RESEARCH METHOD

Difficulties encountered in classifying illness in general practice

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ONE objective in collecting information from general practice should be finding patterns of physical and social morbidity and the influence of one on the other. This should not simply be an exercise in collecting meaningless statistics, or in showing how hard doctors work, but instead be aimed at determining the needs and proper use of the general practitioner and how his practice can be improved. This should result in the accurate assessment of the community's needs for medical care, particularly from general practice. It should also help in planning the proper use of resources and lastly allow the careful study of the prevention and treatment of illness.

It is necessary that a system of classification is used which is consistent and avoids error. The *International Classification of Disease* (World Health Organisation, 1965) is one attempt. It is suitable for the classification of clearly-defined disease states and certain symptoms, but it does not lend itself so easily to the classification of normality, the ill-defined and the medical and social aspects of health which are so much the every-day concern of the general practitioner. This difficulty has not been overcome by the modification of the *ICD* introduced by The Royal College of General Practitioners.

We were aware of these difficulties and mistakes in the classification from our group practice, and so we carried out the following studies which show the nature and extent of these errors and suggest how they can be avoided.

Methods

The clinical recording system and computation of clinical data used by the group practice in Livingston New Town has been described by Gruer and Heasman (1970) and Barber (1971). In essence, the nature of the consultation between doctor and patient is tape recorded by the doctor and the results summarised for coding purposes. This includes, whenever possible, the precise diagnosis reached, or reasons for the consultation as well as any therapeutic action taken. In addition, follow-up action is recorded including investigation, special referral and certification. The site of the consultation is also noted.

This information is typed into the patient's clinical record, the secretary concerned being responsible for the coding of the diagnostic information given. For this purpose the 1965 edition (eighth revision) of the *ICD* is used. A special diagnosis code (an X classification) exists for diagnoses and situations not covered by the *ICD*, this consisting of about 22 separate items.

This study consisted of two parts, the first was a simple exercise in which the secretaries concerned with coding, were asked to code independently a list of 50 diagnoses taken from a three-month period. They were asked not to consult with one another and their results were then compared with those of one of the authors, experienced in the use of the *ICD*. The second part of the exercise consisted of a straightforward validity check of 100 consecutive sheets with data about episodes of illness to see if the diagnoses and the *ICD* classification entered on the sheets corresponded.

Results

Table 1 shows the results obtained by checking the coding of 50 different diagnoses by six secretaries. The code numbers allocated by all six agreed only 21 times. In 12 instances, one secretary failed to concur, in seven instances two failed to concur and there was no agreement in the remaining ten instances.

TABLE 1—50 DIAGNOSES TAKEN FROM THE NOTES AND CODED BY THE SIX SECRETARIES

Diagnosis in notes	*Coding agreed*	1 *Secretary disagreed*	2 *Secretaries disagreed*	*No agreement*
Alcoholic addiction	×			
Influenza with pneumonia	×			
Domestic problem			×	
Depression		×		
Torticollis	×			
Anxiety	×			
Rash		×		
Leucorrhoea		×		
Vasovagal episodes	×			
Post extraction infection				×
Insomnia	×			
Paroxysmal left ventricular failure		×		
Fibrositis—shoulder		×		
Pruritis	×			
Enlarged lymph nodes		×		
Acute hysteria	×			
Headache	×			
Catarrhal cough				×
Impotence		×		
Introspection				×
Functional bowel upset				×
Marital disharmony		×		
Sexual problems		×		
Perianal haematoma				×
Loss of appetite	×			
Psychotic depression		×		
Psychosis			×	
Paranoid illness			×	
Diarrhoea	×			
Bronchitis	×			
Fatigue	×			
U.R.T.I. (with bronchospasm)				×
Sore throat			×	
Reactive headache	×			
Nervous exhaustion	×			
Polymenorrhoea	×			
Peripheral oedema			×	
Hypopotassemia		×		
Vague ill health				×
Infected catarrh	×			
Acute atypical depression	×			
Inadequate personality with anxiety features (emotional disturbance)				×
Bruising			×	
Postcoryzal debility	×			
Normal development			×	
Enuresis	×			
Neurosis		×		
Retrosternal discomfort				×
Menstrual irregularity	×			
Totals	21	12	7	10

From 100 consecutive data sheets, giving 120 diagnoses, 79 separate diagnoses were obtained for coding. Of these, only one ' vaginal itch ' could not be coded using the *ICD*. Even so, 16 were incorrectly coded representing a coding error of 20 per cent (Table 2).

TABLE 2—LIST OF 17 DIAGNOSES WHICH WERE CODED INCORRECTLY. 79 DIFFERENT CODES WERE OBTAINED FROM 122 DIAGNOSES FROM 100 EPISODE DATA SHEETS

Diagnosis in notes	*Code recorded*	*Correct code*	*Comment*
Coryza	465·0	460·0	465·0=U.R.T.I.
Enuresis	786·2	306·6	786·2 excludes non-organic enuresis. This patient was treated with ' Tofranil '
Infected cold	465·0	460·0	
Mild anaemia	493·0	285·9	493·0=Asthma
Tension headache	791·0	306·8	791·0=Specifically excludes tension headache
Amenorrhoea	684·0	626·0	684·0=Impetigo
Vaginal itch	595·0	none	595·0=Cystitis. Diagnosis is not suitable for ICD classification
Bee sting reaction	N989·0	N989·4	N989·0=Toxic effect of cyanide
Post gastrointestinal surgery	N979·9	Y34·9	N979·9 is not listed
Alcoholic gastritis	303·2	536·9	303·2=Alcoholic addiction
Partial thyroidectomy	242·2	Y34·9	Thyrotoxicosis
Personality disorder	307·0	301·9	307·0=Transient situational disturbance
Chronic bronchitis	490·0	491·0	490·0=Bronchitis unqualified
Infected tooth socket	X097·0	526·5	X classification is not appropriate
Heat rash	788·2	705·1	705·1 is specific. 788·2
Complications of pregnancy	X090·0	634·9	X classification is not appropriate
Virus infection	519·9	079·0	519·9=Other disease of the respiratory system, mediastinitis, etc.

Discussion

The two validity checks show that the coding of diagnoses is often badly done and both checks on coding show errors which were quite unacceptable. There are several explanations for these poor results.

In part they result from an unfamiliarity of the *ICD* by doctors and secretaries. If this is the case, time should have shown some improvement in the standard of coding. This is not our impression.

Difficulties in classifying mental disorders

Thirteen of the 50 diagnoses in Table 1 concern Group V (Mental disorder in *ICD*). In only seven of these was there coding congruence between all secretaries. Depression is a diagnosis which presents considerable problems in the *ICD* and should strictly be coded under symptoms (Group XVI). All the secretaries were strictly correct in this, except for one who had the final digit incorrect.

The doctor who was asked to check the codings put depression under Group V (300·4 —Depressive neurosis) as did a psychiatrist. In the introductory paragraph of Group V of the *ICD* it is stated that this section is primarily for the classification of patients seen at mental hospitals and psychiatric clinics where the main interest is in the mental state of the patient. Nevertheless it can be argued that most practitioners using the term depression use this to describe a psychiatric state of a neurotic nature. Mowbray *et al.* (1961) discussed the problems of psychoneurotic disorders including their recognition in practice and these are highlighted by the wide variations that are produced in general practice, where estimates of the amount of neurotic illness are sought.

The ill-defined area of patients presenting with psychological symptoms such as ' depression ' and ' fatigue ', somatic symptoms which the practitioner does not attribute

to organic pathology and the protraction of recognised physical illness which indicates a psychiatric disability, are in part responsible for this variation which tends to reveal more about the individual worker's diagnostic habits, than the population studied (Kessel and Shepherd, 1962).

Goldberg and Blackwell (1970) showed that accurate diagnoses are difficult even for the doctor who is well motivated and has expert training. In their study 20 per cent of patients with " conspicuous psychiatric morbidity " were detected by a questionnaire, only two-thirds of whom were recognised in general practice. It is now about ten years since Shepherd and Cooper (1964) discussed these problems and the situation remains much the same today.

Difficulties in classifying diagnoses in general practice

The problem of making an accurate diagnosis in general practice is a difficult one. Brouwer (1963) concluded that as a general practitioner " the determination of the disease unit did not usually succeed " and he pointed out that the general practitioner more than the specialist runs the risk of being accused of incomplete or incorrect diagnoses.

Perhaps Gardner (1970) is right when he says that " the reason so many illnesses seen in general practice remain undiagnosed is because in the present state of our knowledge, no diagnosis is possible ". In support of his argument he quotes Sir James MacKenzie (1920) " The intelligent practitioner is never long engaged in practice before he discovers he is unable to recognise the ailments of a great majority of his patients."

Some difficulties undoubtedly arise from inconsistencies in the *ICD*; for example the coding of enuresis. In our study enuresis of a ' non organic ' nature was coded as 306·6 while that presumably associated with organic disease was coded under the number 786·2. Nevertheless nocturnal enuresis was coded also under 786·2.

Sometimes difficulty was encountered when a diagnosis was not listed in the *ICD*. Examples from Table 1 include: introspection, functional bowel upset, marital disharmony, perianal haematoma, and retrosternal discomfort.

Occasionally a double diagnosis, usually a disease and its complication, caused difficulty. Examples were upper respiratory tract infection (with bronchopneumonia) and inadequate personality with anxiety features. Here a clear directive to code both diagnoses should have been given.

Clearly the main difficulty arises from the use of loose terminology. This is well shown in Table 1. Terminological faults include the use of several words when one or two will do (e.g. enlarged lymph nodes=lymphadenopathy), failure to specify the site or nature of a disorder (e.g. functional bowel upset, diarrhoea, bruising, peripheral oedema), or the use of obsolete terms (e.g. hypopotassaemia=hypokalaemia).

Often where precise diagnosis was not possible the terminology used to describe a symptom or symptom complex was too vague. What for example was meant by reactive headache—reactive to what? Does vaginal itch mean pruritis vulvae or has it some more obscure Freudian origin? The answer to these difficulties is self evident. Precise terminology is necessary if people other than doctors are to be involved in the classification of clinical data.

Validity checks

There have been several reports from general practice on morbidity recording, but only one has included worthwhile validity checks (Morrell, 1970). Our problem has centred

around the deficiencies of the *ICD* and partly the inexperience of doctors using this code. In addition, no validity checks have been made and we believe that it is essential to exercise considerable self-discipline in recording. Given this, the data collected should be invaluable in the future planning of health services in the area.

In Livingston mistakes which have been made in the past rob much of the data which was previously recorded of its significance. A computer enabled Barber (1971) to compile morbidity statistics for his practice in 1970, but this was an uncritical report and no conclusions can be drawn from it. If morbidity recording as practised by us is to be extended, the aims and objects of the recording system will require critical definition and built-in validity checks.

The findings in this study have made us more critical of our diagnoses but at the same time it would be unfortunate if we were to invent diagnoses because the system demands a title for a disease. We should perhaps, look more closely at the ideas of Hull (1969) and Morrell *et al.* (1971) who have put forward their systems as alternatives to the *ICD*. Hull has developed his own five-digit code for classifying clinical conditions, and Morrell has used the symptoms presented by the patient as a baseline for clinical recording. In addition the concept of problem-orientated medical records must be considered (Weed, 1969).

Despite the problems of classifying the unclassifiable or defining the vague, it is good clinical practice to be as precise as possible in diagnoses. The solution to the problem is probably not one of devising new systems of classification, but of improving the *ICD*. The *ICD* for all its limitations and inconsistencies, does permit the classification of many symptoms and ill-defined conditions under section XVI—" Symptoms and ill-defined conditions."

The use of a fourth digit, or perhaps preferably, an alphabetical suffix may often allow an extension of a code number to include variations in aetiology, or the extension of a code number to include symptom complexes. This study does however convincingly show the need for much more precision and consistency in the use of medical terminology by doctors whatever system of classification is used or devised.

Summary

The Livingston recording system is still in its infancy but this small study has highlighted some important points. An ideal code has not yet been found for morbidity recording in general practice, but where the *ICD* is used it is important that doctors are fully conversant with it.

Where data processing by machine is introduced, doctors must beware of leaving too many decisions of coding to non-medical personnel. Validity checks should be incorporated in any large scale project otherwise results may be meaningless.

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