Second National Morbidity Survey

BIRMINGHAM RESEARCH UNIT OF THE ROYAL COLLEGE OF GENERAL PRACTITIONERS

THE Second National Morbidity Survey began in November 1970. It was a joint enterprise involving the Royal College of General Practitioners (RCGP), Office of Population Censuses and Surveys (OPCS) and the Department of Health and Social Security (DHSS). For the first year it involved 115 general practitioners in 60 practices looking after about 292,000 patients. From November 1971 until October 1972 it involved 101 general practitioners looking after a population of about 256,000 patients. From November 1972 to October 1976, 33 of these doctors looking after a population of about 100,000 continued to record morbidity routinely. The first volume of morbidity statistics covered the first 12 months from November 1970 to October 1971 (RCGP *et al.*, 1974). In the second volume just published, covering the second 12 months' recording, the comparison of the results from the first and second years serves as a validation exercise; certain aspects of the data are considered in more detail, in particular the variability in rates between different practices.

The survey is about problems reported to general practitioners at face-to-face consultations and does not include indirect consultations over the telephone, consultations with relatives or friends, or with other staff. Patients consult general practitioners with problems and these problems do not always involve morbidity in the conventional sense. Consultations for prophylactic procedures and other medical examinations are considered separately, but consultations for other socio-economic problems unaccompanied by organic or psycho-emotional morbidity are not. The data from this morbidity survey can therefore be used only indirectly as a measure of total workload in general practice. Workload information can be better derived from supplementary studies, for example using practice activity analysis methods. With these provisos, morbidity surveys are the essential baseline for epidemiological research and academic teaching in general practice.

Method

The Second National Morbidity Survey was based on the standard College of General Practitioners (1963) disease index mainly because a group of geographically representative general practitioners was already maintaining this record system as a basis for the routine reporting of infectious and communicable diseases to the Birmingham Research Unit's weekly return service. The standard disease index had been designed for automated processing but it can also be the basis for a simplified form of morbidity tabulations in years between national surveys. The recording practices also used the standard age/sex register cards as the basis for the automated age/sex register which forms in its turn the basis for the six-monthly updated computer file of patient morbidity maintained by the OPCS. The OPCS was responsible for the data processing and production of final tabulations.

Age/sex baseline

The list of a doctor's patients maintained by the family practitioner committee (formerly executive council) may in time come to include the names of some patients who are no longer going to consult him when they are ill *(selective list inflation),* the usual procedures to remove a patient's name having failed for one reason or another. Similarly, the number of patients on a doctor's list may be inaccurately low because at any one time it is not possible to estimate exactly the number of patients who have not yet registered but who will do so as soon as they fall ill; this, and other mistakes of under-recording are called *understatement.*

Both of these problems had to be taken into account in producing firm age/sex baselines for each practice population. The methods and the validation procedures used were described in the first volume and are further elaborated in the second volume. The implications are that in checking the original registers, the executive councils were more adept at rectifying excesses than omissions.

Results

Tabulations

The preliminary tabulations deal with the age/sex structure of the population and its comparability with that of the general population of England and Wales. Other

Table 1. Average number of consultations per doctor per week. Comparison of 20 percentile rates for Second National Morbidity Study 1970/71 and 1971/72, and Royal College of General Practitioners Practice Activity Analysis Survey.

	Minimum rate		Intervening rates						Maximum rate
National Morbidity Study 2 1970/71	53	(12)	118	(12)	144	(12)	159	(12)	199	(12)	339
National Morbidity Study 2 1971/72	89	(9)	121	(9)	148	(9)	181	(9)	219	(9)	337
Royal College of General Practitioners Practice Activity Survey	48	(28)	125	(28)	148	(28)	171	(28)	203	(28)	325

Figures in brackets are the number of doctors/practices in each 20 percentile group.

Table 2. Referral rates per 1,000 consultations. Comparison of 20 percentile rates for Second National Morbidity Study 1970/71 and 1971/72, Royal College of General Practitioners Practice Activity Analysis Survey and Belgian Survey.

	Minimum rate		Intervening rates						Maximum rate
NMS 2 1970/71	18.1	(12)	25.3	(12)	30.7	(12)	36.4	(12)	44.8	(12)	75.7
NMS 2 1971/72	18.5	(8)	25.3	(8)	31.6	(7)	34.2	(8)	43.2	(8)	63.7
Royal College of General Practitioners Practice Activity Analysis Survey	16.8	(20)	30.9	(20)	38.0	(20)	46.0	(20)	57.0	(20)	98.1
Belgian Survey (Fleming and Maes, 1980)	13.0	(8)	25.0	(7)	29.5	(7)	38.0	(7)	52.0	(8)	127.0

Figures in brackets are the number of doctors/practices in each 20 percentile group.

tables deal with the frequency with which different patients consult in a year and in particular the numbers of those who do not attend at all.

The main tables deal with various rates for episodes, consultations, and patients consulting per 1,000 population at risk, by age and sex for each diagnosed condition and for reasons other than illness. Incidence rates are calculated separately. Other tables give similar rates by urban and rural distribution and by three main regional areas, North, South, and Midlands and South Wales. Inter-practice variability is so great that no further regional disaggregation is possible. Other tables deal with referrals to hospital for direct access investigations and to inpatient and outpatient departments, and referrals to local authority services. Home visits for selected diagnoses are also given as a percentage of all consultations. These main tabulations are comparable with those of the first year's recording. In 28 out of the 43 practices, full International Classification of Diseases (WHO, 1957) recording of episodes was carried out in parallel with recording based on the College of General Practitioners (1963) classification of approximately 500 categories.

A comparison of rates in 1970/71 based on patients consulting with rates in 1971/72 based on episode data only was possible in four practices where total consultation recording was dropped in the latter period in favour of simple episode recording. This confirms that the absence of consultation recording has an adverse effect on the completeness of episode data.

Comparisons between 1970/71 and 1971/72

There were slight changes in episode and consultation rates between the two years. There were small reductions in home visiting rates, a continuation of the trend noted when the first and second National Morbidity Surveys were compared (RCGP, 1976). This trend has also been found in the General Household Survey between 1971 and 1974 (OPCS, 1979). The consultation rates per person at risk per year are lower in the National Morbidity Survey (3.0) than in the General Household Survey (3.5).

The rates for referrals per 1,000 population at risk showed consistent small increases for all categories for both sexes at all ages, excluding only acute male inpatient admissions. The uniformity and consistency of results from the first compared with the second year of recording was also reflected in the rates for individual practices. This uniformity within the practices from one year to another is in marked contrast to the consistent and enormous range of variability between practices in all rates. Inter-practice variations are so large that a simple two-way analysis of variance indicates that compared with the variation between practices within regions, the variation between regions is not sufficiently large to be detected. It is for this reason that regional

disaggregation is limited to the North, South, and Midlands and Wales. The data cannot therefore be used as a basis for estimating regional allocation of resources (DHSS, 1976).

Inter-practice variability

Consistent variations in clinical and administrative performance between practices and between individual general practitioners as measured by referral rates to hospital (RCGP, 1978a) use of diagnostic services (RCGP, 1978b) and even episode and consultation rates (RCGP, 1973) have been highlighted by the comparison of results from the first two years of recording in the Second National Morbidity Survey. In Tables 1 and 2, consultations and referrals in the Second National Morbidity Survey are compared with data from other sources in the form of rates, rank ordered from lowest to highest and showing the intermediate rates between each 20 percentile sub-group. For example, in Table 1 the first line summarizes the consultation rates for the general practitioners in the Second National Morbidity Survey during the year 1970-71. The first rate, 53 consultations per week, is the lowest rate of all. The second rate, 118 consultations per week, is the 12th lowest rate, that is the rate for the general practitioner with the highest rate in the first group of 12 practitioners, one fifth of the total. Table 2 deals with referral rates from the different practices in the same way. Consultations rather than patients at risk are used for the denominator in this table because the practice activity analysis data, with which the National Morbidity Survey data are compared, are in this form. This is a convenient way of showing a range of rates particularly when they are not normally distributed.

The large range of referral rates to hospital (Table 2)—in this context a four-fold difference between the lowest and the highest rates—has particular significance. Ultimately the use of hospital services is very largely determined by the primary referrals of general practitioners. These large differences between the extremes for any one rate cannot be attributed to differences in the age and sex structure of the population. For example, age standardization of the patient consulting rates for each sex results in a reduction of 10 per cent only in the ratio of the 5th to the 95th percentile. Standardization for social class and occupational status will also be possible eventually but it is likely that this will make only further marginal contributions to the variance. These results are consistent with the hypothesis that most of the inter-doctor variability is due to fundamental differences in the attitudes and values of individual doctors rather than differences in the characteristics of their patients and/or their clinical environment (Fleming and Maes, 1980). Studies of workload must therefore be based on the experience of sufficient numbers of general practitioners to take account of this range of variability. This proviso can be mitigated somewhat by a complementary reduction in the quantity of patient-related data. These principles are in operation in the practice activity analysis programme of the Birmingham Research Unit (RCGP, 1977a).

The denominator problem

Registration of the population with general practitioners in the British National Health Service ensures a known population at risk (the denominator) for epidemiological research, as well as for information and planning purposes. In most other Western countries, registration does not occur and all primary health care statistics must be expressed in rates related to the patients who actually consult. Reliable methods for estimating the numbers of non-attenders and total populations at risk are therefore much needed. It is ironic that the data from the National Morbidity Surveys in this country are one of the few sources of good data for statistical modelling of this problem.

Although the variations in the proportion of non-attenders in the different practice populations in the Second National Morbidity Survey are the smallest among all those variations studied, they paradoxically relate to fundamental, underlying problems. Patients and their doctors vary in what they understand by morbidity and illness and influence one another in these beliefs. Practices vary in the way that access to the practitioner is controlled; a particularly strong influence is the presence or absence of a repeat prescription system. It is also possible that 'non-attenders' in primary care are compensated for by those who use casualty departments and by direct internal referrals by one consultant to another hospital colleague (RCGP, 1977b). Although morbidity surveys alone cannot provide answers to these problems, they have brought them into the light of day.

Practice profile

Each practice completed a profile of such characteristics as: the type of building(s) used; numbers of principals, assistants and trainees; appointment systems; shared use of rotas and deputizing services; access to hospital beds; special clinics in the practice; special diagnostic equipment in the practice; access to radiography and clinical biochemistry and pathology; and numbers of staff employed. The relationship of these characteristics to the various measured rates is explored. From an initial analysis of a great deal of data, the practice characteristics which seem to be most relevant to reported morbidity rates were location, size of partnership, doctor's age and availability of ancillary staff. However, the contribution to overall variations in morbidity rates was small. The details of all these measured variations have been sent to each practice as the basis for a programme of self-evaluation and audit.

Supplementary studies

Continuous disease/index recording is the basis for this Second National Morbidity Survey and in turn it

can support a variety of retrospective studies. These are all similar to the original retrospective Oral Contraception Study (RCGP, 1967) in which a significant correlation between thrombo-embolic morbidity and the use of oral contraceptives was first demonstrated. These supplementary retrospective studies include viral infections in pregnancy (Adelstein *et al.*, 1976); malignant hypertension (Bulpitt *et al.*, 1980); side-effects of pertussis vaccine; incidence of hypertension; gout (Currie, 1978a and b, 1979), long-term effects of whooping cough; diabetes and its associated morbidity; subsequent mortality rates in patients with psychoneurotic diagnoses; pilot studies of glaucoma and beta-blockers and reserpine and breast cancer; long-term effects of hypoglycaemic agents; and long-term effects of beta-blockers. Some of these additional studies involve the use of standardized morbidity (episode) ratios, a technique developed for this purpose.

Six-year linked file

The data from approximately 85,000 patients followed for the full six years will be linked in one patient-based file. This will be the basis, using standardized morbidity (episode) ratios, for examining the positive and the negative relationships between different morbidities.

Socio-economic data

A file linking the morbidity experience of patients in the first year of the survey with a range of socio-economic variables will be available for comparison with similar data in the First National Morbidity Survey and in the General Household Survey.

Weekly return system

Many of the practices involved in the Second National Morbidity Survey are also reporting to the Birmingham Research Unit a selection of communicable infectious and other diseases on a weekly basis.

Third National Morbidity Survey

It is hoped that a Third National Morbidity Survey will take place in 1981/82. In the meantime, the disease/index recording in the weekly return practices has been continuing since the end of the Second National Morbidity Survey recording in 1976. Non-automated processing of these indexes will produce simple basic tabulations to provide continuity between the years of national studies with their greater detail and range.

Conclusion

These reports in the series *Morbidity Statistics from General Practice,* as the essential baseline for epidemiological research and teaching in general practice, should be available in the libraries of postgraduate centres to all general practitioners involved in academic study.

References

Adelstein, A. M., Donovan, J. W., Leighton, P. C. & Pike, M. C. (1976). Sequelae of virus infection in pregnancy. In *Child Health-A Collection of Studies. Studies on Medical and Population Subjects No. 31.* London: HMSO.

Bulpitt, C. J., Bulpitt, P. F., Clark, P. B., Clifton, P., Lambert, P. & Dollery, C. T. (1980). Malignant hypertension—a study of outcome and treatment in the National Morbidity Study. In preparation.

College of General Practitioners Research Committee of Council (1963). A classification of disease. Amended version. *Journal of the College of General Practitioners,* **6,** 207-216.

Currie, W. J. C. (1978a). Diagnosis of gout in general practice. *Current Medical Research and Opinion,* **5,** 714-719.

Currie, W. J. C. (1978b). The gout patient in general practice. *Rheumatology and Rehabilitation,* **17,** 205-218.

Currie, W. J. C. (1979). Prevalence and incidence of the diagnosis of gout in Great Britain. *Annals of the Rheumatic Diseases,* **38,** 101-106.

Department of Health and Social Security (1976). *Sharing Resources for Health in England.* Report of the Resource Allocation Working Party (RAWP) London: HMSO.

Fleming, D. M. & Maes, R. M. J. (1980). Facets of practice in the United Kingdom and Belgium. In press.

Office of Population Censuses and Surveys (1979). *General Household Survey 1977.* London: HMSO.

Royal College of General Practitioners Records Unit and Research Advisory Service (1967). Oral contraception and thrombo-embolic disease. *Journal of the Royal College of General Practitioners,* **13,** 267-279.

Royal College of General Practitioners, Office of Population Censuses and Surveys & Department of Health and Social Security (1974). *Morbidity Statistics from General Practice. Second National Study 1970-1971. Studies on Medical and Population Subjects No. 26.* London: HMSO.

Royal College of General Practitioners (1973). *Present State and Future Needs of General Practice.* 3rd edn. *Report from General Practice 16.* London: *Journal of the Royal College of General Practitioners.*

Royal College of General Practitioners Birmingham Research Unit (1976). *Trends in National Morbidity. Occasional Paper 3.* London: *Journal of the Royal College of General Practitioners.*

Royal College of General Practitioners Birmingham Research Unit (1977a). Self-evaluation in general practice. *Journal of the Royal College of General Practitioners,* **27,** 265-270.

Royal College of General Practitioners Birmingham Research Unit (1977b). Total care usage of a defined population. *Journal of the Royal College of General Practitioners,* **27,** 306-314.

Royal College of General Practitioners Birmingham Research Unit (1978a). Practice activity analysis No. 5. Referrals to specialists. *Journal of the Royal College of General Practitioners,* **28,** 251-253.

Royal College of General Practitioners Birmingham Research Unit (1978b). Practice activity analysis No. 3. Investigations. *Journal of the Royal College of General Practitioners,* **28,** 60-62.

World Health Organization (1957). *International Classification of Disease.* Geneva: WHO.

Acknowledgements

We are grateful to those general practitioners who participated in the National Morbidity Study, to the Office of Population Censuses and Surveys, and to the Department of Health and Social Security for providing the funding to enable the study to be undertaken.