National study

Closing the gap

Tackling cardiovascular disease and health inequalities by prescribing statins and stop smoking services

September 2009
About the Care Quality Commission

The Care Quality Commission is the independent regulator of health and adult social care services in England. We also protect the interests of people detained under the Mental Health Act.

Whether services are provided by the NHS, local authorities, or private or voluntary organisations, we make sure that people get better care. We do this by:

• Driving improvement across health and adult social care.
• Putting people first and championing their rights.
• Acting swiftly to remedy bad practice.
• Gathering and using knowledge and expertise, and working with others.
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Inequalities in health are a continuing problem in England. There are still stark, persistent differences in life expectancy. In England and Wales, adults in the richest area can expect to live 23 years longer than adults in the poorest area when comparing electoral wards.

Reducing inequalities is therefore a top priority for the Government. In 2002, the Department of Health set a national target to reduce inequalities in life expectancy and infant mortality by 10%, by 2010. In October 2008, the Government commissioned a review of health inequalities in England to provide advice on potential new targets up to and beyond 2020.

The purpose of this national study across England is to contribute to the existing efforts to reduce inequalities in people’s health. We focus on prescribing statins (drugs that lower cholesterol) and stop smoking services as part of wider prevention programmes to reduce inequalities in cardiovascular disease (CVD), the largest contributor to health inequalities.

CVD is the collective term for a group of related conditions affecting the heart, arteries or blood vessels, including coronary heart disease (accounting for about 50%) and stroke (accounting for about 25% of these conditions). It represents a huge burden to people, to health services and to the economy (see box 1).

There are stark variations in the prevalence of CVD across the population that demonstrate inequalities in health, for example in relation to occupational group and ethnicity. Deaths from coronary heart disease are three times higher among unskilled men than among professionals, and around 50% higher in South Asian communities than in the general population.

Box 1: The burden of cardiovascular disease

- CVD is the country’s biggest killer, causing more than 200,000 deaths a year, representing one in three deaths. The UK has one of the highest rates of CVD in Europe.
- Up to 90% of the risk of a first heart attack is due to lifestyle factors that can be changed.
- The combined cost of CVD to the NHS and the UK economy is £30.6 billion.
- Obesity is a major cause of CVD. Currently one in three adults and one in three children are overweight or obese. By 2050, these figures are projected to rise to nine in 10 overweight or obese adults and two in three children, at a cost of £50 billion per year.
- Smoking, another major cause of CVD, is the biggest single avoidable cause of death, accounting for 82,000 deaths a year.

Despite the size of the challenge, however, there are effective interventions that can reduce risk, prevalence and deaths from CVD. In addition to medical interventions, these include recommending that people make healthier choices, such as eating healthier foods, using alcohol sensibly, undertaking regular physical activity, stopping smoking, and promptly accessing services.

In its 2009 Vascular Programme Briefing Packs, the Department of Health states that: “Tackling vascular disease is key to achieving…the inequalities target relating to life expectancy. In particular, reducing smoking and increasing the use of statins are two key interventions that…can rapidly reduce the number of early deaths in disadvantaged groups.”
In July 2008, the Department of Health proposed a national screening programme for all people aged 40 to 74 to assess their risk of developing CVD and to identify people with previously undetected established disease. According to an individual’s level of risk assessed by the primary care practitioner, patients are advised to follow a personalised programme that includes healthy eating and physical activity options, and to take medication such as statins for those at high risk of CVD and with established disease.

The National Institute for Health and Clinical Excellence (NICE) has published guidance on reducing premature deaths from CVD in disadvantaged groups, thereby narrowing the gap in health inequalities. This guidance focuses on primary care practitioners undertaking outreach work, or ‘proactive case finding’ to identify adults who are at risk and disadvantaged, and identifies prescribing statins and stopping smoking as effective and cost-effective interventions. The guidance from NICE recommends that less costly non-branded statins be prescribed where clinically appropriate to all those identified as ‘at high risk’ and to those who already have established disease.

NICE recommends that NHS stop smoking services recruit 5% of the total estimated local smoking population, and for at least 35% of those entering these services to quit successfully at four weeks (success is defined as not having smoked in the third and fourth week after the quit date). From 1 April 2009, the role of NICE includes overseeing the development of the Quality and Outcomes Framework (QOF), which rewards GPs financially according to how well they care for patients.

Data on CVD, smoking prevalence and statin prescribing have previously not been available at both primary care trust (PCT) and GP practice level. This has limited the ability of PCTs to monitor variations in meeting need and reducing inequalities within their own geographical areas, in order to help them reduce health inequalities and the burden of CVD.

**Our study**

We collected and analysed nationally available data from a variety of sources in order to investigate:

- Statin prescribing at both PCT and GP practice level in the context of the estimated CVD prevalence by deprivation.
- Stop smoking services at PCT level in the context of smoking prevalence by deprivation. We have also estimated smoking prevalence at practice level.

In this way, we are able to assess how well PCTs are meeting variations in need in their local areas, through cholesterol management and stop smoking services, in order to contribute to reducing inequalities in CVD.

We also engaged with national organisations with an interest in CVD, and with groups of people living with CVD, to gain their views on the issues in this study.

**Key findings and conclusions**

Three key themes emerged from the conclusions to our findings: the lack of consistency in outcomes for patients, suggesting the need for better adherence to policy and guidance on effectiveness; the positive impact of financial incentives in improving performance and reducing inequalities; and the need for more data to allow better targeting of programmes and services at the people who need them most.
Summary continued

Key issues from our findings and conclusions

- The financial incentives offered by the Quality and Outcomes Framework have greatly improved health outcomes for patients and reduced inequalities in secondary prevention of CVD (i.e. by lowering levels of cholesterol). However, recent data in cholesterol management indicate a levelling-off in both the performance and the narrowing of the gap between the fifth most deprived and fifth least deprived areas in the country. On average, 83% of patients on GPs’ coronary heart disease registers are recorded as having cholesterol levels of 5mmol/l or less, which exceeds the QOF threshold of 70%, entitling GPs to receive full payment. However, the high variation means that many GPs are not performing as well. Using the QOF as an incentive for GPs to undertake other activities to prevent CVD will further improve outcomes for patients.

- Statin prescribing increases more noticeably with increased deprivation than with increased CVD prevalence. The more marked increase in prescribing with increased deprivation may be good news for people’s health, as it may suggest that GPs are undertaking some statin prescribing to those at high risk of CVD as well as to those with established disease, which is in line with NICE guidance. However, there is a lack of consistency in line with evidence-based guidance.

- Overall, recruitment to NHS stop smoking services appears to be responding to the greater need in areas of higher smoking prevalence, which also tend to be the more deprived. The data relate to service ‘throughput’, not individuals (i.e. some smokers may use services more than once a year). Complete data on unique individuals will strengthen findings on how services are meeting need in relation to outcomes for people, guidance from NICE and Government targets. We found that almost one in five PCTs did not meet NICE guidance to recruit 5% of its estimated local smoking population. We also found that all but one PCT met or exceeded NICE guidance in supporting 35% of smokers who enter services to quit at four weeks. Adjustment for individuals is likely to reduce success in both NICE goals. However, deprivation has a significantly negative effect on quit rates. This may be due to entrenched smoking behaviours in deprived areas, highlighting the importance of tailoring services to meet local needs.

Remaining challenges

- Overall, our findings in relation to both statin prescribing and stop smoking services suggest that CVD prevention by primary care providers has not been undertaken in a planned, focused and consistent way, in line with policy from the Department of Health and guidance from NICE, which is based on the evidence of what works. It may also suggest that PCTs are not commissioning services in line with this policy and guidance.

- We would expect some variation in outcomes and we recognise that higher achievement or data points can reflect strong performance and examples of best practice. However, we found too much weaker performance. There is therefore now an opportunity to tackle inconsistencies in following policy and guidelines. Performance can be improved further by the systematic monitoring of cholesterol management, referral to stop smoking services and quit rates, together with feedback from PCTs, and by pushing for universal compliance with policy and guidance, looking to high performers for models of best practice.

- The more deprived an area is, the less likely it is that GPs record CVD, resulting in poorer access to treatment. Although the average level of estimated unrecorded CVD prevalence appears generally low (on average 1.1%), this is significant in public health terms. Its increase up to 7% in some of the most deprived areas is worrying
because these areas have a higher concentration of people with more complex cardiovascular health needs. Our findings suggest that these needs are not being met. This may also be true for people at high risk of developing CVD.

- Too many GPs prescribe expensive branded statins when equally effective, cheaper non-branded statins are available. GP practices that prescribe less cost-efficiently also tend to have lower performance levels for cholesterol management.
- People living in deprived areas are less likely to be prescribed nicotine replacement therapy by their GP, less likely to be referred to NHS stop smoking services by their GP, and are less likely to quit smoking with NHS stop smoking services.
- It appears from the findings in relation to people’s access to care and smoking-related services, that there is an inverse care process in place, where the people who are most in need of services are least likely to receive them.

**Summary of recommendations**

The two strong themes in our summary conclusions are that responding to financial incentives results in better outcomes for patients, and that poorer outcomes for patients and high variation in performance suggests a lack of alignment with evidence-based policy and guidance. These themes guided most of our recommendations. We faced many challenges in the study regarding data, which have helped to shape our thinking about the type of data that will be needed in the future to support work in reducing inequalities in CVD.

A summary of our recommendations follows. (For the full detail of these recommendations, see page 31).

**Addressing inequalities in CVD through statin prescribing**

**Developing the Quality and Outcomes Framework (QOF):**

1. As part of its new role in developing the QOF, NICE should recommend incentivising GPs to lead programmes to identify disadvantaged adults at risk of CVD, which is also in accordance with NICE guidance, using a range of methods including ‘proactive case finding’ (i.e. outreach activities). GPs could receive payment based on how successful their practice is in reducing the gap between the recorded level and the estimated level of established CVD and those ‘at high risk’ of CVD. This incentive should be appropriately coordinated to prevent a double payment, where GPs are already encouraged to find cases but without a focus on narrowing inequalities.

2. NICE should recommend establishing a CVD disease register for use in the QOF, having one for patients with established CVD and a separate register for those at high risk of CVD.

3. NICE should recommend increasing the proportion of patients managed in order for GPs to receive payment for the QOF cholesterol management indicator CHD08. NICE should also consider recommending a reduction in the length of time between recording patients’ cholesterol levels as part of the indicator, which is currently every 15 months.

**Monitoring implementation of evidence-based policy and guidance through commissioning:**

4. PCTs should commission primary care practitioners to undertake vascular screening and treatment of patients in line with the Department of Health’s vascular checks programme, to undertake proactive case finding in line with NICE guidance and to systematically monitor how effectively they are delivered.
5. PCTs should strongly encourage GPs to prescribe non-branded statins where clinically appropriate to those with established CVD and those ‘at high risk’ of CVD, in line with guidance from NICE and data on local CVD prevalence. PCTs should systematically monitor this prescribing. GPs should also ensure that they recommend lifestyle changes or implement health improvement programmes for patients in accordance with the Department of Health’s vascular programme recommendations and guidance from NICE. PCTs should feed back to GPs the inequalities in statin prescribing patterns that indicate unmet need and formulate a clear response to balance out such trends. This will ensure cost-efficient prescribing. National support materials on statin prescribing and further information on prescribing for CVD can be found on the National Prescribing Centre’s interactive website: www.npci.org.uk/lift/lift.php.

6. PCTs should continue to systematically monitor performance in the QOF indicators relating to CVD at practice level, and should gauge this alongside deprivation and other inequalities markers, such as ethnicity, age and sex.

Improving data:
7. The Department of Health should commission a national programme to produce robust estimates of CVD prevalence at both PCT and practice levels of:
   - Those with established CVD.
   - Those at high risk of CVD.
   - Unrecorded prevalence.

The public health observatories have published prevalence data at PCT level for coronary heart disease and hypertension separately. However, there are no prevalence data available at PCT and practice level for CVD, that include ischaemic stroke and CVD-related diabetes.

Addressing inequalities in smoking reduction need through NHS stop smoking services

Developing the Quality and Outcomes Framework:
1. NICE should recommend extending QOF indicators on smoking, so that all smokers registered with a GP practice are offered referral to NHS stop smoking services, as well as supportive prescribing of medicines that are proven to help stop smoking.

Monitoring implementation of evidence-based policy and guidance through commissioning:
2. NICE should recommend increasing goals for NHS stop smoking services from the current goals. These are currently to recruit 5% of the estimated local smoking population and for 35% of those recruited to successfully quit at four weeks. Local goals could be set proportionately, i.e. setting higher goals where smoking prevalence is higher.

3. PCTs should commission local NHS stop smoking services to deliver the most effective, evidence-based stop smoking models in innovative ways in line with NICE guidance, particularly to hard-to-reach groups, in areas of high deprivation, and to those who find it most difficult to quit.

4. PCTs should systematically monitor GPs to ensure that they undertake proactive case finding in order to identify those who are deprived, who also smoke and who are therefore most at risk of CVD, in line with NICE guidance on contributing to reducing inequalities in CVD.
Improving data:
5. The Department of Health should commission a national programme to produce robust estimates of smoking prevalence and smoking-attributable mortality at both PCT and GP practice level. This will help to build intelligence on the need for services to help stop smoking and the impact of smoking reduction policies.

6. The Department of Health, strategic health authorities, PCTs, NHS stop smoking services and GP practices should coordinate work to collect and publish additional data on outcomes for NHS stop smoking services, such as outcomes for individuals and 12-week quit rates, linked to GP referrals.

7. PCTs should ensure that there are mechanisms to enable feedback between stop smoking services and GP practices, to allow GPs to provide follow-up advice to smokers who find it difficult to stop.

Taking forward our work
We are now developing a programme of work, using the information and learning from the study, in our efforts to tackle health inequalities. The data and findings from the study will contribute to a number of initiatives, including:

- Our new special review to assess how PCTs plan to reduce future demands on health services through their depth of understanding of their population’s current and future health needs.
- Sharing with PCTs comparative information on their performance in statin prescribing, the effectiveness of NHS stop smoking services and estimates of the prevalence of smoking and CVD.
- Using the data as part of our screening of overall performance when we assess the declarations of care providers of their compliance with registration requirements.*

In addition, we are commissioning data on deaths caused by smoking (smoking-attributable mortality) at PCT and GP practice level and analysing this in relation to the findings in this report. We aim to use our findings to influence the development of the QOF to improve performance, and therefore improve outcomes for patients.

* From April 2010, all providers of health and adult social care will be required under the Health and Social Care Act 2008 to register with the Care Quality Commission. To do so, they must show that they are meeting essential common quality standards.
1. Introduction

Inequalities in health are a continuing problem in England. There are still stark, persistent differences in life expectancy, and the relative gap between the poorest areas and the country as a whole has widened. In England and Wales, adults in the richest area can expect to live 23 years longer than adults in the poorest area, when comparing postcode sector areas\(^1\).

Reducing inequalities is therefore a top priority for the Government. In 2002, the Department of Health set a national target to reduce inequalities in life expectancy and infant mortality by 10% by 2010. In August 2008, the World Health Organisation published a major report on the social determinants of health. It made far-reaching recommendations to reduce inequalities in health that included political and economic policy, particularly in the redistribution of resources and equity of opportunity.\(^2\) In October 2008, the Government commissioned a review of health inequalities in England to provide advice on potential new targets up to and beyond 2020.

Tackling health inequalities and prevention are key priorities for the Care Quality Commission, particularly through holding primary care trusts and local authorities to account as commissioners of care through periodic review and in our contribution to Comprehensive Area Assessment of local services.

The purpose of this national study is to contribute to the existing efforts to reduce inequalities in people’s health. We focus on statin prescribing and stop smoking services as part of wider prevention programmes to reduce inequalities in cardiovascular disease (CVD), the largest contributor to health inequalities.

In this study, we define health inequalities as significant and unfair differences in health between particular groups within a population. Inequalities may vary by deprivation, ethnicity, age, sex and occupation among other factors. We focus on deprivation, which has also been found to be linked with occupation and ethnicity.

The overall burden of cardiovascular disease

CVD is the collective term for a group of related conditions affecting the heart, arteries or blood vessels. It includes coronary heart disease (about 50%) and stroke (about 25%).\(^3\)

CVD represents a huge burden to people, health services and the economy. It is the country’s biggest killer, causing more than 200,000 deaths every year, representing one in three deaths.\(^4\) The UK has one of the highest rates of CVD in Europe.

People’s lifestyles and their complex relationship with the broader determinants of health, such as income, education and housing, particularly in the context of deprivation or poverty, have a major impact on the risk of CVD. More than 90% of the risk of having a first heart attack is attributable to risk factors associated with lifestyle that are within the control of the individual.\(^5\)

CVD is caused mainly by obesity and smoking – major current public health challenges around the developed world. The UK Government and the World Health Organisation both describe obesity as an epidemic requiring urgent action, and smoking prevalence levels persist despite it being the largest single cause of avoidable death. Urgent action in these two areas will tackle CVD.

The spend on statins and other lipid-regulating drugs that are used in the prevention of CVD has soared and is now 15 times higher than 10 years ago. In 2007, the NHS spent £500 million on statins, representing the single biggest drug cost.\(^6\) The cost of providing informal care (provided by friends, family or neighbours) for those with CVD is also high; in 2006 this amounted to over £8 billion.\(^7\)
Cardiovascular disease and health inequalities

There are stark variations in the prevalence of CVD across the population that demonstrate inequalities in health. Deaths from coronary heart disease are three times higher among unskilled men than among professionals, and around 50% higher in South Asian communities than in the general population.

Research carried out in 2008 mapped deaths from all diseases, including CVD, across the UK between 1981 and 2004. The resulting mortality pattern for CVD showed some of the clearest geographical variations of all diseases reported, following geographical patterns of deprivation, with highest levels in northern England and urban areas.

A person’s CVD is less likely to be recorded by a GP, whether or not it has been detected or diagnosed, in more deprived areas. This ‘unrecorded prevalence’ may be higher because populations in these areas tend to be more transient; there may be more people who are not registered with a GP, or registered patients may suffer the effects of the disease for a long time before they seek help. London has the highest levels of estimated unrecorded prevalence.

As well as issues of unrecorded prevalence in GP practices, the number of people who are explicitly not included in disease registers is also an important factor. ‘Exception reporting’ is the process by which patients are excluded from chronic disease registers for reasons such as failing to attend an appointment after three reminders, or refusing treatment. GPs working in more deprived areas tend to show higher exception reporting, which may reflect a case-mix that includes complex interactions of social and economic problems, and beliefs about health and seeking help in these communities.

Therefore, because of unrecorded prevalence and exception reporting, the true prevalence of CVD is likely to be higher than the recorded prevalence, particularly in deprived areas, which is an important issue because CVD is a preventable and treatable disease.

As well as inequalities in prevalence, there is also inequality in people getting access to preventive operations for coronary heart disease. The rates of coronary revascularisation (coronary bypass grafts) and angioplasties (treatment to improve the blood supply through an artery) in areas of the country with the highest prevalence of coronary heart disease are often lower than in areas with a much lower prevalence. This demonstrates the ‘inverse care law’, where people who need care the most are the least likely to receive it.

Purpose of this study

Despite the size of the challenge of tackling CVD, there are a number of effective actions that can reduce risk, prevalence and deaths from the disease. In addition to medical interventions, approaches include recommending that people make healthier choices such as eating healthy foods, using alcohol sensibly, undertaking regular physical activity and stopping smoking, as well as contacting health services promptly.

The Department of Health states: “Tackling vascular disease is key to achieving the national 2010 health inequalities target relating to life expectancy. In particular, reducing smoking levels and increasing the use of statins are two key interventions that – as part of a comprehensive programme – can rapidly reduce the number of early deaths in disadvantaged groups.”
The focus on these two interventions should be seen as a part of a wider programme of CVD prevention, particularly early prevention, such as encouraging physical activity, healthy eating and discouraging people from starting to smoke – especially children. This report aims to demonstrate the potential to stimulate more targeted interventions to address unmet need.

Our national study follows the recent work of the Department of Health’s Vascular Programme, and guidance from the National Institute for Health and Clinical Excellence (NICE). 8, 14, 15, 16

The objectives of the study are:

1. To assess the quality and availability of data on CVD prevalence, smoking prevalence, statin prescribing and stop smoking services at PCT and GP practice level.

2. To collate and analyse the best available data relating to the point above, in order to assess whether PCTs and GPs are focusing appropriately on areas and groups of people with high need to reduce inequalities in the prevalence of CVD through statin prescribing and stop smoking services.

We focus specifically on statin prescribing and stopping smoking, as evidence has shown them to be effective in terms of health outcomes and cost in reducing inequalities in the prevalence of CVD.

Broadly, we investigate:

- Whether estimated unrecorded CVD prevalence is higher in more deprived areas.
- Whether the level of statin prescribing at PCT and GP practice level is in line with local need (measured by the prevalence of established CVD at practice level).
- Whether stop smoking services are meeting local need (measured by smoking prevalence at PCT and practice level).

We have been able to use improved statistical methods to produce estimates of disease prevalence (predicting the prevalence of a disease according to an area’s socio-economic profile) at both PCT and GP practice level. These estimates have not previously been available at an area level smaller than that of a local authority.
2. Background

Government policy and targets

Health inequalities

Targets to reduce health inequalities were first announced by the Government in 2001, focusing on reducing the gap in infant mortality rates between different social classes, and in life expectancy at birth between different geographical areas. Since then, targets and initiatives have been updated regularly, and inequalities continue to be a policy focus.

The Healthcare Commission’s 2008 report Are we choosing health? reviewed the impact of Government policy on the delivery of health improvement programmes and services, including the impact on health inequalities in the 10-year period up to 2007. It commended the Government for an ambitious programme, but found that improvements had not been consistent across health topics, geographical areas or population groups.

In 2007, the national health inequalities target, which was set in 2002, was reaffirmed as part of Delivery Agreement 18 of the public service agreement to “Reduce health inequalities by 10% by 2010 as measured by infant mortality and life expectancy at birth”. The target is supported by two further objectives:

- Starting with local authorities, by 2010, to reduce by at least 10% the gap in life expectancy at birth between the fifth of areas with the worst health and deprivation indicators and the population as a whole.

- Starting with children under one year, by 2010, to reduce by at least 10% the gap in mortality between the routine and manual group and the population as a whole.

The target period of 2010 is defined as the three-year period 2009–11 and includes all deaths up to 31 December 2011.

The Department of Health noted in December 2008 that the 2010 life expectancy target remains challenging. For men, the relative gap in life expectancy between the Spearhead areas* and the population as a whole was 4% wider than at the baseline year of 1995–97 (the gap was 2% wider than at the baseline year of 2004–06). For females, the gap was 11% wider (the same as in 2004–06).

This is because, since the baseline year of 1995–97, the overall life expectancy for men in England has increased by 3 years, from 74.6 years to 77.7. For women, it has risen by 2.1 years, from 79.7 years to 81.8. Life expectancy has also risen in Spearhead areas by 2.9 years for men and 1.9 years for women, but as the increase has been greater, on average, in non-Spearhead areas, the gap in life expectancy has not narrowed.

In October 2008, the Department of Health commissioned a major new review of health inequalities in England to identify the evidence on which to develop future policy and action to reduce health inequalities, and to provide advice on targets up to and beyond 2020.

Reducing health inequalities is one of the national priorities in the NHS Operating Framework for 2009–10.

* Spearhead areas are those in the lowest fifth of geographical areas for health and deprivation indicators compared to the rest of the population.
Cardiovascular disease and inequalities
The National Service Framework for Coronary Heart Disease was published in March 2000.20

The target for CVD in England, including a component on inequalities, is to:

“Substantially reduce mortality rates by 2010 from heart disease and stroke and related diseases by at least 40% in people under 75, with a 40% reduction in the inequalities gap between the fifth of areas with the worst health and deprivation indicators and the population as a whole.”

Overall, there has been a steady and marked decline in death rates from CVD. In fact, the overall reduction has surpassed the target set by the Government in 1999 (described in the next section).

Most of the decline is attributed to reductions in major risk factors, such as a reduction in overall smoking prevalence from 24% in 2005 to 22% in 2006 and a reduction in cholesterol levels achieved through doubling the level of statin prescribing in the three years up to 2007.

However, because improvements in reducing these risk factors, such as smoking, are slower in the more deprived groups and areas than in more affluent groups and areas, inequalities persist.

The Department of Health reports steady progress towards the CVD inequalities target in England, with latest data showing a reduction of 36% in the absolute gap (Figure 1).21 If this reduction continues, the target to reduce the inequalities gap in premature death rates from CVD between the areas with the worst

Figure 1: Deaths from circulatory disease in people under 75 – Inequality gap
England 1993–2007 and target for the year 2010

Projection of CVD mortality for England (exponential projection based on data for the 10 years 1998-2007)
Target reduction for Spearhead Group
i.e. to achieve target reduction in gap given observed/projected England rate

Target: 40% minimum reduction in absolute gap, from 1995–97 baseline

Source: ONS (ICD9 330-459; ICD10 I00-I99)
health and deprivation indicators and the population as a whole by 40% by 2010 should be met. The most recent data point does, however, show the gap to be around 23.5 deaths per 100,000, which is still significant. The good progress shown in reaching the target may suggest opportunities to reduce the gap further beyond 2010.

In July 2008, the Department of Health published a technical consultation paper to establish the clinical and cost-effectiveness of a national screening programme of vascular checks to identify adults aged 40 to 74 who are at risk of developing CVD and who have, as yet, undetected established CVD. According to their individual level of risk assessed by the primary care practitioner, patients are advised to follow a personalised programme that includes healthy eating and physical activity options, and medication such as statins for those at high risk of CVD and with established disease. The follow-up paper published in November 2008 describes the next steps for PCTs and states that “this programme offers a real opportunity to make significant inroads in tackling health inequalities... providing that primary care trusts ensure that their approach is appropriate for their own area.”

Guidance from NICE

The National Institute for Health and Clinical Excellence (NICE) provides guidance for healthcare organisations on how best to meet clinical and public health need cost-effectively, and based on evidence, in England and Wales. From 1 April 2009, the role of NICE includes overseeing the process of developing the Quality and Outcomes Framework (QOF) which rewards GPs financially according to how well they care for patients.

NICE has published guidance on reducing premature deaths from CVD in disadvantaged groups, thereby narrowing the gap in health inequalities. This guidance focuses on primary care practitioners undertaking outreach work, or ‘proactive case finding’ to identify adults who are at risk and disadvantaged, and identifies prescribing statins and stopping smoking as effective and cost-effective interventions. NICE guidance recommends that non-branded statins be prescribed where clinically appropriate to all those identified as ‘at high risk’ and to those who already have established disease.

NICE also recommends that NHS stop smoking services recruit 5% of the total estimated smoking population and for 35% of people entering these services to quit successfully at four weeks.

These guidance documents highlight the themes of innovation, flexibility, sustainability, proactive case finding (using proactive methods, rather than responding when people seek help, to identify those at risk), and targeting high risk communities. NICE also recognises that those at highest risk constitute the toughest challenges in terms of recruitment and maintaining engagement with services.

Statins

Statins are the main types of medicine for lowering cholesterol in the prevention and treatment of CVD. They help to reduce harmful low-density lipoprotein (LDL) levels in the body and increase the levels of ‘good’ high-density lipoprotein cholesterol (see glossary). Statins can help tackle CVD particularly when used with other interventions including maintaining a healthy lifestyle, such as eating healthily, undertaking regular physical activity, using alcohol safely and stopping smoking.
In the three years to 2007, the level of statin prescribing more than doubled, and is thought to be significantly responsible for cutting the number of deaths from coronary heart disease and heart attacks each year.\(^{21}\)

NICE recommends that low-cost statins are prescribed where clinically appropriate in the first instance to all adults over the age of 16 who have clinical evidence of CVD and to all those who are assessed as being at ‘high risk’ of developing CVD, but currently may have no signs or symptoms.\(^{15}\) Before starting statin therapy for those at high risk, NICE recommends ensuring that all other relevant risk factors are addressed, such as changes to lifestyle.

Estimates from NICE show that the proportion of the population who are at ‘high risk’ of CVD who should be receiving statins, but are currently not, ranges from 0.01% of women aged 40 to 44, to 85% of men aged 65 to 74.\(^{24}\)

There is no long-term data on the outcomes for patients from taking statins.\(^{25}\) However, the majority of evidence describes statins as being generally safe and well tolerated by most people.\(^{26}\) Our study follows evidence-based practice as set out by NICE.

There are inequalities in people’s access to statin therapy, with those living in more deprived areas, some black and minority ethnic groups and older people being less likely to access statin therapy than other groups in the population, although some studies appear to have found otherwise.\(^{27}\)

**Stop smoking services**

Smoking is the single largest cause of avoidable premature death in England, killing 82,000 people every year. Therefore, stop smoking interventions are among the most cost-effective interventions in medicine.\(^{28}\)

There is a clear relationship between high levels of deprivation and high levels of smoking and CVD.

In 2007, smoking prevalence was more than twice as high among unskilled workers (27%) than among professionals (11%).\(^{8}\)

As part of the drive to tackle the underlying determinants of ill-health and health inequalities, the Government included a target to reduce adult smoking rates to 21% or less by 2010 (from 26% in 2002), with a reduction in prevalence among routine and manual groups to 26% or less (from 31% in 2002). Overall, levels of smoking have fallen from 28% in 1998 to 21% in 2007.

Guidelines recommending the routine implementation of stop smoking services across England were first published in 1998.\(^{28}\) While stop smoking programmes are cost-effective, these services alone cannot deliver significant reductions in smoking prevalence. The Wanless Report in 2004 recommended a cross-Government approach to tobacco control.\(^{29}\) The Health Bill, introduced to Parliament in January 2009, includes proposals to remove tobacco displays in shops and to restrict the sale of cigarettes from vending machines.

NICE describes stop smoking programmes as cost-effective, “irrespective of the target audience, the methods used to identify and recruit adults or the type of service offered”.\(^{9}\) The Department of Health states that, in recent years, the majority of NHS stop smoking services dramatically increased the proportion that are delivered in healthcare settings and in pharmacies.\(^{30}\) There has also been a sharp rise in the proportion of one-to-one interventions and a corresponding reduction in closed group treatment, whereby people attend a group and are offered support and advice. (This was the model recommended in national guidance as the most effective, based on evidence, when the services were first set up 10 years ago). The changes in the different approaches taken have therefore led to an overall decline in the effectiveness of treatment, which needs to be addressed at national, regional and local levels.
Nicotine replacement therapy and Zyban (Bupropion) have been prescribed on the NHS as drug therapies to help those who want to quit as part of NHS stop smoking therapy since 2001. More recently, the drug Champix has also been added to these NHS drug therapies.

Although England now has its lowest overall smoking levels ever, the inequalities described above persist and prevalence in some socio-economic groups requires continued targeted action.

**Views from national organisations and the public**

We obtained the views of national representative organisations and members of the public (these are listed in the technical information which is published on our website: www.cqc.org.uk).

All felt that disease prevention was not only a health issue, but should be tackled in holistic, joined up, innovative and accessible ways in line with policy and guidance to reach those most in need, particularly in areas of high deprivation. Young people were identified as a key target group. Stop smoking services were seen as being particularly important.

There was strong support for the Department of Health’s vascular screening programme. Equity of access was seen as vital. Strong outreach and follow-up programmes were seen as important for those living in poverty and sometimes chaotic conditions who may tolerate a high burden of ill health before seeking help.

All acknowledged the importance of statin prescribing and stopping smoking in the prevention of CVD, although some expressed concern that statins should not be taken *instead* of making healthy lifestyle changes.

People felt that information on statin prescribing and stop smoking services should be used in conjunction with protocols and alerts to help PCTs identify areas where need may not be met, and to help GPs recognise that there can be substantial variation between practices.

**Methods used in this study**

Appendix A lists the sources of data used, and a full description of the methods used is given in the technical information, which can be found on our website: www.cqc.org.uk.
3. Findings and conclusions

Our study was guided by a set of questions, which were based on the broader aim of assessing how well PCTs are tackling local inequalities in the prevalence of CVD through statin prescribing and stop smoking services.

Our findings respond to these questions, and include analysis of data and conclusions.

Box 2: Questions used in the study

Addressing need and inequalities in the prevalence of CVD by statin prescribing

1. Have variations in the management of patients’ cholesterol levels reduced?
2. Does estimated unrecorded CVD prevalence increase with deprivation?
3. Does statin prescribing increase with recorded CVD prevalence and deprivation?
4. Does management of patients’ cholesterol vary as recorded CVD prevalence increases?
5. Is QOF performance for managing patients’ cholesterol associated with cost-efficient statin prescribing as recommended in NICE guidance?

Addressing need and inequalities in smoking prevalence with NHS stop smoking services

6. Are recruitment to stop smoking services and quit rates meeting need in relation to NICE guidance?
7. Does nicotine replacement therapy, and other drugs prescribed in stop smoking services, increase with smoking prevalence?
8. How does the recording of the smoking status of patients with an ‘at risk’ condition and the provision of advice or referral to stop smoking services vary with smoking prevalence?

* The Quality and Outcomes Framework (QOF) is a system for the performance management and payment of GPs in the NHS.
Question 1:
Have variations in the management of patients’ cholesterol levels reduced?

In the Quality and Outcomes Framework (QOF), GPs receive payment for their performance on a number of clinical indicators. The QOF indicator ‘CHD08’ concerns the percentage of patients on a practice’s coronary heart disease register whose last measured total cholesterol level (measured in the previous 15 months) is 5mmol/l or less. GPs receive graduated payments for achievement on this indicator, with 100% of payment when 70% of patients on the register are recorded as having cholesterol levels of 5mmol/l or less.

Over the period 2004/05 to 2007/08, the average performance across England in meeting the QOF target to reduce cholesterol levels rose from 72% to 83% (see Figure 3.1).

The rate of increase in achievement is more pronounced in the fifth most deprived GP practices than in the fifth least deprived GP practices, which has resulted in a narrowing in inequality over the period.

However, the most recent data suggest both a slowing down in the rate of overall improvement and a reduction in the rate at which inequalities are narrowing.

Conclusions
It is not clear whether the rate of improvement has slowed down due to GPs having reached the threshold for receiving full payment or because the remaining proportion of patients who may still have cholesterol levels above 5mmol/l are those who are the hardest to reach or treat.

Issues such as people’s beliefs and attitudes about health and seeking help, and other social and economic circumstances, may present tough challenges for GPs managing patients in more deprived areas.

Figure 3.1: QOF CHD08: patients with cholesterol reading of 5mmol/l or less – national trend over four years for GP practices serving the fifth most deprived and fifth least deprived communities
Question 2: Does estimated unrecorded CVD prevalence increase with deprivation?

Figure 3.2 shows that the level of estimated unrecorded prevalence increased with greater deprivation. Our estimates of unrecorded prevalence were consistent with the findings of another study published in October 2008. The variation in unrecorded prevalence also increased markedly with deprivation.

Overall, the median level of estimated unrecorded prevalence was just over 1% and a large number of GP practices had median unrecorded prevalence rates of over 2%.

Conclusions

QOF was not designed to be an epidemiological disease register, and is therefore likely to miss a proportion of those with established CVD. Some reasons why CVD prevalence may be unrecorded include patients who are registered with a GP but whose CVD has not yet been diagnosed, people in the community who are not registered with a GP but who have CVD, or because some GP practices in deprived inner city areas may not have systems in place to capture the data in electronic format for the QOF.

The median level of unrecorded prevalence may appear to be low at just over 1%, but this is significant in public health terms, and it is worrying that the level of unrecorded prevalence increases with increasing deprivation. People who have CVD and who also live in relatively poor social and economic circumstances are more likely to be in greater need of preventative treatment because of the added burden of deprivation.

Variations in the performance of GP practices are inevitable. However, high levels of variation can indicate that they are either not consistently observing national guidelines, they do not have a focused approach or that there are challenges associated with deprivation in the local area.
**Question 3:**
Does statin prescribing increase with recorded CVD prevalence and deprivation?

Volumes of statin prescribing (known as ADQ/STAR PU – see Glossary) increase only marginally as the prevalence of CVD increases (see Figure 3.3a). However, the increase in prescribing is more noticeable with increasing deprivation (see Figure 3.3b).

There appears to be a wider variation in statin prescribing in GP practices with a lower estimated CVD prevalence. Conversely, in the context of deprivation, variation in statin prescribing is greater in the more deprived GP practices.

**Conclusions**
Statin prescribing increases more noticeably with increasing deprivation than with increasing CVD prevalence. This may be because deprivation is a better predictor of the prevalence of CVD than QOF (as stated above, QOF was not designed to be an accurate epidemiological disease register). Prescribing statins to people who are not yet recorded as having established CVD might explain why it appears that there is more statin prescribing in deprived areas (Figure 3.3b) than in areas of higher CVD prevalence.

This may also suggest that GPs are undertaking some preventive statin prescribing to patients at high risk of developing CVD. If this is the case, it is good news for people’s health and fits in with both the Department of Health’s policy and guidance from NICE on reducing risks of CVD, although not consistently so.

Further research may clarify how much of the above prescribing is to those whose CVD is unrecorded and to those who are at high risk.

**Figure 3.3a: Volume of statin prescribing by CVD prevalence**

(1 = fifth of GP practices with lowest CVD prevalence, 5 = fifth of GP practices with highest CVD prevalence)
Figure 3.3b: Volume of statin prescribing by deprivation

(1 = least deprived fifth of GP practices, 5 = most deprived fifth of GP practices)
Question 4: Does the management of patients’ cholesterol vary as the recorded CVD prevalence increases?

There was a marginal increase in the performance of some GPs in managing patients’ cholesterol levels as the prevalence of CVD increased.

Overall, there was less variation in performance between the fifth of GP practices with the highest CVD prevalence and the fifth with the lowest CVD prevalence.

Conclusions

GP practices with a higher prevalence of CVD achieve similar, and in some instances, better, outcomes in cholesterol management compared with practices with lower CVD prevalence.

This is a positive finding and shows that the QOF system of payment for performance is effective at ensuring that GPs take action in the care of people on coronary heart disease registers, irrespective of the size of the disease caseload.

Figure 3.4: Performance in managing patients’ cholesterol levels (QOF indicator CHD08) by CVD prevalence

![Performance in managing patients’ cholesterol levels](image)

(1 = fifth of GP practices with lowest CVD prevalence, 5 = fifth of GP practices with highest CVD prevalence)
3. Findings and conclusions continued

**Question 5:**
Is QOF performance for managing patients’ cholesterol associated with cost-efficient statin prescribing as recommended in NICE guidance?

A significant proportion of GP practices that achieve lower outcomes for cholesterol management also tend to prescribe a higher proportion of the more expensive, branded statins (see Figure 3.5).

We estimate that the NHS could save up to £62.5 million if GPs prescribed lower-cost (non-branded) statins, in line with guidance from NICE*. This could be used to address some of the inequalities we have observed with current prescribing patterns.

**Conclusions**
A large proportion of GP practices that perform less well in managing patients’ cholesterol levels also prescribe a higher proportion of more expensive statins and may therefore be providing less cost-effective services. This issue is of particular concern, given the fact that statins represent a major and increasingly significant cost to the NHS prescribing bill.

The costs of prescribing statins are expected to increase as more clinicians follow recent guidance being circulated throughout the NHS on preventing risks of CVD.

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**Figure 3.5: Cholesterol management performance measured by cost-efficient prescribing**
(proportion of all statin prescribing that is generic i.e. less costly statins)

Source: Data from QOF CHD08 2007/08 and the NHS Business Services Authority Prescription Pricing Division 2007/08.

*The NHS Institute for Innovation and Improvement looked at generic statins as a proportion of all statin prescribing in every PCT. The top 25% (the upper quartile) of PCTs were found to prescribe generic statins in at least 78% of all statin prescriptions. Therefore, 78% was set as the threshold that the remaining 75% of PCTs should aim for. To calculate this, the average cost per item for all prescriptions for simvastatin and pravastatin (generic statins) is substituted for the average cost per item for prescriptions for all other statins. The increase required to reach the 78% threshold is calculated for each PCT.*
Question 6:
Are recruitment to stop smoking services and quit rates meeting need in relation to NICE guidance?

Guidance from NICE recommends that NHS stop smoking services should aim to recruit 5% of the total estimated number of local smokers and to have 35% of the recruited smokers quitting at four weeks.

The quit rate expressed as a proportion of smokers entering stop smoking services is also the preferred performance measure of the Department of Health.

Published evidence has demonstrated that smoking prevalence is higher in deprived areas and we took this into account when developing our methods for estimating smoking prevalence. Therefore, our findings relating to prevalence also apply to deprivation.

When smokers enter NHS stop smoking services, they are given a quit date. The NHS Information Centre collects and publishes two key items of data: the number of quit dates that are set and the number of quits at four weeks. Both data items relate to service ‘throughput’, not individuals (i.e. the same person can enter the service and quit smoking more than once a year if they do not manage to quit at four weeks, or if they relapse after leaving the service).

Preliminary unpublished findings from the Department of Health suggest that an individual uses an NHS stop smoking service on average approximately 1.15 times a year. At the time of writing, this figure is based on returns from 24% of PCTs (37 out of 152, with

Figure 3.6a: Percentage of local smokers recruited
a range of 53% to 98%). We cannot yet confidently use these data to adjust the published national data.

We looked at the number of quit dates set as a proportion of the local smoking population and the number of quits at four weeks as a proportion of the number of quit dates that were set, (i.e. how much of the service throughput resulted in successful quits).

Overall, the median rate of quit dates set on entering stop smoking services was 6.7%, which meets NICE guidance. This rate is likely to decrease once adjustment for unique individuals is made. However, 18.4% of PCTs (28 out of 152) did not achieve this goal (see Figure 3.6a), and the proportion of non-achievement is likely to increase with adjustment.

The median quit rate at four weeks was 52.1% (see Figure 3.6b), which meets and exceeds NICE guidance. However, adjustment will reduce this rate. Our analysis showed that only one PCT did not achieve 35%, but adjustment is likely to reveal that more PCTs are not achieving the NICE quit goal. A number of services exceeded the successful quit rate threshold of 70%. Where there are such high quit rates, NICE recommends that the service is audited.

Both recruitment rates and quit rates varied considerably.

To cancel out the likelihood of higher quit numbers due to higher numbers of smokers in the local population, we statistically adjusted four-week quit rates by the total number of smokers. This adjustment reveals a highly significant relationship between deprivation and poorer likelihood of quitting.

Overall, smoking quit rates decrease with increasing deprivation and smoking prevalence.
Conclusions

National data on NHS stop smoking services published in ‘throughput’ format are useful for planning service capacity. Data relating to unique individuals will strengthen findings on outcomes for people, and whether services are meeting need according to NICE guidance, Government targets and reducing inequalities in CVD. Early unpublished findings suggest that individual smokers who access services may use them on average 1.15 times per year. However, at present we are unable to comment on this with confidence.

NHS stop smoking services appear overall to be good at recruiting and helping smokers to quit in line with guidance from NICE. However, recruitment and quit rates are highly variable. This indicates inconsistency in the way that services are provided in different areas. Evidence from the Department of Health shows that many services are not delivering the more effective group support model.30

Nicotine replacement therapy (NRT) is commonly prescribed for 12 weeks to smokers who are quitting. There is an opportunity to collect quit rate outcome data for NHS stop smoking services in line with this time period.

Our findings illustrate the negative effect that deprivation has on the outcomes of stop smoking services, since services in more deprived areas with higher smoking prevalence are not as successful in supporting smokers to quit at four weeks. Smokers in these areas may be more heavily addicted and live in a more smoke-friendly environment, such as having friends and family who also smoke. This highlights the importance of ensuring that stop smoking services are tailored to meet local needs, especially in respect of local deprivation.

This finding also suggests an inverse care law process, where those with the highest need receive the least care.
3. Findings and conclusions continued

Question 7:
Does nicotine replacement therapy and other prescribing to help stop smoking increase with smoking prevalence?

Nicotine replacement therapy and other drugs prescribed to help patients to stop smoking increase only marginally as smoking prevalence increases (Figure 3.7).

Conclusions
Prescribing data in this context are difficult to interpret. It is of concern that the number of prescriptions to help people stop smoking does not increase markedly with smoking prevalence, because it is reasonable to expect more nicotine replacement therapy and related stop smoking prescribing in areas where smoking prevalence is higher. If we had been able to include sales of over-the-counter nicotine replacement therapies in the analysis, it is likely that inequalities in people’s access to such therapies would be even more apparent. This is because over-the-counter sales are likely to be higher in more affluent areas where smoking prevalence is lower.

In addition to inequality in access to nicotine replacement therapy and other medicines to help patients to stop smoking, we also found that GPs in practices with the highest smoking prevalence were generally less likely to give advice or refer smokers with ‘at risk’ conditions to stop smoking services (see Figure 3.8b), although the difference in achievement is small between practices with the least and most need.

Taken together, these findings demonstrate an inverse care law process where those with the highest need receive the least care.

Figure 3.7: Nicotine replacement therapy and stop smoking drug prescribing by smoking prevalence

![Figure 3.7: Nicotine replacement therapy and stop smoking drug prescribing by smoking prevalence](image-url)
Question 8:
How does the recording of the smoking status of patients with an ‘at risk’ condition and the provision of advice or referral to stop smoking services vary with smoking prevalence?

The recording by GPs of the smoking status of patients with ‘at risk’ conditions and offering of advice or referral for stop smoking services was generally high, at over 90%. Both QOF measures* show increasing variability with higher smoking prevalence (see Figures 3.8a and 3.8b).

There is no significant difference in the median performance level for recording smoking status in relation to smoking prevalence. However, the offer of advice or referral to stop smoking services declines with increasing smoking prevalence, except where it increases again in the cluster of practices with the highest prevalence.

Figure 3.8a: QOF indicator ‘Smoking 1’ by smoking prevalence

* QOF Smoking 1: The percentage of patients with any or any combination of: coronary heart disease, stroke or TIA, hypertension, diabetes, COPD or asthma, whose notes record their smoking status in the previous 15 months (except those who have never smoked where smoking status need only be recorded once since diagnosis). QOF Smoking 2: The percentage of patients with any or any combination of: coronary heart disease, stroke or TIA, hypertension, diabetes, COPD or asthma, who smoke and whose notes contain a record that advice on stopping smoking or referral to a specialist service, where available, has been offered within the previous 15 months.
3. Findings and conclusions continued

Figure 3.8b: QOF indicator ‘Smoking 2’ by smoking prevalence

Conclusions
The recording by GPs of the smoking status of patients with ‘at risk’ conditions and offering of advice or referral to stop smoking services was generally high.

However, not all patients whose smoking status was recorded were then offered advice on quitting or referred to stop smoking services. This indicates higher levels of unmet need for stop smoking services in areas with the highest smoking prevalence.

The fact that variation increases for both measures as smoking prevalence increases is also a cause for concern, as it suggests inconsistent action in primary care to prevent smoking. We also recognise that variation may reflect other factors such as transient populations and socio-economic factors.
Summary conclusions

Our findings and conclusions led to three key themes: the lack of consistency in outcomes for patients, suggesting the need for better alignment with policy and guidance on effectiveness; the positive impact of financial incentives in improving performance and reducing inequalities; and the need for more data to allow better targeting of programmes and services at the people who need them most.

The key issues that emerged from our findings and conclusions are as follows:

Improvements in health outcomes
• The financial incentives offered by the Quality and Outcomes Framework (QOF) have greatly improved outcomes for patients and reduced inequalities in the secondary prevention of CVD (by lowering cholesterol). However, recent data in cholesterol management indicate a levelling-off in both the performance and the narrowing of the gap between the fifth most deprived and fifth least deprived areas in the country. On average, 83% of patients on GPs’ coronary heart disease registers are recorded as having cholesterol levels of 5mmol/l or less, exceeding the QOF threshold of 70% of patients which enables GPs to receive full payment. However, the high variation we found means that many GPs are not performing as well, and there is now an opportunity for further improvement. Incentivising GPs through the QOF to undertake other activities to prevent CVD will further improve outcomes for patients.

• Statin prescribing increases more noticeably with increased deprivation than with increased CVD prevalence. The more marked increase in prescribing with increased deprivation may be good news for people’s health, as it may suggest that GPs are undertaking some statin prescribing to those at high risk of CVD as well as to those with established disease. This is in line with NICE guidance, but there is a lack of consistency in line with evidence-based guidance.

• Overall, recruitment to NHS stop smoking services appears to be responding to the greater need in areas of higher smoking prevalence, which also tend to be the more deprived. The data relate to service ‘throughput’, not individuals (i.e. some smokers may use services more than once a year). Complete data on unique individuals will strengthen findings on how services are meeting need in relation to outcomes for people, guidance from NICE and Government targets. We found that almost one in five PCTs did not meet NICE guidance to recruit 5% of its estimated local smoking population. We also found that all but one PCT met or exceeded NICE guidance in supporting 35% of smokers who enter services to quit at four weeks. Adjustment for individuals is likely to reduce success in both NICE goals. However, deprivation has a significantly negative effect on quit rates. This may be due to entrenched smoking behaviours in deprived areas, highlighting the importance of tailoring services to meet local needs.
3. Findings and conclusions continued

Remaining challenges

- Overall, our findings in relation to both statin prescribing and stop smoking services suggest that CVD prevention by primary care providers has not been undertaken in a planned, focused and consistent way, in line with policy from the Department of Health and guidance from NICE based on the evidence of what works. It may also suggest that PCTs are not commissioning services in line with this policy and guidance.

We would expect some variation in outcomes and we recognise that the higher achievement or data points can reflect strong performance and examples of best practice. However, we found too much weaker performance.

There is therefore now an opportunity to tackle inconsistencies in following policy and guidelines. Performance can be improved further by the systematic monitoring of cholesterol management, hospital admissions, referrals to stop smoking services and quit rates, together with feedback from PCTs, and by pushing for universal compliance with policy and guidance, looking to the high performers as delivering models of best practice.

- The more deprived an area is, the less likely it is that GPs will record a person’s CVD, resulting in poorer access to treatment. Although the average level of estimated unrecorded CVD prevalence appears generally low at on average 1.1%, this is significant in public health terms. Its increase up to 7% in some of the most deprived areas is worrying because these areas have a higher concentration of people with more complex cardiovascular health needs. Our findings suggest that these needs are not being met. This may also be true for people at high risk of developing CVD.

- Too many GPs prescribe expensive branded statins when equally effective, cheaper non-branded statins are available. GP practices that prescribe less cost-efficiently also tend to have lower performance levels for cholesterol management.

- People living in deprived areas are less likely to be prescribed nicotine replacement therapy by their GP, are less likely to be referred to NHS stop smoking services by their GP and less likely to quit smoking with NHS stop smoking services.

It appears from the findings in relation to access to care and smoking-related services that there is an inverse care process in place, where the people who are most in need of services are least likely to receive them.
The two strong themes in our summary conclusions are that responding to financial incentives results in better outcomes, and that poorer outcomes for patients and high variation in performance suggest a lack of adherence to policy and guidance. These themes guided most of our recommendations. The challenges we faced in the study regarding lack of data helped to shape our thinking about the data that will be needed in future for the prevention of cardiovascular disease.

**Addressing inequalities in CVD through statin prescribing**

**Developing the Quality and Outcomes Framework (QOF):**
1. As part of its new role in developing the QOF, NICE should recommend incentivising GPs to lead programmes to identify disadvantaged adults at risk of CVD, which is also in accordance with NICE guidance, using a range of methods, including ‘proactive case finding’ (i.e. outreach activities).

   GPs could receive payment based on how successful their practice is in reducing the gap between the recorded level and the estimated level of established CVD and those ‘at high risk’ of CVD in their local population. Identifying people who may be hard to reach and previously undetected as being at high risk of CVD, or as having established CVD, will provide opportunities to implement prevention or treatment care plans for those people. This incentive should be appropriately coordinated to prevent double payment, where GPs are otherwise encouraged to find cases without a focus on narrowing inequalities. This will contribute to reducing inequalities in premature deaths from CVD and is in line with the Department of Health’s vascular screening programme.

2. NICE should recommend establishing a CVD disease register for use in the QOF, having one for patients with CVD and a separate register for those at high risk of CVD.

   There are currently separate QOF disease registers for coronary heart disease, stroke and diabetes. However, only ischaemic stroke is related to CVD (haemorrhagic stroke has different causes) and GPs do not differentiate between the two in their recordings for the QOF stroke indicators. Some people with diabetes also develop CVD, so including these people on a CVD register will aid the management of the added complications of diabetes. Dedicated CVD registers will help to focus management of the condition more appropriately.

3. NICE should recommend increasing the proportion of patients managed in order for GPs to receive payment for the QOF cholesterol management indicator CHD08.

   Currently, GPs receive maximum payment once they record cholesterol levels of 5mmol/l or less for 70% of the patients on their coronary heart disease (CHD) register. Therefore, potentially, nearly a third of patients’ cholesterol levels may be left unmanaged. While we found that GPs were recording cholesterol levels of 5mmol/l or less for an average of 83% of patients on CHD registers, there was high variability, with too many falling far short of 70%. The threshold at which GPs start to receive payment (currently 40% of patients recorded as having cholesterol levels of 5mmol/l or less) should also be increased. These changes will drive improvement further in preventing CVD. NICE should also consider recommending that the length of time between recording patients’ cholesterol levels, which is currently every 15 months, should be reduced.
Monitoring implementation of evidence-based policy and guidance through commissioning:

4. PCTs should commission primary care practitioners to undertake vascular screening and treatment of patients in line with the Department of Health’s vascular checks programme, to undertake proactive case finding in line with NICE guidance, and to systematically monitor how effectively they are delivered.

PCTs may have to provide extra support to GP practices with high unrecorded prevalence of CVD or to those serving more deprived communities. This will support recommendation 1 above.

5. PCTs should strongly encourage GPs to prescribe non-branded statins where clinically appropriate to those with established CVD and those ‘at high risk’ of CVD, in line with guidance from NICE and data on the local CVD prevalence. PCTs should systematically monitor this prescribing. GPs should also ensure that they recommend lifestyle changes or implement health improvement programmes for patients, in accordance with the Department of Health’s vascular programme recommendations and guidance from NICE. PCTs should feed back to GPs the inequalities in prescribing patterns that indicate unmet need and formulate a clear response to balance out such trends. This will ensure cost-efficient prescribing. National support materials on statin prescribing and further information on prescribing for CVD can be found on the National Prescribing Centre’s interactive website: www.npci.org.uk/lift/lift.php.

6. PCTs should continue to systematically monitor performance in QOF indicators relating to CVD at practice level, and should gauge this alongside deprivation and other inequalities markers, such as ethnicity, age and sex.

PCTs may have to provide extra support to practices serving deprived communities in order to achieve similar outcomes to practices serving less deprived communities. This will help to ensure that local need is being met and inequalities are being tackled.

Improving data:

7. The Department of Health should commission a national programme to produce robust estimates of CVD prevalence at both PCT and GP practice level, including:

- Those with established CVD.
- Those at high risk of CVD.
- Unrecorded prevalence.

The public health observatories have published prevalence data at PCT level for coronary heart disease and hypertension separately. However, there are no prevalence data available at PCT and practice level for CVD that include ischaemic stroke and CVD-related diabetes.

Addressing inequalities in smoking reduction need through NHS stop smoking services

Developing the Quality and Outcomes Framework:

1. NICE should recommend extending QOF indicators on smoking, so that all smokers registered with a GP practice are offered referral to NHS stop smoking services, as well as supportive prescribing of medicines that are proven to help stop smoking.

Monitoring implementation of evidence-based policy and guidance through commissioning:

2. NICE should recommend increasing goals for stop smoking services from the current goals, which are to recruit 5% of the estimated local smoking population and for 35% of those recruited to successfully quit at four weeks.

Goals for recruitment and quitting could be set according to the size of the local smoking population (setting higher goals in areas where smoking prevalence is higher). This may help to
improve reductions in smoking prevalence equally and in line with the Department of Health’s targets for particular groups.

3. PCTs should commission local NHS stop smoking services to deliver the most effective, evidence-based stop smoking models in innovative ways in line with guidance from NICE, particularly to hard-to-reach groups, in areas of high deprivation, and to those who find it most difficult to quit.

PCTs should also systematically monitor how effectively services are delivered. This should help to meet need where it is highest.

4. PCTs should systematically monitor GPs to ensure that they undertake proactive case finding in order to identify those who are deprived, who smoke and who are most at risk of CVD, in line with NICE guidance on contributing to reducing inequalities in CVD.

**Improving data:**

5. The Department of Health should commission a national programme to produce robust estimates on smoking prevalence and smoking-attributable mortality at both PCT and GP practice level. This will help to build intelligence on the need for services to help stop smoking and the impact of smoking reduction policies.

6. The Department of Health, strategic health authorities, PCTs, NHS stop smoking services and GP practices should coordinate work to collect and publish additional data on outcomes for NHS stop smoking services, such as outcomes for individuals and 12-week quit rates, linked to GP referrals.

7. PCTs should ensure that there are mechanisms to enable feedback between stop smoking services and GP practices, to allow GPs to provide follow-up advice to smokers who find it difficult to stop.

**Taking forward our work**

We are now developing a programme of work, using the information and learning from the study, in our efforts to tackle health inequalities. The data and findings from the study will contribute to a number of initiatives, including:

- Our new special review to assess how PCTs plan to reduce future demands on health services through their depth of understanding of their population’s current and future health needs.


- Sharing with PCTs comparative information on their performance in statin prescribing, the effectiveness of stop smoking services and estimates of the prevalence of smoking and CVD.

- Using the data as part of our screening of overall performance when we assess the declarations of care providers of their compliance with registration requirements.*

In addition, we are commissioning data on deaths caused by smoking (smoking-attributable mortality) at PCT and GP practice level and analysing this in relation to the findings in this report. We aim to use our findings to influence the development of the QOF to improve performance, and therefore improve outcomes for patients.

* From April 2010, all providers of health and adult social care will be required under the Health and Social Care Act 2008 to register with the Care Quality Commission. To do so, they must show that they are meeting essential common quality standards.
References


3. www.heartstats.org/glossary.asp#C


6. news.bbc.co.uk/1/hi/programmes/politics_show/7192271.stm

7. www.heartstats.org/datapage.asp?id=7683


Appendix A: Sources of data

We obtained data from a variety of sources and, in the case of CVD, have attempted to map indicators to the care pathway.

**Commissioned prevalence estimates**

We commissioned prevalence estimates for smoking and CVD from the University of Southampton and the Eastern Public Health Observatory/Imperial College London respectively. The principal data source to estimate prevalence in both instances was the Health Survey for England.

The technical sub-group for this study reviewed the methodologies that were used to derive both prevalence estimates:

- Eastern Region Public Health Observatory/Imperial College London were commissioned to produce estimates of CVD at both PCT and GP practice level.
- Southampton University was commissioned to update its 2004 PCT smoking prevalence estimates at PCT and GP practice level.
- Analysts at the Care Quality Commission produced PCT and practice level estimates of recorded CVD prevalence by applying the prevalence assumptions used in the NICE lipid modification model to QOF prevalence data for coronary heart disease, diabetes and stroke. These estimates were then compared against expected prevalence values generated by ERPHO/Imperial College London.

We will provide the estimated prevalence data to help PCTs to assess their local health needs.

A technical summary of the estimation methods used to produce the prevalence estimates is provided in the technical information which can be found at www.cqc.org.uk.

**Unrecorded prevalence**

We estimated the unrecorded prevalence by subtracting the recorded QOF prevalence (observed) estimate from the ERPHO/Imperial (expected). The level of estimated unrecorded CVD is an important public health measure of the unmet need for services to tackle CVD.

**Deprivation**

Deprivation is a key determinant of health need. In this study, we used the Index of Multiple Deprivation (IMD) for 2004. The overall IMD score was used as the principal deprivation measure in this study. IMD scores at GP practice level were calculated using patient-level postcode data from the NHS Information Centre.

**Smoking quit rates**

We obtained data on quit rates from the NHS Information Centre. They are only available for people entering NHS stop smoking services and who have successfully stopped smoking in the third and fourth week after the quit date.

We measured four-week quit rates in two ways:

- Total number of smokers recruited to stop smoking services divided by the estimated total number of smokers in an area.
- Number of quitters at four weeks divided by the number recruited to stop smoking services.

**Prescribing data**

We obtained prescribing data from the NHS Information Centre and the NHS Business Services Authority Prescription Pricing Division. We used three prescribing measures in this study:

- Statin prescribing: specific therapeutic group age-sex weightings related prescribing units (STAR PU) by PCT and GP practice – a weighted average volume-based measure.
- The ratio of simvastatin and pravastatin to all lipid lowering drugs prescribed – this measure provides an indication of the cost efficiency of local prescribing.
- Smoking cessation medication: Zyban, Champix and nicotine replacement therapy by PCT and GP practice – the number of items prescribed.
Appendix B: Glossary of terms

ADQ per STAR PU
Average daily quantity per specific therapeutic group age-sex related prescribing units. This is the way in which data on volumes of statin prescribing is recorded by the Prescription Pricing Authority.

Angina
The most common form of coronary heart disease. It is characterised by a heaviness or tightness in the centre of the chest which may spread to the arms, neck, jaw, face, back or stomach. Angina occurs when the arteries become so narrow that not enough oxygen-containing blood can reach the heart muscle when its demands are high, such as during exercise.

Angioplasty
A treatment to improve the blood supply through an artery. A catheter (a fine, hollow tube) with a small inflatable balloon at its tip is inserted into a vein in the groin and passed through to the narrowed artery. The balloon is then gently inflated so that it squashes the fatty tissue responsible for the narrowing, and widens the artery.

Blood pressure
The pressure of blood in the arteries. The highest blood pressure (systolic pressure) occurs when the beat or contraction of the ventricles of the heart forces blood around the circulation. The lowest pressure (diastolic pressure) occurs between heartbeats, when the ventricles are relaxing and refilling. Blood pressure is measured in millimetres of mercury (abbreviated to “mmHg”). A blood pressure reading gives two numbers, for example 140/85. The first is the systolic pressure and the second is the diastolic pressure.

CABG
See: Coronary artery bypass graft.

Cardiovascular disease
The collective term for all diseases affecting the circulatory system (heart, arteries, blood vessels). Commonly known as CVD, cardiovascular disease includes coronary heart disease (about 50%), stroke (about 25%), and all other diseases of the circulatory system.

CHD08 Quality and Outcomes Framework
An indicator used in the Quality and outcomes Framework, to measure the percentage of patients with coronary heart disease whose last measured total cholesterol level (measured in the previous 15 months) is 5mmol/l or less. GPs receive graduated payments for achievement on this indicator, with 100% of payment when 70% of patients on their register have cholesterol levels of 5mmol/l or less.

Cholesterol
A fatty substance made mainly in the body by the liver. Cholesterol plays a vital role in the functioning of every cell wall throughout the body. However, too much cholesterol in the blood can increase the risk of getting coronary heart disease. There are two types of cholesterol: the more ‘harmful’ LDL (low density lipoprotein) cholesterol that carries cholesterol from the liver to the cells of the body, and the ‘protective’ HDL cholesterol (high density lipoprotein) that returns excess cholesterol to the liver. UK guidelines suggest a total cholesterol target of less than 5mmol/l, and treatment for those with HDL cholesterol levels below 1.0mmol/l.

Coronary artery bypass graft (CABG)
An operation to bypass a narrowed section or sections of coronary arteries and improve the blood supply to the heart.

Coronary heart disease (CHD)
CHD occurs when the walls of the coronary arteries become narrowed by a gradual build-up of fatty material called atheroma. The two main forms of CHD are heart attack (also known as myocardial infarction) and angina.
Appendix B: Glossary of terms continued

**Exception reporting**
Patients who are on a disease register, and who would ordinarily be included in the indicator denominator, but have been excepted because they meet at least one of the exception criteria. Examples include patients who have been recorded as refusing to attend review who have been invited on at least three occasions during the preceding 12 months, patients for whom it is not appropriate to review the chronic disease parameters due to, for example, terminal illness or extreme frailty, or where a patient does not agree to investigation or treatment (informed dissent), and this has been recorded in their medical records.

The criteria under which a patient may be excepted from a QOF indicator are set out in QOF Guidance and underpinned in the Statement of Financial Entitlements. Although patients may be excepted from the denominator, they should still receive the best clinical care and practice.

**Haemorrhagic stroke**
A sub-type of stroke resulting from a haemorrhage of one of the major arteries that feed the brain (the carotid, cerebral and subclavian arteries). It is often referred to as cerebral haemorrhage or intracerebral haemorrhage. In some instances the term haemorrhagic stroke incorporates subarachnoid haemorrhage.

**HDL (high density lipoprotein) cholesterol**
This is the fraction of cholesterol that removes cholesterol (via the liver) from the blood. Low levels of HDL cholesterol are associated with an increased risk of coronary heart disease and worse prognosis after a heart attack. Guidelines on HDL cholesterol generally recommend treatment for those with concentrations below 1.0mmol/l.

**Heart failure**
Heart failure is a clinical syndrome that occurs when the heart is unable to pump enough blood to meet the demands of the body. It occurs because the heart muscle is damaged or overworked. The ‘failing heart’ keeps working but not as well as it should. Some people with mild heart failure may have very few symptoms. People with moderate or severe heart failure suffer from a number of problems, including shortness of breath, general tiredness and swelling of the feet and ankles.

**Hypertension**
High blood pressure. Hypertension happens if the walls of the larger arteries lose their natural elasticity and become rigid, and the smaller vessels constrict.

**Ischaemic stroke**
A subtype of stroke that is a result of a blockage in one of the major arteries that feed the brain (the carotid, cerebral or subclavian arteries). It is often referred to as occlusive stroke.

**LDL (low density lipoprotein) cholesterol**
The more ‘harmful’ fraction of cholesterol that carries cholesterol from the liver to the cells of the body. LDL is the fraction of cholesterol that causes atherosclerosis.

**Morbidity**
Morbidity is the state of being diseased.

**Mortality**
Mortality is the incidence of death in a population in a given period.

**Myalgia**
Muscle pain. When a person has chest pain, a blood sample is analysed for levels of creatine kinase, which is a marker of myocardial infarction (heart attack).
Myocardial infarction
See: ‘heart attack’.

Myopathy
Any muscle symptom that is accompanied by a concentration of creatine kinase in the blood greater than 10 times the normal range. Clinically, creatine kinase is analysed in blood tests as a marker of myocardial infarction (heart attack).

Prevalence
A measure of morbidity based on current sickness in the population at a particular time. The prevalence of angina, for example, is the number of people (often expressed as a rate per 100,000) in the population who are suffering from angina.

Primary prevention
Interventions aimed at reducing the risk of disease before the disease has been diagnosed. Primary prevention interventions are usually aimed at whole populations, such as regulation of tobacco advertising.

Quintiles
Where data are divided into five equal groups of 20% each. Each group is a quintile.

Quality and Outcomes Framework (QOF)
QOF is part of the General Medical Services contract for general practices, introduced on 1 April 2004. The QOF provides financial rewards to general practices for the provision of high quality care. It is intended to benefit both patients and the NHS. The QOF measures achievement against a scorecard of 146 indicators, plus three measures of depth of care. GP practices score points on the basis of achievement against each indicator. The QOF is made up of four domains: clinical; organisational; patient experience; and additional services.

Secondary prevention
Interventions aimed at reducing the risk of a disease recurring after the disease has initially been diagnosed. Secondary prevention interventions are therefore targeted at individuals who are already at high risk of disease.

Social class
The term for any of the sub-divisions of the population, based on occupation, made by the Office of Population Censuses and Surveys. There are five classes: I professional/self-employed; II administrative; III (non-manual) clerical, and (manual) skilled manual workers; IV semi-skilled; V unskilled.

Spearhead group
Spearhead local authorities are those in the lowest fifth of geographical areas for health and deprivation indicators compared to the rest of the population for three or more of the following five factors:

- Male life expectancy at birth.
- Female life expectancy at birth.
- Cancer mortality rate in under 75s.
- Cardiovascular disease mortality rate in under 75s.
- Index of Multiple Deprivation 2004 (local authority summary), average score.

The Spearhead group is made up of 70 local authority areas that map to 62 primary care trusts. Spearhead groups cover over a quarter of the population (28%), and 44% of the black and minority ethnic population, of England.

Standardised mortality ratio
The ratio of the number of events observed in a population to the number that would be expected if the population had the same structure as a standard or reference population.
Statins
Statins are the main type of drugs now used to reduce cholesterol levels. The National Service Framework for Coronary Heart Disease recommends prescribing statins to patients upon discharge from hospital after a heart attack. They are also prescribed to those who are at risk of CVD.

Stroke
A stroke is the consequence of an interruption to the flow of blood to the brain. A stroke can vary in severity from a passing weakness or tingling of a limb to a profound paralysis, coma and death. Also see: haemorrhagic stroke; ischaemic stroke; subarachnoid haemorrhage; and unclassified stroke

Transient ischaemic attack (TIA)
A condition caused by a brief delay in the blood supply to a particular area of the brain resulting in neurologic dysfunction that persists for less than 24 hours. It is often referred to as a mini stroke or TIA.
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