How reliable are stroke patients’ reports of their numbers of general practice consultations over 12 months?

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Background. Data on primary health care use are frequently used in economic evaluations. However, it is unclear how patient self-reports of their number of consultations with their general practitioner (GP) relate to actual consultations in the electronic records. These data are crucial if self-reports are used to conduct economic evaluations.

Objectives. To report the accuracy of stroke patients’ self-reports of their number of primary care consultations over a 12-month period by comparison with practice-held electronic records. We also recorded the number of contacts required to collect service use data from the practices.

Methods. We contacted 65 practices requesting electronic consultation records over 12 months for 115 stroke patients who took part in a trial of home blood pressure monitoring. Consultation rates from the electronic records were compared with patients’ self-reported number of consultations from a questionnaire covering the same period.

Results. Fifty-one practices (78%) responded. Patients’ questionnaires (n = 83) reported a mean of 5.7 consultations with their GP per year compared with 7.2 in the electronic records (difference 1.6, 95% confidence interval 0.5–2.7, P < 0.01). The mean time taken to obtain records from practices was 6 weeks.

Conclusions. Patients modestly under-reported the number of consultations they had with a GP. Obtaining patient records from practices required more effort than obtaining information from patient questionnaires at the same time as assessing main trial outcomes. If patient self-reports of health care usage are used in economic evaluations in primary care, researchers should consider validating a sample against electronic records.

Keywords. Consultation rates, electronic health records, patient reports, primary care, reliability.

Introduction

The National Health Service continues to face growing pressure to control costs and justify spending. Estimates of the cost-effectiveness of interventions to improve health often include information on patients’ attendances in general practice. Evidence of the reliability of patients’ reports in UK primary care is lacking. Reports from other countries suggest a tendency for patients to under-report the number of consultations with a doctor, particularly among older patients and those with high consultation rates. However studies are conflicting. A ‘telescoping’ effect whereby patients tend to underestimate time elapsed when recalling past events may lead to over-reporting of service use. Patients with chronic diseases generally utilize primary care more frequently than the general population and they therefore form an important group in terms of health economics. A recent review of methods for collecting resource use data within clinical trials has highlighted the need to balance potential recall bias when relying on patient self-reporting, against the cost, time burden and completeness of information obtained from medical records. Other authors have suggested the need for further research to assess different data collection methods.

We recently completed a large trial of home blood pressure monitoring in 381 hypertensive stroke patients recruited from hospital stroke clinics and wards. Patients were eligible for the trial if they had had a stroke or transient ischaemic attack (TIA) within the last 9 months, were hypertensive and did not have any severe co-morbidity (e.g. terminal cancer) or severe cognitive impairment defined as an Abbreviated Mental Test Score (AMTS) less than 7. We aimed to compare stroke patients’ self-reports of their primary care consultations in the 12 months following recruitment with that recorded in their computerized primary care records.
care records. In addition we recorded the number of contacts required and time taken to collect primary care records directly from a group of practices. We also examined possible predictors of reporting bias: age, gender, average number of general practice visits and anxiety. Emotional state is known to influence memory of clinical encounters. In particular, high and low anxiety levels can negatively impact on recall ability. Lastly, we compared consultation rates in our cohort to the national average from QResearch matched for age and sex.

Methods

We included all 115 hypertensive stroke patients from 65 practices who had completed their 12 months questionnaire prior to October 2009. The questionnaire was posted to the patient and collected by a researcher at a home visit. If the patient and/or carer had not completed the questions, she helped them. In the questionnaire, patients were specifically asked how many times in the past year had they attended their own general practice to see a doctor or a nurse. For comparison we sent a letter to the practices enclosing a copy of the patient’s consent form agreeing to access to medical records. We requested all consultation records for the same 12-month period for that patient and asked that these be sent via an NHS email account, secure fax or post.

Number of consultations over 12 months reported in the patient questionnaires were compared with the numbers of consultations in the electronic records, and the effect of possible predictors of reporting bias were assessed using boot-strapped regression with 1000 replicates in Stata. Bias-corrected confidence intervals were reported. Predictors included age, sex, disability (defined as Rankin score greater than 1), number of consultations and whether or not the patient was anxious, based on the FEAR screening instrument in the 12-month follow-up questionnaire. We calculated the expected number of consultations for our study population based on national rates for 2008 broken down by age (in 5-year bands) and sex using data from QResearch.

Results

Fifty-one practices out of 65 (78%) sent practice consultation data on 87 patients. The mean age of these 87 patients was 73 years (range 33–91). 64% (56/87) were male, and 47% (41/87) had some disability due to stroke (Rankin score >1). Thirteen patients (15%) had a baseline AMT score <10, of whom 10 had an AMT score of 9. On the patient questionnaire, four patients (5%) did not complete the question about the number of consultations with their general practitioner (GP) and 14 (16%) did not complete the one about nurse consultations.

Table 1 shows patients significantly under-reported the number of GP consultations over 12 months but only by a modest amount; 1.6 (95% CI 0.5–2.7); P = 0.004. This represents a degree of under-reporting by patients of 22% (1.57/7.22) when compared with the electronic record. There was also a (statistically nonsignificant) tendency to under-report nurse consultations [0.5 (−0.2 to 1.2); P = 0.12]. Under-reporting was not significantly associated with age, sex, total number of visits, disability or being anxious (based on the FEAR screening instrument on the 12-month questionnaire), although there was some suggestion that under-reporting might be more common in older patients.

Using data from all 87 patients, the expected mean number of consultations with the GP for patients with the age sex profile of our sample using national rates from QResearch was 5.1 compared with 7.0 observed using electronic records. Patients had an average of 2.0 consultations with the nurse, making a total of 9.0 consultations with a GP or practice nurse over 12 months. Nurse consultations accounted for 22% (2.0/9.0) of the total consultations with either GP or nurse compared with a national average of 36%.

Obtaining data directly from practices took an average of 6 weeks (range 0–17). The average number of contacts required by us in the form of telephone calls, letters, e-mails and faxes to receive the relevant information was 6, although there was considerable variation (range 1–22 contacts). Four practices asked about financial remuneration, which unfortunately was unavailable.

Discussion

Principal findings

Compared with electronic practice records, stroke patients under-reported the number of consultations they had with their GP and practice nurse over a 12-month period by an average of 1.6 and 0.5 consultations, respectively. Obtaining data from a large group of practices took several weeks, and even with repeated contacts, information was not returned for almost a quarter of patients. By comparison, collecting information on reported GP visits from patient questionnaires at the same time as assessing main trial outcomes was relatively easy.

Strengths and limitations

This is the first UK-based, multipractice study comparing self-reported and electronically documented consultation rates in stroke and TIA patients. Most patients were elderly and nearly a half had some disability due to stroke. To our knowledge, this is also the first study
to describe the length of time and number of contacts associated with obtaining data on patient attendances from an unselected group of nonresearch practices.

The principal limitations of our study were the small sample size, leading to low power to detect predictors of reliability, and that we may have compromised our response rate from the general practices by attempting to obtain comprehensive consultation information, rather than sending them a simple one page form to return. Data may also have been obtained more readily from practices by contacting them directly by telephone in the first instance, rather than by post. In addition, although most patients and/or their carers completed the questionnaire unaided, it was collected by a researcher at a home visit, rather than posted back. However, in this study face-to-face follow-up was required to collect the main outcome data (blood pressure measured at home) and if assistance from the researcher was required with the questionnaire this only took around 10 minutes. Patients were asked to report on the number of consultations during the past year, whereas the practices were requested to provide information for the one year following the exact date of recruitment to the study, a more precise period. Finally as we only recruited stroke patients the results may not be generalizable to all older people. However, we achieved an 80% response rate on recruiting eligible patients from stroke clinics to our main trial.

Comparison with existing literature
There is a lack of robust UK studies comparing patient and GP reports of consultation rates, particularly in patients with chronic diseases. The slightly increased consultation rate compared with age- and sex-matched patients in QResearch was likely to be because our patients had all had strokes. They also appeared more likely than QResearch patients to see the GP than the nurse, perhaps reflecting complex co-morbidities. Previous authors looking at postnatal women and psychiatric patients have shown comparable levels of under-reporting of GP consultations over a 12-month period by a mean of 1.9 visits in both cases. A study of 219 UK patients over age 60 found that they under-reported community health service use, concluding that relying on patient questionnaires may therefore lead to under-estimation of costs. However, Patel et al., recruiting a
primary care population, found excellent levels of agreement between patient and electronic reports (3.03 consultations from records and 2.99 from patient reports). Their subjects were not cognitively impaired and their mean age was 44 years, considerably younger than our patients. We found a nonsignificant tendency for older patients to under-report compared with younger patients, in line with studies conducted outside the UK. These suggest that increasing age and consultation frequency may be associated with under-reporting of primary care service use. In agreement with our experiences, Coole et al. found that collecting service use data directly from general practices required substantial resources and concluded that patient self-reporting may therefore be a more practical option.

Implications
Although electronic records provide objective primary health care utilization data, obtaining them can require repeated contacts to general practice staff over several weeks. Researchers may be advised to programme the process with sufficient time to maximize the response rate. Practice remuneration for the work might achieve more complete data collection. However, in this group of predominantly older patients with high primary care use, patient self-report data only modestly under-reported primary care consultations. Many trials will require face-to-face interviews for collection of outcome data; and the additional time involved in collecting consultation data from the patient at the same time is minimal. A compromise solution for triallists might be to collect self-report data on all patients and validate this against a sample of patient records. In addition, using a self-report questionnaire may allow data on other variables to be collected. Our results may also form the basis for modelling when calculating service utilization statistics.

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Declaration

References
13. Statsa version 8 StatCorp College Station, Texas, USA.