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Use of Read codes in development of a standard data set

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General practice has a wealth of data that could be used for purposes such as assessing health needs, planning, and audit. If this potential is to be realised appropriate data must be easily accessible and of high quality. This article describes the experience of an information project team in developing and coding a standard data set, with the aim of meeting the needs of commissioners, public health, and general practitioners. The Read coding classification seemed the logical choice for the standard data set because Read codes are the basis of a standard classification of general practice data. However, the coding structure has several weaknesses that were difficult to resolve, and the standard data set had to be changed to match available codes. This paper may prove helpful to similar project teams attempting to develop and use a standard data set.

General practice is potentially a rich source of computerised information as over 80% of practices have computers[1] and 99% of the population are registered with a general practitioner. Although systems have been developed to assist clinical management, analysis of practice held information could highlight areas of clinical need. Resources could then be directed to these areas to restore the principle of equity in the NHS, which has recently been eroded.[2]

As a way of maximising the potential of computers in general practice, the Joint Computing Group of the Royal College of General Practitioners and the General Medical Services Committee recommended the Read codes for the standard classification of general practice data.[3] Although it did not fulfil all the criteria set by the group, the Read clinical coding classification (now known as Read 1) was most suitable as it allows access to a thesaurus of medical terms expressed in language suitable for general practitioners that is based on a hierarchical structure.[4] The intention with Read coding was to produce comprehensive information about individual patients to allow clinical decisions to be better informed and, by ensuring compatibility, to allow comparison of data for assessment and audit of

health needs.[3] Accurate and comprehensive data would also provide the sampling framework for clinical and organisational research and development of services.

The Department of Health subsequently purchased the Read clinical coding classifiction,[5] and the National Coding Centre at Loughborough was established to maintain and develop the Read codes. Modifications have resulted in the widely available version 2 and the recently released version 3 of the Read codes. The Read classification, therefore, has almost universally been welcomed as the panacea of needs for computerised clinical information.

The setting

The Wakefield and Pontefract primary care health information project was formed in April 1992 with growing awareness of the importance and use of information in primary care. It consists of a network of 10 general practices and representatives from public health medicine, the family health services authority, and researchers from the University of Leeds. The aims of the project are to improve the collection and transfer of high quality data from primary care by developing and coding a standard data set and to test its use for assessing health needs and planning management.

Developing a standard data set

The purpose of the standard data set was to encourage a consistent and uniform approach to the collection of potentially useful data by the practices. In order to engender a feeling of joint ownership and motivation to pursue the goals of the project, the data set was developed collaboratively by a working party of representatives from general practice, public health, and the University of Leeds. The items in the data set were defined by reference to practice demography, morbidity, and lifestyles which the working group agreed were of value to the practices and useful for wider planning of health care. Consideration was also

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given to the fact that the collection of the data had to be feasible. The process of developing the standard data set was pragmatic, as it was only after the requirements of the data set had been determined that the data items were matched to a coding classification. As such, the project team did not set out to evaluate Read coding.

Choosing a coding system

The purpose of coding the standard data set was to create a common vehicle for communicating clinical information easily between the interested parties. The Read coding classification seemed the logical choice for the standard data set as it is the coding system of the NHS,[5] it has been generally supported by the profession,[3] it is claimed to be the most widely used,[4] and future requirements for accreditation of general practices will insist on Read codes.[6] Despite the comprehensive claims for the coding structure, however, we found that matching the data set with the current available Read codes (version 2) raised several important problems that could not be ignored and forced us to modify the data set.

The problems

The problems identified included lack of a hierarchical structure, the absence of adequate coding for family history of certain morbidities, the lack or misuse of standard definitions for data about lifestyle, inconsistencies in codes for recording the outcomes of care, and an inability to code for the severity of some morbidities.

LACK OF HIERARCHICAL STRUCTURE

Although the accumulation of accurate data about lifestyle is important for developing a health promotion plan in general practice, at a local or national level, even the recording of data about smoking was found to be unnecessarily complex for our purposes (see box). The standard data set required Read codes for the simple classification of smoker or former smoker, but none was available. A true hierarchical structure for this risk factor would have started with these codes, but the only codes available needed a qualifying statement; for example, light smoker or former heavy smoker, of which there are five choices. Alcohol consumption likewise starts with the levels of alcohol intake rather than drinking or not drinking alcohol. We were concerned that the collection of more detailed data was therefore required than was initially expected; as a consequence, this might demotivate practices and result in less data being collected.

Similarly, the hierarchical coding structure for diabetes, although satisfactory for type and management, presented us with difficulties when we attempted to describe the complications of diabetes (important for both short and long term planning of services) and necessitated switching morbidity chapters. No data were lost in coding, but accessing data from the data set became more cumbersome and less user friendly. Again this raised the possibility that practices would be less inclined to collect data on this aspect of diabetes.

LACK OF ADEQUATE CODING FOR FAMILY HISTORY OF MORBIDITIES

Ascertaining and recording family history of morbidities is important for assessing whether patients may be at risk. Gaps in the hierarchical structure were apparent, however, even for the common morbidity ischaemic heart disease. Although it was possible to code for a "family history of," there was no code for no family history of this morbidity. Leaving the entry blank is ambiguous; is there no family history or has

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the question not been asked? The only code available was "no relevant family history," which was too general and imprecise for our purposes.

LACK OF OR MISUSE OF ACCEPTED DEFINITIONS FOR LIFESTYLE DATA

Read codes should facilitate the recording of clinical data and reflect accepted clinical terms used by doctors during consultations. The Read coding of alcohol consumption in terms of units a day, though not incorrect, is contrary to the standard practice of recording number of units a week,[7] as in our proposed data set. We found a similar inconsistency with exercise, a risk factor which is becoming more prominent and for which coding should be consistent with other methods of ascertaining levels of exercise.[8]

INCONSISTENCIES IN CODES FOR RECORDING OUTCOME OF CARE

The ability to retrieve data on outcomes of care is necessary for evaluating the organisation and effectiveness of clinical care. We found inconsistencies in the Read coding for the outcome of diabetic care. For example, glycated haemoglobin concentrations can be usefully coded in terms of good, borderline, or bad control, whereas coding of serum fructosamine concentration, an alternative outcome measure, indicates only whether the test has been performed and no codes exist to demonstrate the quality of diabetic control.

LACK OF CODES FOR RECORDING SEVERITY OF MORBIDITY

Information about the severity of a morbidity is vital for assessing health needs and predicting future requirements for services. We thought it important to grade ischaemic heart disease, which features prominently in the government's health strategy,[9] in terms of mild, moderate, and severe. The Read coding structure, however, does not presently allow this. We tried an alternative approach of linking the severity of a morbidity with drugs prescribed, but this proved to be too non-specific for our purposes and was therefore removed.

Discussion of problems and possible solutions

Problems with matching our proposed standard data set with available Read codes occurred despite claims that the thesaurus of terms covered the breadth of health care.[4 10] Our standard data set had to be changed to match available codes rather than being able to meet predetermined requirements.

The National Coding Centre places great store on the hierarchical structure of the Read coding classification. It did not meet our needs, however, for recording data about smoking and alcohol consumption. Similarly, the absence of adequate coding for a family history of certain morbidities and the lack of or misuse of accepted definitions for data on lifestyle gave us and the participating practices further difficulties. From our perspective, there seems to be no logic to such inconsistencies. They may create confusion for individuals and do not encourage accurate collection or easy analysis of data.

The absence of coding for serum fructosamine concentrations may be a simple omission, but it forced us to a lack of symmetry between two measures of diabetic control. The reason why this omission has escaped detection needs to be addressed. We were also disappointed that we were unable to code complex information on morbidity for the purpose of assessing health needs. This is despite claims that Read codes will aid the planning of health care services.

These apparent discrepancies may suggest that we have used the Read coding classification for a purpose that it was not designed to fulfil. The problems we identified may be intrinsic to a simple classification structure of this kind and, as such, cannot be readily rectified. Despite the coding classification's obvious strengths we, like other users, may have had unrealistic expectations of it that are impossible to fulfil because of the intrinsic assumptions in its structure.

Conclusion

The value of computers in improving the quality of patient care in general practice is recognised.[11] Consensus seems to have been reached regarding the use of Read codes for classification of data in the NHS.[3] Our project, however, has shown difficulties with the coding system that can mainly be attributed to two features; firstly, the lack of a true hierarchical structure and, secondly, apparent gaps in the coding. Such difficulties may not be unexpected as a coding classification will only fulfil the functions it was designed for, irrespective of the claims made about it. As a result, substantial compromises had to be made in our standard data set even before it was sent to practices to test the practicalities of retrieving the data.

The problems with the Read coding structure, which have recently been the subject of much debate,[12] must be recognised and addressed if the potential of information from primary care is to be achieved. The clinical terms projects have made modifications to Read codes by the use of qualifiers to create more flexible ways of representing clinical terms.[10] The obvious disadvantage is an increase in technical com-plexity and a move away from a coding classification that is user friendly.

The demand for comprehensive and valid data is high, and other health care agencies are embarking on similar information projects. Despite claims that Read codes (version 3) will solve all problems, barriers to widespread networking of information and the inherent weakness of Read codes (version 2) may still exist. For example, even in our small project group not all practices use Read codes.

In the meantime we suggest that groups planning similar information projects use the Read codes from the outset to inform and guide the content and format of their proposed data sets. In addition strategies should be used to promote ownership by all partici-pants in order to encourage the collection and sharing of high quality information.

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How To Do It

Use facilitated case discussions for significant event auditing

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An important type of review undertaken routinely in health care teams is analysis of individual cases. This informal process can be turned into a structured and effective form of audit by using an adaptation of the "critical incident" technique in facilitated case discussions. Participants are asked to recall personal situations that they feel represent either effective or ineffective practice. From such review of individual cases arise general standards to improve the quality of care. On the basis of a study of audit of deaths in general practice, we describe how to implement such a system, including forming and maintaining the discussion group, methodology, and guidelines for facilitators. Problems that may arise during the case discussions are outlined and their management discussed, including problems within the team and with the process of the discussions.

Medical audit has traditionally taken place within a group composed of members of the same clinical specialty. However, multidisciplinary teamwork is usual in health care, so clinical audit may be a more effective means of bringing about change within organisations.[1 2] One informal but important type of review that is routinely carried out within clinical teams is analysis of individual cases—for example, as an educational exercise ("random case analysis") in vocational training in general practice and as a discussion between general practitioner and district nurse after the death of a terminally ill patient. This informal process can be turned into a more structured (and acceptable) method of internal audit using an adaptation of the "critical incident" technique,[3] originally developed in the 1950s.[4] Critical incidents are collected by asking participants to recall situations that they think are examples of good or bad practice in the particular setting being studied. The participants describe what first occurred, the subsequent events, and why they perceived the incident to be an example of effective or ineffective practice. This technique has