Differences in Quality and Outcome Framework among General Practices: Summary

As part of the Quality and Outcomes Framework (QOF), General Practices obtain points for achievements against a range of indicators which are then used to calculate financial payments. The indicators include the production of disease registers for coronary heart disease, heart failure, stroke or transient ischaemic attack, hypertension, diabetes mellitus, chronic obstructive pulmonary disease, epilepsy, hypothyroidism, cancer, palliative care, severe mental health, asthma, dementia, chronic kidney disease, atrial fibrillation, obesity and learning disabilities. Some indicators are also for specific subgroups, e.g. a diabetes register for those aged 17 years and older.

However, these clinical registers are not adjusted in any way to account for differences in the practice population, differences in the consultation behaviour of the patients, and difference in the way the practice operates and the accuracy of their records. Therefore, relatively large differences can occur in these clinical registers among practices, and the registered prevalence may be quite different from the true underlying prevalence within the community. The main reasons for this are as follows:

- Differences in age and gender structure among practices;
- Differences in deprivation among practices (influenced by poor housing, unemployment and lower paid jobs, increased stress, higher prevalence of risk factors for poor health such as smoking, obesity, poor diet, lack of exercise, etc);
- Differences in patient profiles among practices, such as practices predominately serving student populations, a high proportion of nursing or care homes, or high risk groups such as the homeless, drug addicts and asylum seekers, or other choices made by the patient based on ethnicity or ease of travelling to the practice which can influence the structure of the practice population;
- Differences in resources and skills base among practices with larger practices, in general, being able to produce more accurate and complete disease registers;
- Different GPs specialising in different diseases and medical conditions, so registers in those practices may be more accurate and complete compared to other practices as patients with those specific diseases as patients within those practices have been targeted by the GP(s) over a long period of time;
- Differences in the knowledge and attitudes to health among the patients will affect the completeness of the register, with patients who tend to be more knowledgeable about their health more likely to consult their GP about a particular problem and therefore more likely to be subsequently placed on a disease register compared to patients who accept poor health at a younger age due to their family history and low expectations of health;
- Differences in list size errors among practices can influence the disease prevalence as practices with an inflated list size will have a higher true prevalence of the condition compared to their calculated prevalence (based on the incorrect list size).

Conclusion: Take care when comparing QOF clinical registers among practices!

Differences in Quality and Outcome Framework among General Practices

Background

As part of the new contract for GPs, General Practices obtain points for achievements against a range of indicators. The system is known as the Quality and Outcomes Framework (QOF) and is used for calculating financial payment. There are a number of clinical indicators for different medical conditions and diseases. These indicators include creating a register of all the people in the practice with that specific condition, and further indicators associated with their on-going care. The QOF first started during 2004/2005, so registers have been collected for three financial years. The indicators changed slightly for 2006/2007.

Information collected

The practice list size and number of people on each clinical register is available for each General Practice throughout England. The indicators associated with on-going management of the patients on the register are not nationally available. The *Table* gives the list of clinical registers that have been collected. Note that some of the indicators are for specific subgroups. For instance, diabetes only for those aged 17 years or over or patients taking specific medication such as epilepsy.

Table: QOF clinical indicator registers

Indicator	Financial year(s)	Details
CHD1	All	The practice can produce a register of patient with coronary heart disease (CHD).
LVD1	2004/05, 2005/06	The practice can produce a register of patient with CHD and left ventricular dysfunction.
HF1	2006/07	The practice can produce a register of patients with heart failure.
STROKE1	All	The practice can produce a register of patients with stroke or transient ischaemic attack (TIA).
BP1	All	The practice can produce a register of patients with established hypertension.
DM1	2004/05, 2005/06	The practice can produce a register of all patients with diabetes mellitus.
DM19	2006/07	The practice can produce a register of all patients aged 17 years or over with diabetes mellitus, which specifies whether the patient has Type 1 or Type 2 diabetes.
COPD1	All	The practice can produce a register of patients with chronic obstructive pulmonary disease.

| Indicator	Financial year(s)	Details
EPILEPSY1	2004/05, 2005/06	The practice can produce a register of patients receiving drug treatment for epilepsy.
EPILEPSY5	2006/07	The practice can produce a register of patients aged 18 and over receiving drug treatment for epilepsy.
THYROID1	All	The practice can produce a register of patients with hypothyroidism.
CANCER1	All	The practice can produce a register of all cancer patients defined as a 'register of patients with a diagnosis of cancer excluding non-melanotic skin cancers from 1 April 2003'.
MH1	2004/05, 2005/06	The practice can produce a register of people with severe long term mental health problems who require and have agreed to regular follow-up.
MH8	2006/07	The practice can produce a register of people with schizophrenia, bipolar disorder and other psychoses.
ASTHMA1	All	The practice can produce a register of patients with asthma, excluding patients with asthma who have been prescribed no asthma-related drugs in the previous twelve months.
PC1	2006/07	The practice has a complete register available of all patients in need of palliative care/support.
DEM1	2006/07	The practice can produce a register with patients diagnosed with dementia.
CKD1	2006/07	The practice can produce a register of patients aged 18 years and over with chronic kidney disease (UK National Kidney Foundation: Stage 3 to 5 CKD).
AF1	2006/07	The practice can produce a register of patients with atrial fibrillation.
OB1	2006/07	The practice can produce a register of patients aged 16 and over with a body mass index (BMI) greater than or equal to 30 in the previous 15 months.
LD	2006/07	The practice can produce a register of patients with learning disabilities.

Differences among General Practices

There are many reasons why the prevalence of specific diseases may differ among General Practices. There could be a true underlying difference among the practices. Further differences can result from three key reasons due to differences in the patients registered within that practice, differences in the consultation behaviour of the patients, and difference in the way the practice operates and the accuracy of their records. The QOF clinical registers are not adjusted in any way to take into consideration these differences among the practices.

Differences in the age structure among practices

For clinical registers where there is an association between the disease and age, the practices with a more elderly population will tend to have a higher prevalence of disease. For instance, at an extreme example, a General Practice serving a predominately student population will have a much lower prevalence of the diseases which tend to affect the elderly, whereas a practice which serves many nursing and care homes will tend to have a higher prevalence. *Figure 1* illustrates the prevalence of CHD from the registers for each practice in Hull and East Riding of Yorkshire for 2005/2006 in order of the mean age of their patients. Whilst variability of CHD prevalence is relatively large among the practices, there is a clear association between prevalence and age as illustrated by the black regression line.

Figure 1: CHD prevalence from GP registers for each practice in Hull and East Riding of Yorkshire in order of mean age of patients, 2005/2006
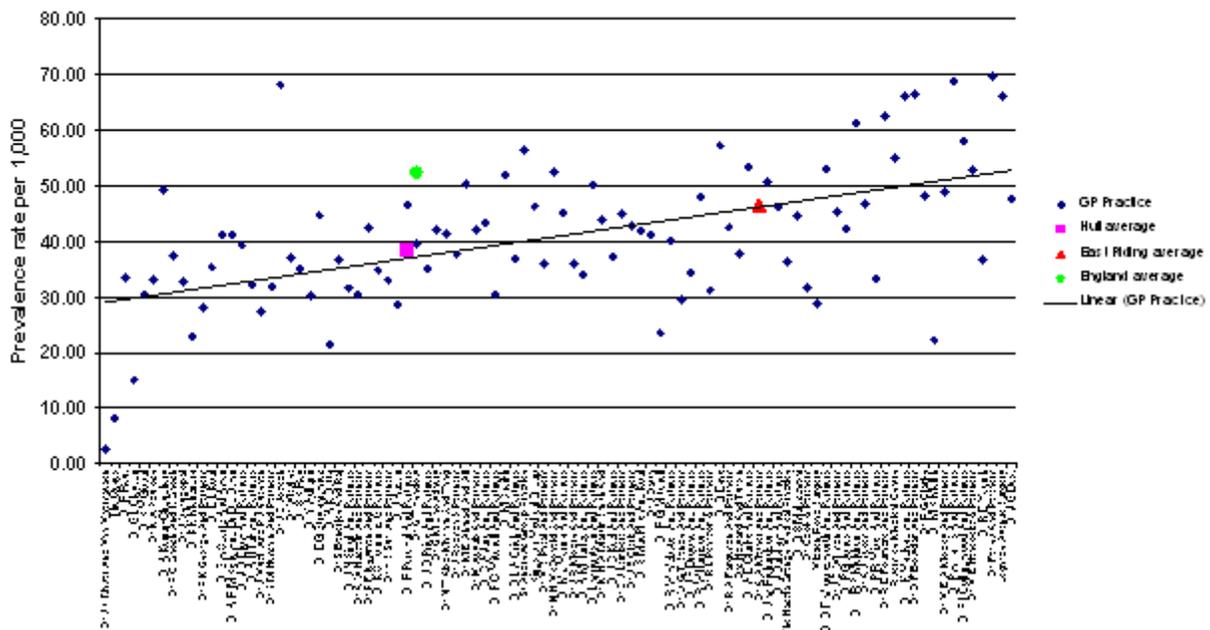
Differences in the gender structure among practices

In most practices, one would expect that the number of men and women to be relatively similar, and similar to the overall population. However, there may be practices where the gender structure may be quite different with many more men registered than women or vice versa. As life expectancy is slightly higher in women compared to men, practices which serve a number of nursing homes may have a higher proportion of women compared to men. The male to female ratio of patients within practices which predominately serve student populations will also be affected by the male to female ratio of those attending the educational establishment. In such cases, the clinical registers

could be influenced for specific diseases or medical conditions where there is a difference between males and females. For instance, the prevalence of CHD is higher in males compared to females, and therefore for a practice with a relatively high number of men, the CHD prevalence might be higher than a practice with a relatively high number of females.

Differences in deprivation among practices

Whilst Hull is generally very deprived in relation to other geographical areas with all wards within the most deprived 40% of wards nationally[1], there are still considerable differences between the most deprived areas in Hull and the least deprived areas in Hull.

There is a strong association between deprivation and health. The relationship is influenced by environmental factors such as poorer housing and employment, and also different personal lifestyle choices which affect health. People living in the most deprived areas are more likely to:

- have poorer housing
- be unemployed or have lower paid employment
- have increased stress associated with poorer living conditions
- smoke
- be obese
- have a poorer diet
- exercise insufficiently

All these (and other factors), in general, result in poorer health.

It is possible to calculate a score for each General Practice which indicates the level of deprivation based on geographical areas the registered population for the practice live[2]. Due to differences in the patient profiles, it is not known how accurate these scores reflect true deprivation for the practice[3].

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[1] Based on the Index of Multiple Deprivation 2004 which measures deprivation across seven domains: income deprivation; employment deprivation; health deprivation and disability; education, skills and training deprivation; barriers to housing and services; living environment deprivation; and crime.

[2] Index of Multiple Deprivation 2004 measured for each super output areas (SOAs; small geographical areas with approximately 1,500 residents) combined into a practice IMD score by calculating the average score for all the registered patients for the practice (based on their postcode of residence).

[3] As the IMD 2004 is geographical based (e.g. based on level of employment for all SOA residents) and not based on individual personal characteristics (e.g. actual employment status of an individual), there is often discrepancies between individuals and the average for the area. For example, people with high socio-economic status may live in areas that are classified as very deprived. As different practices may attract certain people within their immediate area, e.g. based on ethnicity, then the practice population may not reflect the 'average' population for that particular geographical area (SOA).

Clinical registers will be affected by deprivation with practices working in more deprived areas tending to have a higher prevalence for most medical conditions or diseases. However, further influences may be present depending on the patient profile of the registered population or the health demands of the registered population (see below).

Figure 2 illustrates the prevalence of CHD on the practice registers for each practice in Hull and East Riding of Yorkshire for 2005/2006 in order of the practice deprivation score. As it has been previously mentioned, as differences in the age and gender structure of the practice population can influence the prevalence, the CHD prevalence has been standardised[4] in *Figure 2*. The scale on the (vertical) y-axis is different to that given in *Figure 1* as a result. The standardised prevalence ratio is given relative to 1. Practices with the same prevalence as the UK, after adjusting for differences in the age and gender structure, will have a standardised prevalence ratio of 1. Practices with a lower prevalence ratio compared to the UK have a standardised prevalence ratio less than 1 and practices with a higher prevalence rate compared to the UK have a value higher than 1. The practice with the highest standardised prevalence ratio of 1.75 has a standardised prevalence rate which is 75% higher than the UK after adjusting for differences in the age and gender structure. The practice with the lowest standardised prevalence ratio of 0.37 has 37% of the prevalence rate of the UK or equivalently a rate which is 63% lower than the UK after adjusting for differences in the age and gender structure. As the deprivation score increases (more deprivation), the standardised prevalence of CHD tends to increase as illustrated by the regression line.

Figure 2: Standardised CHD prevalence ratio from GP registers for each practice in Hull and East Riding of Yorkshire in order of deprivation score, 2005/2006

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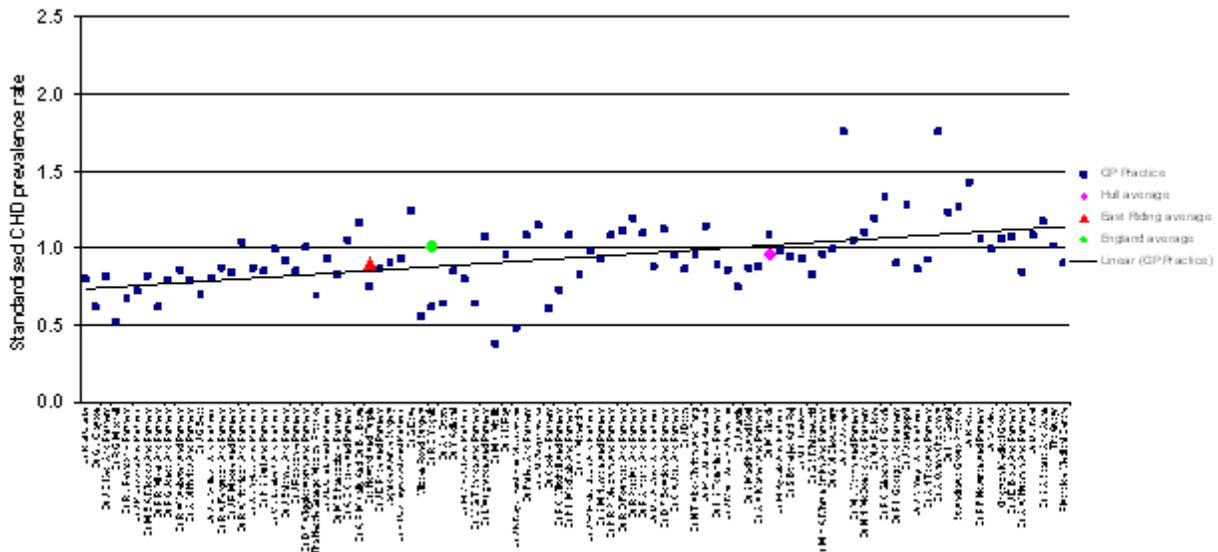
[4] Indirectly standardised rates calculated which take into account differences in the age and gender structure of the individual practice, by calculating the 'expected' prevalence based on UK prevalence rates for each age/gender category and comparing the total 'expected' number of cases with the actual number of cases on the register.

Differences in the patient profile among practices

Differences in the register prevalence can occur due to differences in the patient profile among the practices. This has been examined above in relation to deprivation, but there are other specific factors which can influence the prevalence. For example, people of different ethnic groups may be more likely to register with GPs with a similar ethnic group. There may be geographical issues which influence the patients who register with the patients, such as the ease of travelling to and from a particular practice. It is possible that a person lives closest to one practice but may register with another practice which is easier to travel to and from, for example, the practice is on a bus route. This clearly affects choice of general practice among different groups of people living in the same geographical areas based on access to cars and other transport. The effect of this on the registers will be similar to the effect of deprivation as mentioned above. However, measuring deprivation at practice level may not capture this effect entirely. Deprivation is based on the average deprivation score for a particular geographical area (and then calculating the average deprivation score for all patients in all the different geographical areas in which they live). Therefore, if individuals who are the most deprived within that geographical area, for example, who have to rely on public transport, are more likely to register with a particular practice then this would mean that the practice population is even more deprived than that calculated deprivation score based on 'average' deprivation.

Certain general practices may have a large student population registered with their practice and this clearly will affect the prevalence on different registers. Other practices may have a relatively high proportion of patients from nursing homes which may include a higher proportion of patients who are too ill to remain in their own homes. Other practices may specialise in hard to reach groups such as drug users, the homeless, travellers, asylum seekers, etc which may tend to be younger populations but may have particular health issues which are different to the general population.

Differences in the available resources among practices

There are some small practices with a single GP and often one receptionist. Clearly, in much smaller practices, it is more likely that the skills base is more limited and there is less capacity in terms of time to update the clinical registers. As a result, there could be differences in the registered prevalence in larger fully-resourced practices and smaller practices with limited resources. The differences in the skills based among practices could also influence the accuracy and completeness of the registers. In many cases, there will be a need to go through patient notes in order to create the initial registers. Therefore, the accuracy and completeness of the register will also depend on the accuracy and completeness of patient notes.

Differences in the specialist areas among general practitioners

Particular GPs may specialise in or have additional interest in particular clinical areas that form part of the QOF disease registers. This will clearly influence the prevalence of specific conditions for that particular practice as the undiagnosed prevalence will be lower (difference between underlying prevalence within the population and the prevalence based on the register). In these practices, it is likely that the GP with that interest will specifically seek out people who may have that specific disease by being more proactive in relation to that condition by being more likely to initiate further tests or enquire about that particular condition when the patient comes to consult on a different matter.

Differences in the knowledge and attitudes to health among patients

It is well acknowledged that people in more affluent areas tend to be more demanding regarding referral for further tests and examinations during General Practitioners consultations. By having more tests and examinations, it is more likely that other previously undiagnosed medical conditions will be diagnosed earlier. Furthermore, people in more deprived areas tend to have lower expectations of health, and tend to accept poor health more readily as they age which could be because they have relatives who have died young and had health problems at a young age. This could mean that such patients are less likely to attend their GP when they have symptoms as they believe that their symptoms cannot be treated and are a consequence of getting older. These two factors will influence the completeness of the registers. Therefore, whilst one would expect people in more deprived area will tend to have a higher prevalence of many of the medical conditions and diseases which form the QOF registers, it is likely that this will be underestimated as it is likely that there is a higher prevalence of undiagnosed disease within the more deprived areas.

Differences in the list size errors among general practitioners

The actual number of patients registered with a general practice may differ from the number of registered patients who live in the immediate area and will be attending that particular practice when ill. People should be automatically removed from practice lists when they die or when they register with another practice within England. However, errors will occur and there will be patients who are have died or moved away who have not been removed from the list. If patients move to other parts of the UK or abroad and register with local GPs there, they are not necessarily removed from the practice lists, and will only be removed if the practice staff are informed by the patient. There is no automatic procedure for removal from the list. Some patients moved away but take some time to register with another GP. This occurs particularly for young men, who may not register with another GP for a number of years until they become ill. Therefore, it is recognised that most practices have list inflation. If the list size is much higher than it should be, this could influence the prevalence on the disease registers. For instance, if there are 50 patients with a particular condition on the register with a list size of 2,000 then this would give a prevalence of 2.5%, but if the true list size was actually 1,700 then

the prevalence would be 2.9%. It is likely that practices in more deprived areas and practices with more limited resources are more likely to have a problem with list inflation. Therefore, their reported prevalence based on their registers may be underestimated.

Conclusion

Whilst the QOF gives invaluable information on the prevalence of some of the key diseases at General Practice level, it must always be borne in mind that the accuracy and completeness of the registers will differ among the practices, and that the prevalence of undiagnosed disease within that practice population will differ among the practices.

In terms of the provision of resources, it does not matter if there are differences in structure of the registered populations in terms of differences in the age, gender, ethnicity, and deprivation differences as it is necessary to treat and have the provision to treat the population as it stands. However, there is clearly an issue in assessing resource use if the prevalence of the undiagnosed disease differs among the practices.

In terms of assessing the performance of different practices, it would be more appropriate to use the process on-going management measures of QOF rather than the clinical registers. If the clinical registers were compared, it is very important to take into consideration the numerous factors which can influence the accuracy and completeness registers, particularly those factors are more difficult for the practice to control. The practices have control over the accuracy and completeness of their patient notes, and some control over their resources to update their registers. However, it is much more difficult to assess the needs of patients who consult infrequently and those patients who accept symptoms of poor health as a symptom of old age. Practices within more deprived areas, which have an elderly population or specialise in high-risk patients are much more likely to have poorer performance due to environmental and behavioural differences within their practice population compared to practices in more affluent geographical areas.

It is unwise to compare clinical registers among practices without taking into consideration the wider picture.