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## Use of Read codes in diabetes management in a south London primary care group: implications for establishing disease registers

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Editorial by Gardner

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### Abstract

**Objective** To establish current practice in the use of Read codes for diabetes.

**Design** Cross sectional study.

**Setting** 17 practices in the Battersea primary care group in southwest London.

**Data sources** Computerised medical records.

**Main outcome measures** Number of codes in use in all practices; variation in the use of codes between practices; and prevalence of Read code use in diabetic patients.

**Results** At least 9 separate Read code groupings and 25 individual diabetes codes were in use in the 17 general practices. Only one Read code (C10, diabetes mellitus) and its subcodes was being used in all 17 practices, but its use varied from 14% to 98% of patients with diabetes. The use of other key Read codes for monitoring the care of patients with diabetes also varied widely between practices; for example, < 20% of practices used the code for the location of care. Less than half of patients (45%) with diabetes had their type of diabetes coded, and even fewer (21%) had measures such as the examination of the retina coded.

**Conclusions** The use of Read codes for diabetes needs to be standardised and coding levels improved if valid diabetic registers are to be constructed and the quality of care is to be monitored effectively. Until all patients with diabetes have the C10 Read code recorded, clinicians will have to use a wide range of Read codes and prescribing data to ensure that diabetes registers are complete.

### Introduction

Diabetes is associated with considerable morbidity and mortality, and improving its management is a priority in England and Wales.<sup>1 2</sup> The government envisages a much greater role for primary care in managing

diabetes<sup>3 4</sup> and has launched several initiatives. These include an expansion of services for patients with diabetes through greater investment in primary care, the creation of specialist general practitioners,<sup>5</sup> baseline assessments of current services in primary care trusts to help plan services,<sup>6</sup> a draft national specification for diabetes registers,<sup>7</sup> and improvement in patient care through investment in information and communication technology.<sup>8</sup>

Accurate disease registers will be essential to improve the care of people with diabetes.<sup>9</sup> Read codes were developed in the 1980s and are currently used to code clinical data in primary care in the United Kingdom.<sup>10</sup> New codes are released regularly by the NHS Information Authority. In addition, producers of general practice clinical computer systems can add their own codes, as can individual practices.

The box gives an example of a Read code hierarchy. The Read coding system is complex, and a disease can be coded in many different ways—for example, through a specific disease code, history and symptoms, or investigations and procedures. This can lead to wide variations in the way in which general practitioners code clinical problems. We examined the Read codes used in recording information on the management of diabetes in one primary care group, as the first step in developing a local disease register.

### Methods

We used a two stage process to identify Read codes currently being used to record the management of diabetes in 17 general practices in the Battersea Primary Care Group in southwest London. Firstly, we tried to identify all patients with diabetes and all the Read codes associated with their management. We then calculated the proportion of patients for whom each code was used. All 17 practices used the EMIS computer system.

In the first practice searched, we identified patients with diabetes by using the C10 code for diabetes (and all its lower level codes) and drugs used to treat diabetes. We identified additional Read codes used in managing diabetes by viewing all the codes used in patients with diabetes, including codes for the complications and management of diabetes. We repeated this process in the remaining practices and continued to add codes for diabetes. We also checked patients' computerised records to confirm that they had diabetes.

We then searched each practice again using all the codes for diabetes that we had identified, as well as drugs used in the treatment of diabetes. We calculated the proportion of practices that had used each Read code for diabetes and the proportion of patients with diabetes who had the code in their electronic medical record. We also examined how often other relevant Read codes—such as those for blood pressure recording and measurement of serum cholesterol concentration—were used in patients with diabetes. These “non-diabetes” codes, however, were not used to identify patients with diabetes.

## Results

We identified 2512 patients with diabetes in the 17 practices (total list size 98 705), an overall prevalence of diabetes of 2.54%. By the time we reached the final few practices, no further Read codes for diabetes were found.

Only one code (C10, the generic code for diabetes) and one EMIS specific code (EGTOND1, denoting that dietary advice was given) were in use in all of the 17 practices. Fourteen codes were used by more than 60% of the practices, and two practices used codes that were found only in their own practice. Although a code may be found in a practice, it will only be used to code a proportion of patients with diabetes—for example, the percentage of patients coded with the C10 code in each of the 17 practices ranged from 14% to 98%.

Of the patients with diabetes, 1593 (63%) had been given the C10 code for diabetes or one of its subcodes. Among patients with a C10 code, 872 (55%) had no subcode identifying their type of diabetes. Treatment codes were used in 11 (65%) practices and in 963 (38%) patients. “Place of care” codes (hospital clinic, primary care, shared care, diabetes clinic) were used in only three (<20%) practices and in only 197 (8%) patients.

The process of care code 66A (diabetes monitoring), which indicates that a consultation about diabetes has taken place, was used in 94% of practices. Examination of the ankle reflex was used in 71% of practices but in just 11% of patients, and examination of the retina was used in 82% of practices and 21% of patients. Codes for measurement of blood pressure, HbA<sub>1c</sub>, and cholesterol were used in 86%, 62%, and 51% of diabetic patients respectively. Only 4% of patients had a record of being assessed for their risk of an acute coronary event on the basis of the Framingham risk score.

## Discussion

We found that the overall prevalence of diabetes was 2.54%—similar to the prevalences of 2.4% in males and 2.0% in females in a recent large study covering

England and Wales.<sup>11</sup> This suggests that the search process was comprehensive.

All 17 practices in one locality participated, so the findings are likely to give a true representation of everyday practice. Furthermore, the Battersea area of London varies widely in its socioeconomic characteristics and has a high proportion of patients from ethnic minority groups.<sup>12</sup>

The study will have identified only the diabetic patients who had a Read code for diabetes or another diabetes related code or who had been prescribed medication for diabetes. Some patients, particularly those with diet controlled diabetes, may have been missed by this strategy, as would people whose diabetes had not been diagnosed. The process of care in actual practice is likely to be better than suggested by the coding data, because many general practices may be providing care but not coding this information on practice computers. Some patients will also be receiving treatment in hospital clinics, which may not be recorded in primary care.

### Comparison with previous research

The most common method of developing diabetes registers in primary care has been through identifying patients with a diagnostic code for diabetes. This may underestimate the prevalence of diabetes because many patients do not have such a code recorded in their computerised medical record; we found a higher prevalence of diabetes than the 1.2-1.5% reported in previous studies.<sup>13-16</sup> However, some of the difference may be because the populations in those studies had different ethnic and socioeconomic characteristics from those in Battersea.

Disease registers can also be produced by using record linkage to combine information from different databases. A study using record linkage in Tayside found a prevalence of diabetes of 1.9%,<sup>17</sup> but this lower prevalence may have been because of the smaller proportion of people from ethnic minorities in the Tayside population.

### Implications for practice

Firstly, with the introduction of the new contract, a substantial component of general practitioners' income will come in the form of “quality payments” for providing care that meets specified standards. Much of the information needed is likely to come from computerised medical records. Furthermore, if general practices do not record key information on their computers,

#### An example of the Read code hierarchy

- C Endocrine or metabolic disease
- C1 Other endocrine disease
- C10 Diabetes mellitus
- C100 Diabetes mellitus with no complications
  - C108-1 Insulin dependent diabetes mellitus
  - C109-1 Non-insulin dependent diabetes mellitus
  - C108-2 Type 1 diabetes mellitus
  - C109-2 Type 2 diabetes mellitus
  - C108-3 Type I diabetes mellitus
  - C109-3 Type II diabetes mellitus
- C1000 Diabetes mellitus of juvenile onset with no complications
- C1001 Diabetes mellitus of adult onset with no complications

**What is already known on this topic**

The prevalence of diabetes in Britain is increasing, so improvement in the management of people with diabetes is a national priority

Accurate diabetes registers are needed in primary care to improve quality of care for people with diabetes

**What this study adds**

Only 63% of patients with diabetes in one primary care group in south London had the C10 Read code for diabetes recorded; the rest had diabetes related codes or prescription codes

Until all patients with diabetes have the C10 Read code for diabetes recorded in their computerised medical records, doctors will have to use a range of codes to identify people with diabetes

then monitoring of the national service framework for diabetes will be inaccurate (see [www.quids.org.uk](http://www.quids.org.uk)).

Secondly, the findings illustrate how much work needs to be done to improve coding levels in primary care and standardise the use of Read codes. This will require substantial investment in hardware, software, and training. Thirdly, better integration is needed between hospital and primary care information systems.

**Conclusions**

Our findings illustrate the size of the task that faces the NHS in improving the quality of electronic health records in primary care, developing disease registers, and implementing important components of the NHS information technology strategy. As a minimum, all patients with diabetes should have the C10 Read code and the appropriate subcode recorded on the practice computer system. Until this happens, clinicians will have to use a wide range of Read codes together with prescribing data to ensure that diabetes registers are complete.

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