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Primary healthcare teams' views on using mortality data to review clinical policies

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Background and objective: A UK-wide scheme to monitor mortality in general practices has been recommended to improve safety. A monitoring scheme might also have a role in improving quality by informing clinical policies. This study investigated the views of primary care teams on the desirable characteristics of mortality data to help them review and plan their clinical policies.

Setting: 10 general practices in Leicestershire, UK.

Methods: Development of a format for presentation of mortality data for primary care teams, presentations of the data to team meetings, and subsequent interviews of 16 general practitioners and nurses to identify issues about the improvement and use of the data for informing clinical policies.

Results: The presentation was important in helping teams to understand the data. Comparisons should be between practices with similar patient populations, and information provided on deaths from diseases potentially amenable to prevention through clinical intervention. Practice teams used the data in reflecting on their own clinical care.

Conclusions: Presentation of data about mortality in practice populations can enable practices to reflect on their clinical policies. The proposed national scheme for monitoring mortality should provide data in a format that helps teams to improve the quality of care as well as improve patient safety.

Interest in monitoring mortality in general practice has increased, and several local schemes have been described.^{1–4} Monitoring has two aims: first to detect unusual death rates and second to provide practices with information to support clinical policies. In the UK, after the Shipman case, attention has focused on approaches to detect unusual rates of death, and the development of a national scheme has been recommended.^{5–6} However, provision of data may help practices ensure contact with the bereaved² and allow them to compare their death rates with the local rates.⁴ Although the methods that might be used in a monitoring scheme have been partially explored,^{3–7–8} less attention has been given to the potential in helping practices understand and plan for the healthcare needs of their patients. Therefore, we undertook a study to investigate the potential use of mortality monitoring data as perceived by primary healthcare teams.

To plan and review their clinical policies, primary care teams need information on the likely association between the care they provide and outcomes observed, rather than the identification of major variations from an expected rate of death. The aim is to allow appropriate decisions on clinical policies. Consequently, in this study we sought to investigate teams' views on the role of mortality data in reviewing clinical policies and the format of data they regarded as most helpful.

METHODS

We conducted this study in 2005–6 in two Leicestershire primary care trusts (PCTs), one suburban and the other urban and inner-city. All practices (approximately 50 in total) in both PCTs were sent information about the study, indicating that the purpose was to develop a practical method for presenting mortality and outcomes data to allow teams to plan clinical policies. They were invited to take part, and from those that agreed we selected 10 to ensure variety in size, location (inner city, suburban or rural), and socioeconomic profiles of patients.⁹

Data were provided by Leicestershire and Rutland Health Information Service, which has a system that allows hospital admission and mortality data to be linked with practices. Six indicators were selected on the basis of the condition being common, potentially amenable to improved care, and reliably recorded. The following indicators were used:

- all-cause mortality (all ages);
- mortality due to coronary heart disease and myocardial infarction (aged 75 and below);
- total hospital admissions;
- emergency hospital admissions;
- admissions for coronary events and myocardial infarction (aged 75 and below) using the diagnostic codes at discharge (including death);
- case fatality rates following admission for myocardial infarction and coronary events.

These data were presented in a format developed to allow practices to compare their rates with those from other similar practices (examples in figs 1 and 2 and tables 1 and 2). Annual data for the years 1999–2003 were provided, with the total numbers of deaths and admissions over the 5-year period. The funnel plot in fig 1 shows standardised mortality ratios (SMRs) for each practice, plotted against the expected number of deaths in each practice based on death rates in Leicestershire and Rutland as a whole, by age and sex. Thus the SMR in any particular practice can be compared directly with those for practices with similar expected numbers of deaths, and the approximate confidence intervals indicate the range of SMR values which might be expected in the absence of specific additional risk factors. Figure 2 illustrates how variations in

Abbreviations: GP, general practitioner; PCT, primary care trust; QOF, quality of outcomes framework; SMR, standard mortality ratio

Figure 1 Funnel plot of practice coronary heart disease standard mortality ratios (SMRs) versus expected number of deaths in practice and practices in Leicestershire and Rutland, 1999–2003.

SMRs between practices with similar expected deaths can be explored, in this example by plotting variations against a measure of deprivation. A presentation by one of the researchers (RB), which included tables and figures, was made to each practice team, followed by discussion of the implications; each team meeting lasted between 0.5 h and 1 h. The meetings were observed by another researcher (ES), notes on process and content of the meetings being made during or after the meetings. Practices were also provided with copies of the presentation on paper or disk.

Interviews conducted with general practitioners (GPs) and practice nurses were the principal source of information on the teams’ views of the data. We sought to interview a GP and nurse from each practice within 10 days of the presentation. The interview schedule is shown in box 1. We also interviewed the two PCT clinical governance leads using a modified version of the interview schedule after giving them summary data on paper to explore their views on the format and utility.

One researcher (ES) conducted all the interviews, which were recorded and transcribed. We undertook an iterative thematic analysis,¹⁰ adapting the interviews as the study progressed. The transcripts were reviewed independently by ES and RB and codes generated according to the themes identified; differences between the reviewers were resolved through discussion. Analysis was supported by use of NUD*IST. We used the observations of the practice meetings to identify issues for exploration during the interviews and to check our understanding of the themes that emerged from the interviews.

RESULTS

Twelve practices expressed interest in taking part and 10 were included, with a mean number of registered patients of 7205 (range 676–13126) and index of material deprivation scores ranging from 5.4 to 32.3.⁹ The smallest practice cared for

Figure 2 Coronary heart disease standard mortality ratios (SMRs) in practices with a similar number of expected deaths, related to deprivation, based on deaths 1999–2003. IMD, index of material deprivation.

homeless patients. The two excluded practices were a small city practice undergoing a partnership change and a large suburban practice that faced problems meeting the study timetable. We interviewed 10 GPs identified to us by the practices to give their views on monitoring, 6 practice nurses and 2 clinical governance leads.

The GPs and nurses reported having access to a range of data, including quality and outcomes framework (QOF) reports¹¹ and clinical audits. They also reported difficulties in obtaining timely information on patient deaths from hospitals and coroners. We identified three themes from the interviews—the data format, and improving and using the data.

Format of the data

The doctors interviewed felt confident they understood the data, and did not express doubts about their completeness. However, although the nurses did voice concerns at the presentation, in the interviews they revealed limited confidence in interpreting the funnel plots. Both nurses and doctors reported that the presentation with opportunity to ask questions had been useful.

“I think we understood them when we were told what they meant, I think if we’d just been sent them in the post it would have been more difficult ...” (GP 2)

Interviewees reported that the data had advantages over the information already available, being more complete, and supported by a presentation. Although some practices had a rough idea how many deaths they had in a year, they had not previously been able to compare with other practices.

Table 1 Observed numbers of deaths and acute admissions in one practice, 1999–2003, and the expected number for the 5-year period

Indicator	1999	2000	2001	2002	2003	Total	Expected
Mortality							
All-cause	147	137	118	133	127	662	648
Coronary heart disease <75	11	11	14	7	8	51	40
Acute myocardial infarction <75	3	2	4	3	1	13	14
Acute admissions							
Coronary events <75	65	68	65	88	109	395	327
Acute myocardial infarction <75	18	15	16	18	25	91	80

The expected figure was calculated from the rates in Leicestershire and Rutland as a whole, adjusted to for the age and sex distribution of the practice population.

Table 2 Standardised mortality and admission rates for one practice, 1999–2003

	Standardised mortality/admission ratios	95% CI	Observed	Expected*
Mortality				
All-cause	1.02	0.95 to 1.10	662	648
Coronary heart disease <75	1.29	0.96 to 1.69	51	40
Acute myocardial infarction <75	0.93	0.50 to 1.60	13	14
Admissions				
Coronary events <75	1.21	1.09 to 1.33	395	327
Acute myocardial infarction <75	1.14	0.92 to 1.40	91	80
Case fatality				
1 month after myocardial infarction	0.79	0.43 to 1.33	14	18
1 year after myocardial infarction	0.90	0.57 to 1.33	24	27

*Adjusted for the age and sex distribution of the practice population.

"I haven't seen anything like that before; it's interesting to see how we are doing ... compared from other practices" (Nurse 6)

Improving the data

Requests for additional information to improve utility fell into two broad groups: those for more information about the comparison practices, and those for more information on specific disease groups. Understanding the comparison practices' populations as fully as possible was crucial in generating sufficient confidence in the data if they were to influence clinical policy. Practices caring for substantial numbers of south Asian patients, patients in nursing homes, or the homeless were particularly conscious of the importance of comparing like with like.

"what would be useful would being able to compare the data with other similar practices with similar populations ... people often ask us very simple questions which are very hard to answer ... can you demonstrate a beneficial outcome as a result of all this effort? And of course we can't." (GP 10)

The data were standardised by age and deprivation to match practices as appropriately as possible. However, it was impossible at the time of the study to account for ethnicity as at that time no system was in place for recording the ethnicity of practice populations. Most practices wanted mortality data on diseases with a substantial impact on overall mortality. Emergency hospital admission data were seen as affected by factors outside practice control and therefore a poor indicator.

Using the data

Being given comparative data was reassuring for practices as it allowed them to see when their figures were within an expected range. Many GPs and nurses commented this was the main message they took away from the data:

"the practice has been working and trying very hard for many years and I really think that we probably got nowhere. However, I saw on the stats that you presented that we seemed to have a slightly better mortality rate when the correction factors were taken into play" (GP 7)

Practices also wanted information on causes of death that could potentially be influenced by care. Those that had lower than expected mortality often looked for explanations in their clinical care. One reason suggested for lower mortality was close monitoring of high-risk patients. One practice reported

having targets for particular intermediate outcomes that were more exacting than those in the QOF.¹¹

"I think the other thing we have is better targets than the QOF so our target for diabetes is not 7.5 it's 7 Target blood pressure for diabetics is not 145/85, it's 140/80" (GP 4)

Other practices did consider that the data indicated areas for improvement.

"It shows that we really need to do a clinic specifically for CHD, which we're considering anyway" (Nurse 3)

Linking findings from the mortality data to information about the process of care was also raised by some practices as a useful way of interpreting the data.

"what we want to know is of course ... driving down blood pressures and getting cholesterol down whether ... we can see a shift So that over a period of time we would hope to see some change." (GP 3)

Views of clinical governance leads

Clinical governance leads saw the data as a useful overview of local practices that could be used to detect outliers and as a prompt for further reviews of care.

They also saw the potential of the data in encouraging practices to review their clinical policies.

Box 1: The interview schedule

- Does the practice have already have data on mortality, and if so, how are the data used?
- How easy were the data to understand?
- What are the clinical implications of the data and how should the practice respond?
- Can you suggest ways to improve the way the data were presented?
- Would additional information aid interpretation of the data?

"But it's interesting that practices would go back to their QOF data once they've got their mortality data to see what they could do about it" (CGL 1)

DISCUSSION

Summary of findings

The practices in this study had limited information about mortality in their patient populations and welcomed the opportunity to see the data. The data provoked team discussions about the characteristics of their patients and the care they had provided. The ability to compare death rates with those of similar practices was seen as particularly important, and the ability to relate the data to information on processes of care was also important. The exchange of ideas and experiences between similar practices might be one approach to facilitate the adoption of practice-based initiatives to improve outcomes. A presentation was helpful in ensuring the data were fully understood. Data on conditions amenable to intervention were regarded as more useful than all-cause mortality in influencing clinical policy. Relating the data to intermediate outcomes such as cholesterol or blood pressure control was also seen as worthwhile. Improved information on the characteristics of matched practices, especially patient ethnicity, was seen as useful for making comparisons between similar practices.

Strengths and weaknesses of the study

Although our study included only a small number of practices, there was wide variation in practice size and patient characteristics; one practice cared for the homeless. We could not schedule interviews of four nurses, but as no new findings were emerging after completion of the other interviews it is unlikely that important issues were overlooked. Nevertheless, some caution is required in generalising the findings. Practices in the UK have registered populations and the findings cannot be readily applied in countries without registered patient lists. Furthermore, we used mortality and admissions data in a developmental format and the study does not, therefore, provide evidence about the utility of a monitoring scheme that has yet to be developed. It does, however, provide evidence about the desirable characteristics of such a scheme. Shorter data periods and different formats^{7 12 13} might be adopted, particularly as practices become more used to interpreting the findings.

The study was pilot in nature, and did not investigate costs of providing the data. The costs would include data preparation and the support of practice teams. Since a primary care mortality database has now been developed by the NHS Information Centre and Office for National Statistics,¹⁴ the costs of preparing the data will be limited. However, the costs of providing support would be more substantial unless this can be integrated into existing systems.

Implications

The development and piloting of a national scheme for monitoring deaths in general practice in England has been recommended,⁶ and remains under discussion.¹⁴ Since some practices still report problems in obtaining timely information about patient deaths, an improved system is needed. This study highlights several attributes required of a monitoring scheme that also facilitates implementation of clinical policies.

- The scheme should allow comparison of like with like. For most practices the identification of similar local practices will be possible, but for practices with atypical populations such as those caring for many people in nursing homes or

homeless people, comparisons with practices at regional or national level may be necessary.

- The data should support reflection on the association between process and outcome. As the data collected through performance monitoring schemes such as the QOF become more detailed, and as analyses of practice electronic systems become more efficient, it should be increasingly possible to monitor the impact at practice level of clinical policies on the outcomes of mortality and admissions.
- Practice teams will need support in making full use of monitoring data. This may involve education, or the facilitation of exchange of experiences between practices, according to local need. If a national monitoring scheme with these features is introduced, it could have an impact on the health of populations as it could inform clinical policies as well as identify outliers.

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