkable plea to general practitioners to exercise themselves in Oslerian 'brain-dusting' on this problem.

Bias of Figures due to Specific Interest

'You see the cases you are interested in', 'a doctor attracts specific disease to his practice' are known aphorisms among general practitioners.

Individual records were examined to see whether this bias of interest was a warping factor. It is difficult to be factually honest, positively or negatively, when one has been exposed to a train of ideas (Sargent, 1957). Women general practitioners will see more gynaecology and, perhaps, infants' diseases, than a male general practitioner—for example, Practice No. 8 (Logan's Studies on Med. and Pop. Sub., No. 7). This practice had over a 100 per cent higher incidence of all female diseases with a marked scatter of

general diseases as compared with the other practices, giving a specialist's view of morbidity, and being an extreme example of bias of figures due to 'specific interest'.

An example of the exposure of a negative 'specific' interest is given by Hopkins (1956) who exposed Stephen Taylor's assertion, in his book *Good General Practice* (1954), that the claim of 30 per cent of what he loosely calls neurotic illness is unfounded and due to bad diagnosis. Hopkins proves conclusively that Stephen Taylor is wrong by subjecting his psychoneurotic diagnosis to full investigation by hospital diagnosis. He was still left with one third of his practice diagnosed as having a psychogenic illness. Hopkins was able to verify that his bias towards interest in psychiatry had not altered his facts. Stephen Taylor was probably quite unaware that his negative bias towards psychogenic illness led him to make stimulating, albeit false, statements such as, 'There is a substantial element of truth in the hypothesis that the better the clinician, the less often does he diagnose neurosis'.

One can be quite unaware of a negative bias causing distortion of morbidity figures. In my part of Logan's work it was startling to find that the common cold was practically non-existent in my practice as compared with the others (40 per 1,000, as compared with 252.9 per 1,000 average for the 10 practices). At that time I was not interested in the common cold—but until I came to compare my figures with other practices I had no idea of a negative bias leading to such erroneous figures.

Hope Simpson (1956) states that his incidence of the common cold in 350 volunteers who recorded their colds averaged 7 per year, a rate of 7,000 per 1,000—an annual morbidity of 20 days. A startling figure which was soon challenged by Southwood (1958), who maintained that the incidence was usually not more than two per year and the remainder were possibly allergic rhinitis. If Hope Simpson had compared his figures with the average given by Logan of 252.9 diagnoses per 1,000 patients, or that 130 patients per 1,000 were afflicted with a cold, it is apparent that he is not considering what is called the 'common cold'. What he has probably done is to provide a medium of investigation of a 'wet nose', and his bias of interest has unconsciously fogged his premises.

Fry (1952) working in a London suburban practice finds respiratory and upper respiratory infections, digestive and cardio-vascular diseases the most frequent. McGregor (1950) listed upper respiratory, digestive, and skin diseases. Sir G. Newman (1933) mentioned the commonest causes of incapacity as respiratory infections, influenza, digestive and rheumatic affections and accidents. Their bias may

have been in these directions. Inorganic, or better called psychogenic, disease was only mentioned in passing. Fry wisely observes: 'General practice, as other things in life, is what you make of it'. The corollary to his statement is that bias of interest may make errors in one's observation.

Unsound hypotheses may be easily built up from such errors of the true incidence of disease. A private enquiry made at my request by a German drug house revealed that in Vienna the general practitioners hold that 80 per cent of their 'outdoor' patients are not physically ill. It was in Vienna that Freud built his edifice of psychopathology. It is realized now that what errors he made were due to working with a peculiar section of Mittel-European patients, and that his theories will not fit the human race as he believed. He did not appreciate that his basic patient material was abnormally selected from a neurotic puddle of mankind. If he had had comparative figures of the incidence and type of psychogenic illness from other parts of the world he would not perhaps have reached such rigid conclusions.

However, there are examples of work in which, in spite of specific interest in a subject, low figures for practice morbidity were obtained. It may be noted that both came from large practices with two or more partners who may have exercised a check on diagnostic 'inflation'. Watts (1956), although interested in depressive illnesses, gives a figure of 5 per 1,000 practice population—a conservative figure, as he admits. Hughes (1957) admits to being specially interested in the acute abdomen with reference to appendicitis, and gives a figure of 2.5 per 1,000 of appendicitis, which is low in comparison with Logan's figure of 18 per 1,000.

Bias of interest in a subject may make individual observation of the incidence of morbidity in a practice of only doubtful value.

Parochial Element

The variable of environment must be considered in any assessment of morbidity in a practice, urban or rural, the predominant social classification, the predominant age-groups, access to hospital, the presence or absence of a community spirit—all these will play a major or minor part in altering figures for morbidity. It is the local ecological picture which is important. I prefer to call it by the less technical adjective of 'parochial variant'.

Nearly every paper on any disease in general practice, and also the few written on general practice morbidity, start with a brief description of the practice area. But no observation is made on how this may affect the morbidity statistics. The common assumption that industrial areas have more respiratory disease, or the damp areas more rheumatism, may be correct; but until a wider survey

of individual areas is made with a standard measure of recording, these assumptions are not proved.

What, if any, effect on morbidity does general social morale play? It is speculative to discuss this until further investigations are made. But it was a well-established fact during the second world war that an unhappy unit, squadron or ship had a high sickness rate not only of psychological breakdown, but of so-called organic illness. Does the same observation apply to civilian community life?

Observer Error

Morbid symptoms and signs with their interpretation given by an individual are prone to that particular observer's error. Even the reading of x-ray films by experienced observers may produce an error of between 10 and 30 per cent. This is constant not only to the individual recorder but to several recorders, even, when reviewing the material. Similarly, the elucidation of physical signs shows this constant two-thirds variation, even when carried out by the most skilled clinicians. (*Lancet*, 1954).

Cochrane *et al.* (1951) showed that history-taking showed the same type of discrepancies, and that even answers to the simplest questions are not always reproducible.

In 1957 the research committee of the College of General Practitioners designed a card to investigate this problem. Practices completed one month's recording of every fresh disease, following it through until it was ended or still present three months later. It was a time-consuming card to fill up, as the diagnosis had to be coded at once. The discipline of fitting many of the symptom complexes presenting in general practice into a classification of 70 diagnoses was severe. I found myself forcing diagnoses on patients that I knew did not give the complete picture of their diseases, in order to comply with the scheme: this in spite of the latitude given by the degrees of precision recorded—for example, no diagnosis, tentative diagnosis, exclusion of serious alternative diagnosis, firm diagnosis.

This pilot investigation showed that variation of accuracy, as measured by the firm diagnosis of an individual doctor, was from 72.4 to 25.6 per cent, representing the difference both in the interpretation of a clinical picture and in the value of the diagnostic label attached to that clinical picture. The average of firm diagnoses for the 11 practices was 55.5 per cent—a salutary figure underlining the inadequacy of diagnostic procedure.

This was an encouraging confirmation of the work I started in 1951. Provisional figures (see appendix 1) for the first three months gave a mental jolt to one's diagnostic ability. About 30 per cent

were undiagnosed, and at that time one could only reflect that one was either a very bad or a very honest doctor. This recent investigation encouraged me in my efforts to be diagnostically honest, for six years later my average of firm diagnosis was 53.4 per cent. I was as bad or as honest as the other practitioners whose average was 52.1 per cent.

Although this question of diagnostic accuracy and observer-error is apparently a discouraging finding, it is obvious that some individual diseases with unmistakable symptoms, such as epilepsy, can be diagnosed accurately, and records of them 150 years ago can still be of use. Ffrancon Roberts (1956) reviewed Gaskell's figures for morbidity for 5,829 patients given in his book published in 1833. Roberts cites the incidence of epilepsy as being comparable to those given by Logan in his pilot survey, of 3.7 to 5.4 per 1,000 patients. Gaskell's were 4.3 per 1,000 patients. Roberts concludes from this that the 1833 figures are reasonably accurate, and makes two notable observations: that constipation was 10 times more prevalent in 1833 (130/1,000 compared with 14/1,000 in 1951), and that three-quarters of the population required medical aid annually—an almost identical figure with that recorded in 1951.

Foreign Literature

Types of general practice vary with individual communities and medical organization in different countries, and even if there were statistics available, their value would be doubtful. In fact, only broad assertions or impressions can be obtained of the type of illnesses seen in general practice abroad. Statements such as '80 per cent of the patients seen in Vienna are suffering from non-organic illness' (personal communication) are only suggestive of trends. A practice in Nova Scotia which changed from private to an insurance type of work recorded a 30 per cent increase in attendance rates (a figure comparable to my practice when the average visiting rose from 11 every day of the year to a steady 14 to 16 daily after the introduction of the National Health Service).

Some concrete figures are given by Couter *et al.* (1953), who analysed 1,000 consecutive 'residence visits' in Decatur, from the angle of sex, age, time and necessity of call, diagnosis, and drugs utilized. But it is difficult to compare their figures with a general practitioner's work in this country because 'all patients of 13 and under were automatically excluded. As far as possible over the phone, complaints belonging to specialities other than internal medicine were referred to other practitioners'. The figures are given in table I (page 132).

They noted that women needed more visiting than men and a 'disconcerting paucity of neoplastic diseases was encountered'.

TABLE I
1,000 CONSECUTIVE RESIDENCE VISITS IN DECATUR

	<i>Per cent</i>
Cardio-respiratory	19.8
Ear, nose and throat	19.1
Specific infections (influenza, etc.)	15.8
Gastro-intestinal	14.1
Neuro-psychiatric	15.2
Musculo-skeletal system	5.1
Skin	3.6
Genito-urinary	5.4
Endocrine origin	7.0
Miscellaneous	9.0
(of these 2.27 per cent were sent to hospital)	

These seem to be the only conclusions they came to. This article illustrates some of the pitfalls that can arise in accurate collection of morbidity figures. It perpetuates every error that would make their figures valueless for accurate reference—nosology, bias, parochial element, observer error.

Their box classification (nosology) showed that the 'cardio-respiratory' heading included among its 20 subdivisions, pneumonia, cardiac failure, pericarditis, carcinoma of bronchus, acute rheumatic fever and varicose ulcer, and the 'miscellaneous' group, peri-apical abscess, post-viral asthenia, pernicious anaemia and angioneurotic oedema. Their 'bias', was solely in internal medicine. As to the 'parochial' element, the whole ecological setting was different, medical and social. Regarding 'observer error', no case appeared to remain undiagnosed—an unlikely occurrence in a more rigidly designed survey.

Morbidity in my Practice analysed and contrasted with other Practices in two Investigations

The first investigation was in conjunction with 10 other practices. It was organized by Dr W. P. D. Logan of the Registrar General's Office, in order to see whether it was possible to collect reliable information from a general practitioner without loading his daily work at peak periods to an extent that would cause a breakdown in continuity. He was concerned with the possibility of this work and the information which could be obtained from it. He gives a full report in *Studies on Medical and Population Subjects* No. 7, but he does not mention his practical approach to the first problem. He went to a busy practice and ascertained, by personal experience of running a practice, what was practical in the way of collecting information. From this experience he designed his investigation. Even so it was found to be a considerable strain on the working of the practice, to such an extent that to continue a

second year would have meant my trained secretary leaving the job. I preferred to keep my secretary, and did not continue this particular investigation in its second half (No. 9 Medical and Population Studies). On the second problem, he found that so much information could be collected that it could become unmanageable even with mechanical tabulation and a statistical bureau. This is understandable when it is realized that a doctor with a list of 2,000 may record anything from 6,000 to 10,000 consultations a year.

From the tables produced by Logan on the facts supplied from this practice I was able to gain a clearer knowledge of the type of work in general practice, a better idea of the problems that beset it and, most important of all, a check on the efficiency of one's work. I was able to compare my own figures with those of other practices. My interest was not primarily centred in ascertaining the incidence of morbidity in any particular disease complex. The aspects of the investigation that interested me are grouped under four headings for convenience:

Type of practice: age; sex; ecology

Predominating illnesses

Diagnosis averages

Comparison with a further investigation of the same practice six years later

Type of Practice

The morbidity described involves a large scattered village about four miles in diameter surrounded with two to three miles of moorland which cuts it off from other communities. Its population is about 2,000. The people in it range from a selection from Debrett, professional and retired business men, village craftsmen, to a community of 'diddikai' or hut-dwellers who live in conditions described by a visiting Scots journalist as 'worse than Glasgow slums', or as another reporter remarked, 'conditions similar to the Kikuyu huts'. The nearest other doctor is five miles away, so that 90 per cent of the illness comes to the resident doctor. He also knows who is ill of the remaining 10 per cent by means of the village 'grape-vine'. This isolation is an obvious advantage from the viewpoint of studying the true incidence of morbidity in a community as the doctor's bias of interest in particular diseases is avoided. Three major hospitals are 15 to 20 miles distant. As a sample of the general population it is deficient in the artisan class, and has more elderly than average. The sex-age distribution compared with the other practices was higher for both males and females over 65 years. Seven per cent of the males in the practice were 65 years or over compared with a general average of 4 per cent; the female figure was 9 per cent to 4 per cent. It was 2 per cent less (10 to 12 per cent average) in the under-15 age group. At this time

there were 10 over 90 years of age in the practice—but they had a low morbidity incidence and were only visited socially at regular intervals (page 20*).

The tables A2 (p. 114) and D1 (p. 124), which deal with consultation rates per 1,000 population, show that, compared with the other practices, I was seeing about the same amount of sickness.

Table C3 and C4 pp. 121-122 explored the type of work done because home visits were nearly double the surgery attendances in all age-groups.

Table E1 produced interesting figures concerning the comparative rates of referral to hospitals. Referral to hospital outpatients was 50 per cent below the average, while referral as an inpatient was average. This was fairly constant whether it was calculated per 100 of the practice population, per 100 patients consulting, or as a rate per 100 consultations. I wondered whether I was allowing more people to die due to lack of a second opinion, but table F5 gives the number of death certificates issued and, considering the age-group of the practice, it was not exceptional. Death certificates issued varied between 5 and 17: Practice No. 6 (Burley) had 14. This was reassuring, and I felt that I could continue to rely on my own clinical judgment.

An interesting aspect of the National Health Service administration is also revealed, because my average prescribing costs are consistently high (table E1). It was the first statistical statement ever made to the National Health Service administration that prescribing costs of an individual doctor might possibly vary inversely with the number of his referrals of patients to hospital for treatment.

Predominating Illness as occurring in this Practice

The causes, number and rates of medical consultations per 1,000 patients are set out in detail in table No. 2 (p. 43). This practice showed two variations from the broad pattern of disease seen in general practice.

- (1) The incidence of the common cold was 40 per 1,000 practice population. The average rate was 252.9 per 1,000. Some of this is explained by nomenclature difficulties; 'acute upper respiratory infections' gave a figure of 73/1,000 compared with the average rate of 37.8/1,000. Even allowing for this, the disparity is too great to be explained except by either of these hypotheses; that Burley does not have the common cold which is unlikely, or that the village knows that my standard advice is: hot rum, lemon, aspirin and bed, and so does not consult for the 'common cold'.
- (2) In the other practices psychoneurotic disorders showed a wide scatter ranging from 9/1,000 to 92/1,000. There was odd inverse ratio to practices showing a high incidence in diseases of women—menopausal, utero-vaginal prolapse, leucorrhoea and disorders of menstruation. My practice was low average for gynaecology, but had the highest

* References given are pages from Logan: Studies on Medical and Population Subjects No. 7. Pilot Surveys of College of General Practitioners, 1957.

incidence of psychoneurotic disorders—137/1,000, because I was recording what was the major factor in a person's disability. I was emphasizing the psyche at the expense of the somatic aspect of indefinite illness. These figures were a useful check on known bias. It posed the question to myself as to whether I was being a crank on this aspect of general practice.

Diagnosis Averages

My average of 2.9 consultations per person was the lowest of the practices. The highest was 4.7 per person in Liverpool. Considering the type of practice and the fact that the village child welfare was run by me and not included in these figures, I do not think it shows enough variation to look for particular causes.

There was less seasonal variation in this practice than in others, for which no explanation was found. However, from records of visiting in past and subsequent years, the years under consideration showed a high rate of sickness in the summer months. It was an abnormal summer to sample. Other years showed a higher incidence in winter of morbidity and a lower incidence in the summer.

Comparison with Later Investigation

Six years later another pilot survey was used to check whether my pattern of individual practice was showing the same variation from others. This survey by the College of General Practitioners is fully described in the *Report of the Records Unit Working Party* of the research committee of Council. It was designed to investigate the possibility of using a punch card system as a continuous record of morbidity in general practice. A card with 'boxes' on it was filled in with the maximum of five strokes, and then returned to a centre for punching and analysis. In my opinion it was impracticable as a continuous method of recording morbidity in the rush of general practice. However, it provided a broad comparison to the previous figures recorded in this practice in 1951-52.

The ratio of surgery attendances to visits was still the lowest of eleven practices: 1.1 surgery attendances to visits (average 2.2), but the number of consultations per episode of sickness was average—2.1 (This figure of just over two consultations per episode of sickness was astonishingly constant for every practice, whether urban or rural; no explanation has been put forward to account for this).

My bias towards the non-somatic aspect of medicine had apparently rectified itself to some extent, for although my figures for psychoneurotic illness were high, at least one of the eleven practices was higher and two others had almost identical figures.

The common cold was now labelled acute nasopharyngitis. Burley now had the second highest incidence of these practices. Perhaps the practice now knew that a sulphonamide or antibiotic will shorten the complications of a cold.

The most encouraging comparative finding was that a 50 per

cent accuracy in primary diagnosis was average for the eleven practices and my figure of 52 per cent was normal.

This second investigation was worth the time because it showed that my standard of recording had improved and was now a reliable index of the actual morbidity occurring in my practice. With experience, the personal element had been reduced and any observations made in the future should have some degree of reliability.

Conclusions from the Recording of Morbidity in General Practice in two Pilot Surveys

1. The absence of previous work emphasized the difficulties of designing a method for accurate recording of morbidity. There must be an aim beyond recording mere facts of illness, otherwise the material will envelop the investigation in a web of figures which defy practical analysis for current use. So much information can be obtained relating to the incidence of diseases of all kinds in the community, that records must be specifically designed for the use by a medical statistician, medical historian, epidemiologist, medical bureaucrat and so on. Any standard method of recording continued over years should have one or more of these people specifically in mind.

2. The simplest method of recording data, apart from essential clinical notes, was found to be a strain under present economic conditions of medical practice. It could easily be done if the time was taken from that normally given to leisure—but unless it was considered as a medical hobby it was not a practical possibility to continue as a permanency in one's life. Only a minority of general practitioners would temperamentally accept this, unless they could be responsible for a smaller number of patients in order to maintain their standard of living.

3. Individual recordings of morbidity statistics have only limited value, owing to the lack of a comparative yardstick of incidence in other practices of comparative type. This is due to four major factors: nosology, individual bias of interest, local ecology (the parochial factor) and observer error.

4. Nosology presents the most stubborn problem. Broad classifications are a solution, but will not give an idea of the true morbidity seen in general practice. They are invaluable as a coarse guide in research, but lack the finer material for giving a view of the symptom complexes of ill-health that are the daily experience of general practitioners. As soon as an attempt is made to fit an ill patient to a disease, difficulties of individual personalities of both patient and doctor arise.

5. With our present concept of disease, which is based on variations in pathology and biased by the bacteriologist, the ideal of a col-

lection of comprehensive and reliable morbidity statistics is unattainable. However, encouragement may be gained by remembering Oliver Cromwell's remark: 'A man never goes so far as when he knows not whither he is going'.

6. New methods for describing the concept of an ill patient appear to be needed, and should include the person who is ill, as well as the disease from which he is suffering. The fact that this appears an impossible objective makes the attainment of it all the more important for the recording and understanding of morbidity in general practice. A dynamic concept of the interaction of an organism with its environment is needed for an ideal method of records: How much of minor or major ill health is due to variation from the normal state of man? The Scylla of loose, verbose thinking, and the Charybdis of stiff didactic diagnosis beset one whenever one leaves the traditional paths of pathology and bacteriology. If two-thirds of the population are ill enough to attend a doctor in a year, it could be argued that health is the abnormal state of man in his present environment. Perhaps it might be logically wiser to intensify investigation of the causes of health of this minority one-third of the population.

7. The discipline of participating in these two experimental pilot investigations has revealed unsuspected defects in one's approach to diagnostic accuracy. It has also revealed that, once known, they can be avoided.

8. The accurate recording of morbidity in general practice depends not only on the completing of a specified routine, but also on the experience of the observer in doing this kind of work.

A reliable observer must:

- Have checked his diagnostic accuracy by comparison with other practices, and by his referral rate to hospital;
- Know his own observer-medical bias;
- Allow for his parochial environment;
- Have given some thought to the problem of normal variations of health;
- Have a personal objective to maintain his recording efforts.

These investigations have helped me to attain the objective which stimulated me to start this work in 1949. I now have a clearer idea of the functions of the general practitioner and of what type of illnesses he treats. But this knowledge of the pattern of local morbidity has not helped to reduce its incidence. One hundred and fifty years ago two-thirds of the population needed a doctor; to-day in spite of the technical advance of medicine two-thirds of the population still need a doctor. It may be a miasma of conceit that leads the profession to think it can change this striking statistical constant. Is it a constant index that reflects man's battle with his changing environment?

APPENDIX I

Provisional Figures — April-June, 1951

No. of patients "seen" —751 (including 31 Temporary Residents).

Total consultations —1,957.

Certificates issued —National Insurance—90

—Others —80

Referrals to hospital, etc.—66.

Main Groups of Illnesses with Numbers of Times Diagnosed

1. Tuberculosis	11
2. Certain diseases common among children*	27
3. All other infective and parasitic diseases	82
4. Malignant neoplasms	34
5. Benign and unspecified neoplasms	12
6. Allergic disorders	30
7. Diabetes mellitus	4
8. Avitaminosis and other deficiency states	1
9. Anaemias	15
10. Psychoneuroses and psychoses	121
11. Vascular lesions affecting central nervous system	20
12. Diseases of eye	49
13. Diseases of ear and mastoid process	65
14. Rheumatic fever	14
15. Chronic rheumatic heart disease	—
16. Arteriosclerotic and degenerative heart disease	53
17. Hypertensive disease	46
18. Diseases of veins	24
19. Acute nasopharyngitis (common cold)	43
20. Acute pharyngitis and tonsillitis and hypertrophy of tonsils and adenoids	57
21. Influenza	24
22. Pneumonia	42
23. Bronchitis	56
24. All other respiratory diseases	122
25. Diseases of stomach and duodenum	62
26. Appendicitis	5
27. Hernia of abdominal cavity	13
28. Diarrhoea and enteritis	36
29. All other diseases of digestive system	38
30. Diseases of genital organs	63
31. Complications of pregnancy, childbirth and the puerperium	3
32. Boil, abscess, cellulitis and other skin infections	75
33. Other diseases of skin	64
34. Arthritis and rheumatism, except rheumatic fever	117
35. Diseases of bones and other organs of movement	39
36. Other unspecified and ill-defined diseases	369
37. Accidents, poisonings and violence	131
38. Prophylactic inoculation and vaccination	21
39. Routine maternal examinations	73
40. Other non-medical reasons for consultation	33

*Scarlet fever, diphtheria, whooping cough, measles and mumps.

REFERENCES

- Balzac, Honore de, *Le Medecin de Campagne*. Lond. Dent.
 Backett, E. M., et al. (1953). *Proc. roy. Soc. Med.* 46, 707.
 Brett Young, F. (1954). *Portrait of a Village*. Lond. Heinemann.
 Clark-Kennedy, A. E. (1953). *Brit. med. J.*, 1, 474.

- Cochrane, A. L., *et al.* (1951). *Lancet* 1, 1,007.
- Cohen, Lord (1950), *General Practice and the Training of the General Practitioner*. Lond. Brit. Med. Assoc.
- Collings, J. S. (1950), *Lancet* 1, 555.
- Couter, W. T. *et al.* (1953), *J. Amer. med. Assoc.*, 152, 1,704; 153, 1,469.
- Frankel, *et al.* Metropolitan Life Insurance Reports (1915-1917).
- Fry, J. (1952), *Brit. med. J.*, 2, 249; (1957), *Brit. med. J.*, 2, 1,453.
- Hope-Simpson, R. E. (1956), *Brit. med. J.*, 1, 214; (1958), *Proc. roy. Soc. Med.*, 51, 267.
- Hopkins, P. (1956a), *Lancet*, 2, 455; (1956b), *Brit. med. J.*, 2, 825.
- Horder, Lord (1954), *Practitioner*, 173, 177.
- Howard, C. R. G. (1951), *Lancet*, 2, 346.
- Hughes, D. (1951), *Proc. roy. Soc. Med.*, 44, 533.
- Hunt, John (1950), *Lancet*, 2, 549.
- Logan, W. P. D. (1953), *Studies on Medical and Population Subjects*, Lond. H.M.S.O. Nos. 7 and 9; (1958), No. 12; (1950), *Lancet*, 1, 773; (1954), *Practitioner* 173, 88.
- Logan, W. P. D., and Cushion, A. A. (1958), *Morbidity Statistics from General Practice*, Vol. 1 (General), Lond. H.M.S.O.
- McConaghey, R. M. S. (1956), *Brit. med. J.* (Supplement), 1, 59; (1956), *Practitioner*, 176, 663.
- McGregor, R. M. (1950), *Edin. med. J.*, 57, 433.
- Newman, Sir George (1933), *A. R. med. Offr. Minist. Hlth.* (Lond.).
- Pemberton, J. (1949), *Brit. med. J.*, 1, 307.
- Pickles, W. N. (1955), *Practitioner*, 174, 76.
- Practitioner* (1955), 174, 601.
- Querido, A. (1957), *Proc. roy. Soc. Med.*, 48, 741.
- Roberts, Ffranco (1956), *Brit. med. J.*, 2, 653.
- Sargent, W. W. (1957), *Battle for the Mind*, Lond.
- Slater, P. (1946), *The Survey of Sickness*, Lond. H.M.S.O.
- Southward, R. (1958), *Brit. med. J.*, 1, 397.
- Stocks, P. (1944), *Proc. roy. Soc. Med.*, 37, 593; (1949), *Studies on Medical and Population Subjects* No. 2, Lond. H.M.S.O.
- Sydenstraker, E. (1926-1929), *Publ. Hlth. Rep.* (Wash.) 5, 41.
- Taylor, Stephen (1954a), *Med. Wld.*, 31, 137; (1954b), *Good General Practice*. Lond.; (1958), *Lancet*, 1, 521.
- Vickers, Sir G. (1955), *Lancet*, 1, 521.
- Watts, C. A. H. and Watts, B. M. (1952), *Psychiatry in General Practice*. Lond.

A Note on Influenzal Complications in an Epidemic. W. P. GRIFFIN,
M.D. *The Practitioner* (November, 1958), 181, 621.

Dr Griffin describes the treatment of epidemic influenza cases in a London practice. Of 660 seen, 9 per cent were bad risks through pre-existing disease or complications, and these more ill patients were given penicillin and sulphonamide therapy without any delay. Dr Griffin discusses the advantages of this course and gives his results—one fulminating case not diagnosed in time, but no other severely ill patients.