

# The NHS Health Check: where are we now?

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The aim of the NHS Health Check is to improve health and wellbeing of adults aged 40–74 through earlier detection and management of individual risk factors for vascular disease and other conditions associated with them. The programme was launched in 2009 in response to the rising tide of preventable death and disability from non-communicable disease, and is intended to reach 15 million eligible people in England every five years. The authors describe the programme and progress so far.

Cardiovascular disease (CVD) is now recognised as a family of disorders including coronary heart disease and stroke, but also peripheral vascular disease (including erectile dysfunction), chronic kidney disease (CKD) and type 2 diabetes. These are conditions that share the same vascular pathology and therefore similar outcomes. An individual with type 2 diabetes, for example, has a cardiovascular risk equivalent to a person who has had a previous myocardial infarction. A person with peripheral vascular disease has a four times increased risk of stroke and a two to three times increased risk of heart attack.

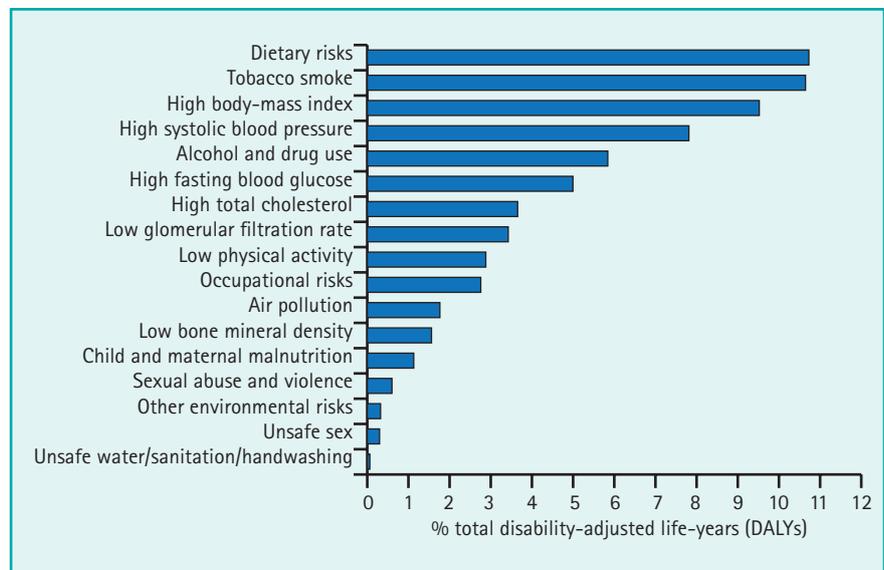


Figure 1. Leading causes of premature death and disability in England in Global Burden of Disease Study 2013, expressed as a percentage of disability-adjusted life-years<sup>4</sup>

CVD accounts for around 200 000 deaths each year in England – that is one third of all deaths and around a quarter of all premature deaths (*ie* those under the age of 75). As such, CVD is one of the big killers and understandably a high priority for health professionals, politicians and the public.<sup>1</sup>

At the same time, it is clear that the outcomes achieved for people in England for people with CVD and other long-term conditions are not as good as many other economically developed countries. For example, the Department of Health has estimated that if England were to perform as well as Switzerland, there would be around 29 000 fewer deaths under the age of 75 from all causes in England each year.<sup>2</sup> As with other long-term conditions, entrenched health inequalities play a part, with CVD mortality rates approximately

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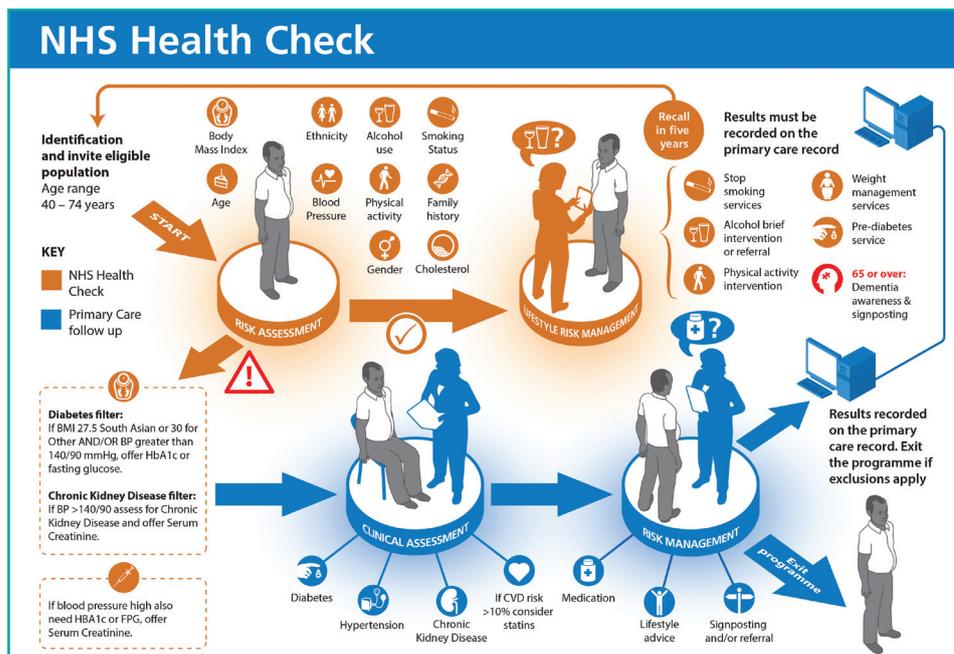


Figure 2. The NHS Health Check

50% higher in the most deprived fifth of the population compared to the least deprived.<sup>3</sup> There is also significant gender inequality, with men more likely to develop and die from CVD than women.

**PREMATURE DEATH IS PREVENTABLE**

It is estimated that around two thirds of premature deaths can be avoided through improved prevention, detection and management of well-established behavioural and physiological risk factors. The 2013 Global Burden of Disease Study identified and ranked the top 20 risk factors which have an impact on disability-adjusted life years or DALYs.<sup>4</sup> The DALY is an aggregate of years of life lost due to premature death and years of healthy life lost due to disability. In England, diet is the leading cause of premature death and disability, followed by tobacco, high body mass index (BMI), high blood pressure, alcohol and drug use, raised blood sugar, high cholesterol and abnormal kidney function (Figure 1). These factors are linked with a range of health conditions, but the largest impact is through CVD.

In England, as in much of the developed world, the impact of preventable ill health on

society, and CVD in particular, is increasing. This in part reflects the ageing population, but is also a direct result of an inexorable rise in obesity and type 2 diabetes. Diabetes already accounts for almost 10% of NHS expenditure, most of which is spent on cardiovascular and other complications of the condition. If the increase in incidence of obesity and type 2 diabetes continues as predicted, it will put at risk the sustainability of the NHS.

**WHAT CAN THE NHS DO ABOUT PREVENTION?**

It is important to acknowledge that population-level interventions are the most important in tackling the structural causes of preventable ill health – for example, the ban on smoking in public places, urban design that promotes physical activity and the reformulation of foods to improve nutritional content. However, with 750000 daily contacts with patients, the NHS also has a key role to play through identifying and managing physiological risk factors (such as high blood pressure, non-diabetic hyperglycaemia, CKD and high CVD risk) and in supporting people to address behavioural risk factors through lifestyle change.

The NHS Health Check offers a systematic approach to supporting this kind of preventative health care. Specifically targeting the leading behavioural and physiological risk factors identified in the Global Burden of Disease Study, it is offered to eligible adults in England between the ages of 40 and 74 once every five years and reflects the recommendations of the UK National Screening Committee report into cardiovascular risk assessment, first published in 2008 and updated in 2012.<sup>5</sup> Eligible adults are those who do not have pre-existing CVD or risk factors that are already being managed.

During the NHS Health Check, the individual undergoes a risk assessment based on a series of questions and measurements including BMI, blood pressure and cholesterol. Using this data, a 10-year CVD risk score is calculated using QRisk2. If blood pressure is found to be raised, renal function is also checked. If the assessment suggests high risk of diabetes, HbA1c or fasting blood glucose is measured. Dementia awareness and signposting is also offered.

Risk assessment is followed by risk management, with identified risks, such as smoking, being overweight, inactivity, poor diet or excess alcohol consumption, addressed through brief interventions and signposting. If individuals are also found to have a high CVD risk score or raised blood pressure, possible CKD or abnormal glycaemic control, they are referred to the GP for confirmatory investigation and appropriate management (Figure 2).

Initial modelling for the NHS Health Check indicated that this approach to targeting the leading causes of premature death and disability had the potential to significantly improve outcomes. Estimates suggested that the programme could prevent over 4000 cases of diabetes, 1600 heart attacks and strokes and 650 premature deaths each year, and help detect an additional 20000 cases of diabetes and CKD.<sup>6</sup>

### WHAT DOES THE EVIDENCE TELL US?

There has been some debate as to whether the available evidence justifies a national programme of health checks. In particular, critics have cited the Cochrane systematic review of 2012 which examined 16 randomised control trials of health checks over the previous 50 years.<sup>7</sup> The review concluded that general health checks did not reduce morbidity or mortality, but had significant weaknesses in relation to the current NHS Health Check programme. Most of the studies included dated from the 1960s and only one included drug treatment for CVD risk. Overall, the general health checks examined bore little resemblance to the comprehensive risk assessment and management offered by the NHS Health Check programme.

### WHY IMPLEMENT THE PROGRAMME NOW?

It is important to acknowledge that there are gaps in the evidence. We do not have clear evidence that a systematic national approach to tackling the leading causes of premature death and disability will be effective. However, while there is uncertainty in relation to the delivery method for preventative interventions, it is clear that each of the interventions delivered by the NHS Health Check (eg support for weight reduction, increased physical activity, smoking cessation or management of high CVD risk, raised blood pressure, blood sugar or CKD) is robustly evidence-based and derived from NICE guidance.

The rationale for introducing the programme before we have perfect evidence is that we cannot afford to wait. The rise in levels of obesity and type 2 diabetes is inexorable, meaning that the rise in preventable death and disability from CVD will also be inexorable. We need national, population-level action to address the structural causes of unhealthy lifestyles, but we also need individual-level management of behavioural and physiological risk factors. In this light, continuing with the NHS Health Check is a rational response. At the same

time, it is essential that we evaluate the programme rigorously and ensure that it is continually optimised in line with the evidence as it emerges.

### CURRENT PROGRESS

Since local authorities assumed the legal duty to deliver the NHS Health Check programme in April 2013, there has been a progressive increase in the number of NHS Health Checks offered. During the nine quarters since, some 6.6 million people have been invited to participate, with a steady improvement in uptake. However, only around 50% of the eligible population are currently receiving the check.

Public Health England has established an Expert Scientific and Clinical Advisory Panel (ESCAP) to oversee quality improvement in the programme to monitor offers, uptake and impact on health inequalities, to review emerging evidence and identify research needs, and to modify the programme as appropriate to reflect the evidence.

Some local evaluations of the programme are now beginning to report. Robson *et al.* reported on a three-year observational cohort study of NHS Health Checks delivered across 139 practices in East London.<sup>8</sup> They found a gradual increase in uptake over the three years, with no difference in attendance rates across deprivation quintiles or between ethnic groups. There was strong evidence of effective case-finding in hypertension (1 NHS Health Check participant in 38) and diabetes (1 in 80).

Forster *et al.* conducted a three-year matched cohort study of 75 000 NHS Health Check participants.<sup>9</sup> They found a marked increase in the recording of all four specified risk factors (smoking, blood pressure, BMI and cholesterol) compared to non-participants. There was a significant increase in detection of hypercholesterolaemia and, to a lesser extent, obesity and hypertension, as well as a significant reduction in gender and deprivation inequalities in risk recording.

Carter *et al.* conducted a retrospective evaluation of NHS Health Checks in Leicester, covering 53 000 participants over a five-year period in a multi-ethnic population.<sup>10</sup> They found high levels of case-finding, with 30% of participants having a major undiagnosed physiological risk factor – type 2 diabetes, high risk of diabetes, CKD, hypertension and high CVD risk.

The first national evaluation of the programme examined NHS Health Check provision to a population of 95 000 adults.<sup>11</sup> During the first four years of the programme (2009–2013), coverage was low at 21%, although there was significant variation between English regions (9%–30%) and between general practices (0%–72%). There was some variation between ethnic groups, but no difference in coverage between patients living in deprived and affluent areas of England. Significant numbers of people were found to have major risk factors such as high blood pressure, smoking and obesity. However, only one in three individuals with a 10-year CVD risk of 20% or more were subsequently prescribed statins.

A second, larger national evaluation has now been published.<sup>12</sup> This study examined a nationally representative sample of 200 000 NHS Health Checks over four years across 655 GP practices, covering a population of 1.7 million eligible people. The findings of this early report are encouraging. Firstly, NHS Health Check attendance was equal across the top four deprivation quintiles and substantially higher in the most deprived, showing that the programme is tackling health inequalities effectively. Additionally, people over 60 years of age were more likely to attend than the 40–60 age group. At the same time, attendees were more likely to have major risk factors recorded than those receiving routine primary care, and were much more likely to be referred to lifestyle services if they were smokers, obese or hazardous drinkers.

One of the study's key findings showed significant rates of new diagnosis, with one new case of hypertension for every 27 checks and one new case of diabetes for every 110 checks. These detection rates were two to three times higher in those who underwent an NHS Health Check than in those who did not. In addition, one in eight people attending the check were found to have a 10-year CVD risk of 20% or more, a finding that was much more common in men than women. Disappointingly, however, only 20% of these high-risk individuals went on to receive statin treatment.

### CONCLUSIONS

Uptake of the NHS Health Check has improved significantly since commissioning was taken over by local authorities in 2013. However, although most eligible people are receiving their five-yearly invitation, only around half are taking up the offer. If the programme is to be successful in detecting and reducing individual risk and improving cardiovascular outcomes as a result, it is essential that uptake is maximised.

Overall, however, this early evidence is encouraging. It suggests both that the programme may help reduce health inequalities (and does not just reach the worried well) and that it is effective at case-finding for major physiological risk factors, such as hypertension and diabetes. If this is confirmed in subsequent studies, we should welcome the diagnostic support the NHS Health Check brings to primary care, where despite best efforts we fail to diagnose 40% of people with hypertension (25 000 people in the average CCG) and

12% of people with type 2 diabetes, as well as large numbers with atrial fibrillation, hypercholesterolaemia and CKD. The findings should also encourage us to consider how effectively we are managing these physiological risk factors in primary care once they are detected.

**Declaration of interests:** none declared.

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