

# Putting prevention first

Vascular Checks:  
risk assessment and  
management

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## Secretary of State foreword

The Prime Minister set out his vision for the NHS earlier this year: a more personal service supporting people to stay well and maintain good health. It placed individuals centre-stage, engaged and taking greater control over their own health.



Moving from an NHS focussing predominantly on treatment and cure to one that looks first to prevention is a challenge – but it is one that we are determined to address in this 60th anniversary year of the NHS.

Over the past decade, we have made significant improvements to the treatment of vascular disease through the National Service Frameworks on coronary heart disease, renal services and diabetes. We have seen a 40% reduction in deaths from cardiovascular disease in people under 75 since 1996, but it remains a major cause of disability and poor health.

We now need to focus more effort on how we can prevent vascular diseases – coronary heart disease, stroke, diabetes, and kidney disease – earlier in life, so that people can make informed choices about how taking control can improve their health and help them live longer and healthier lives. Today we are publishing the results of detailed clinical modelling. These will form the basis of our proposals to create a universal risk assessment and management programme. For all of us who care about preventing illness and saving lives, these results are very promising and confirm that such a programme, for those aged between 40 and 74, will be both clinically and cost effective. They confirm that through this approach we can save and improve thousands of lives each year.

This document explains in more detail what vascular disease is, why vascular risk assessments are important and how they will work in England. It also calls for our stakeholders to work with us to help develop our approach to implementation and delivery over the next few months. There are huge gains to be made if we get this right – improving the quality and duration of life for thousands of people. Only by working together with our key partners can we develop a system that delivers all of the real and lasting benefits to the public that this programme offers.

A handwritten signature in black ink, which appears to read 'Alan Johnson'.

Alan Johnson  
Secretary of State for Health

# Introduction

## Scope of the problem

**Anne Mackie,**

**Director of the UK National Screening Committee**

The UK National Screening Committee welcomes the priority that the government has placed on implementing its recommendations in England. We will now work with stakeholders and the public to develop robust implementation plans. We will particularly focus on how we can make this accessible to the whole population and reduce inequalities in vascular health. We have already made a start by drawing together the current state of knowledge about vascular risk assessment, risk reduction and risk management in our recently published handbook<sup>1</sup>.

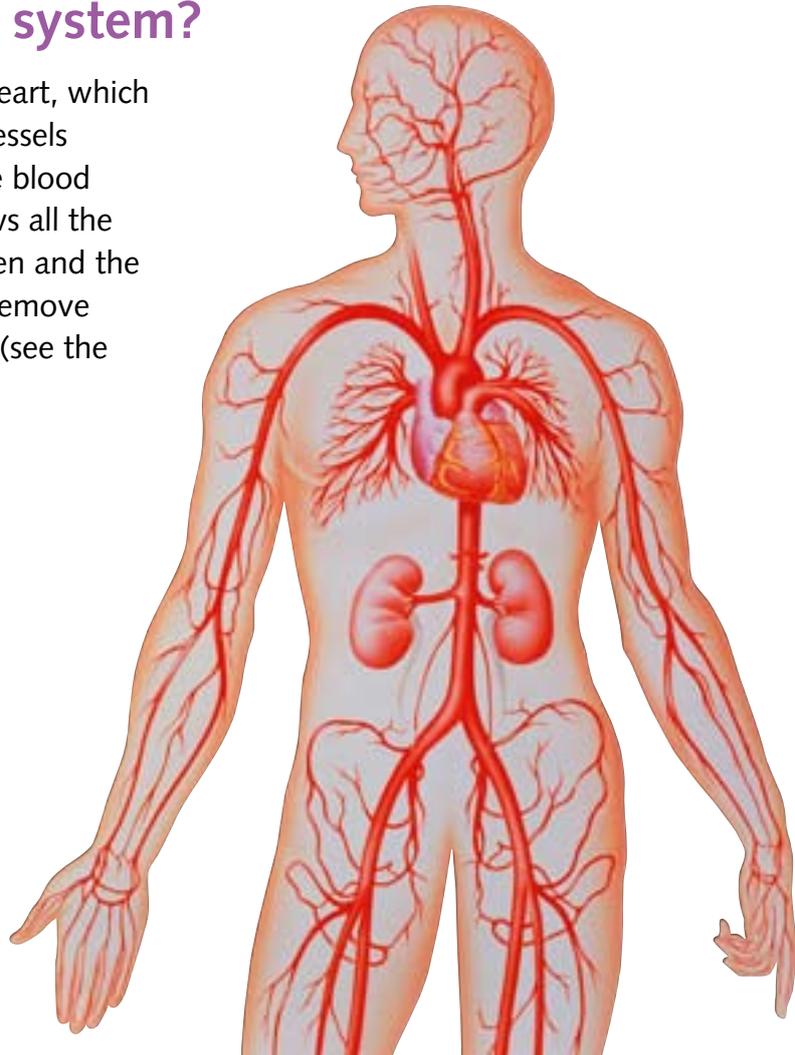
Vascular disease includes coronary heart disease, stroke, diabetes and kidney disease. It currently affects the lives of over 4 million people in England. It causes 36% of deaths (170,000 a year in England) and is responsible for a fifth of all hospital admissions. It is the largest single cause of long-term ill health and disability, impairing the quality of life for many people. The burden of these conditions falls disproportionately on people living in deprived circumstances and on particular ethnic groups, such as South Asians. Vascular disease accounts for the largest part of the health inequalities in our society.

The National Service Frameworks have already contributed to a significant improvement – a 40% reduction in cardiovascular deaths in people under 75 since 1996. And we are beginning to see similar progress on diabetes and kidney disease, and have recently launched a strategy to improve the quality of stroke services. Now we need to build on this excellent start, by moving the emphasis onto prevention. Indeed, the National Service Framework for coronary heart disease indicated that we would need to shift the emphasis to primary prevention over time.

<sup>1</sup> National Screening Committee, 2008, *The Handbook for vascular risk assessment, risk reduction and risk management*, NSC, University of Leicester.

## What is the vascular system?

The vascular system includes the heart, which pumps the blood, and the blood vessels (arteries and veins) which carry the blood around the body. This system allows all the organs and tissues to receive oxygen and the nutrients they require and also to remove the waste products from the body (see the diagram opposite).



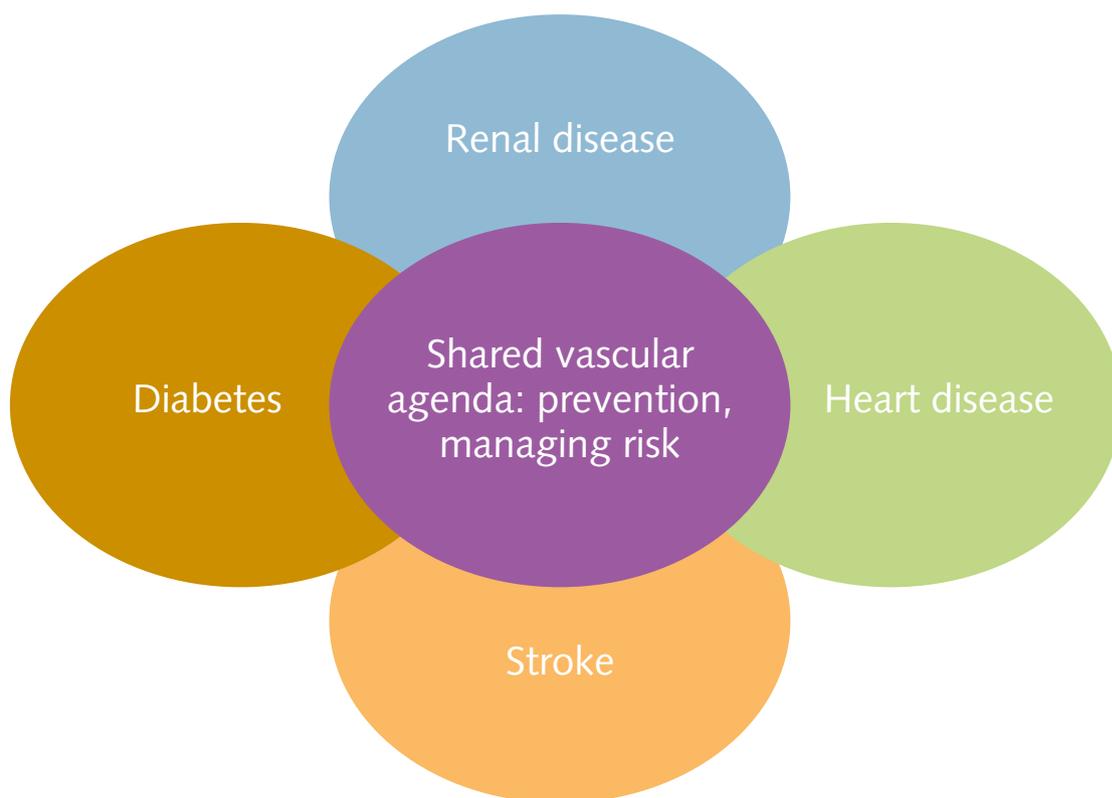
The Science Photo Library

## What is vascular disease?

Vascular disease includes:–

- coronary heart disease (heart attacks and angina);
- stroke;
- diabetes; and
- kidney disease.

These diseases all affect the body in different ways. However, they are all linked by a common set of risk factors. Obesity, physical inactivity, smoking, high blood pressure, disordered blood fat levels (dyslipidaemia) and impaired glucose regulation (higher than normal blood glucose levels, but not as high as in diabetes) all raise the risk of vascular disease. Having one vascular condition increases the likelihood of the individual suffering others.



**Professor Peter Weissberg Medical Director  
British Heart Foundation**

Despite great advances in treatments, vascular disease remains the UK's commonest killer. As the UK's leading heart charity, the BHF has been instrumental in defining the risk factors that predispose to vascular disease and evaluating and promoting the treatments and lifestyle changes that can prevent it. We are, therefore, delighted that the Government is now giving vascular disease prevention the attention it deserves. The BHF is already undertaking vascular risk assessments in the community and is looking forward to working with the Government to ensure that those most at risk and least likely to seek medical help have access to appropriate assessment, advice and treatment.

## Who is at risk of vascular disease?

### Case Study – Andrew Aged 43, working full time

I am a married man and have two children aged 18 and 16. I work full time and sometimes it feels like more than full time! I am probably a little overweight. But I'm not sure what my ideal weight would be as I am very tall and I like to think I am quite fit. I haven't seen my doctor recently, apart from when I had a bug and he advised me to stay in bed and drink plenty of fluids.



My brother died of a stroke when he was 42. So I do worry if there is something I should be aware of or do, but I don't like to make a fuss. But if you are asking, it would be good to have a check up and then I could take some control as I am led to believe many of the problems I might be developing don't have symptoms until it's too late.

Damage to the vascular system increases with age, and progresses faster in men than women, in those with a family history of vascular disease and in some ethnic groups. These are called 'fixed factors' because they can't be changed. Importantly, however, the rate at which vascular damage progresses is also determined by 'modifiable factors', i.e. factors which can be altered. Changing these can greatly reduce the probability that vascular disease will strike early, bringing premature death or disability. These modifiable factors are:

- smoking;
- physical inactivity and a sedentary lifestyle;
- high blood pressure;
- raised cholesterol levels; and
- obesity.

The combined effects of these factors lead to a build-up of atheroma, fatty deposits on the walls of the arteries. In the coronary arteries of the heart (see the diagram on page 3), this causes heart attacks and angina. In the arteries of the brain, atheroma and high blood pressure can lead to strokes or transient ischaemic attacks (minor strokes). In the arteries of the kidneys, and small blood vessels that make up the filters of the kidneys, the result is the commonest form of chronic kidney disease that, in turn, increases the risk of heart attacks and may lead to kidney failure. Obesity and physical inactivity may lead to the most prevalent form of diabetes, which, if unrecognised or poorly controlled, itself damages blood vessels and increases the risk of atheroma and therefore other vascular disease.

Taking action to reduce these risk factors can make a difference to how fast these diseases progress, or whether they happen at all, and so reduce the risk of vascular disease.

It is well known that people living in deprived circumstances have poorer health than the rest of the population. This is strongly reflected in vascular diseases (coronary heart disease, stroke, kidney disease and diabetes) where people in lower socio-economic groups tend to suffer earlier and more severe disease. What is perhaps less well known or understood is that vascular disease in some ethnic groups makes a significant contribution to premature death. For example, in the UK, mortality from coronary heart disease is currently 46% higher for men and 51% higher for women of South Asian origin than in the non-Asian population. The occurrence of diabetes in individuals of South Asian origin is twice that of the general population and the occurrence of chronic kidney disease is six times the rest of the population, which in turn also increases their risk of coronary heart disease.

### **Douglas Smallwood Chief Executive Diabetes UK**

Diabetes UK very much welcomes the fact that diabetes is included as part of the vascular checks. We look forward to working with the Department in the implementation of the programme. We have an important potential role in helping the Department identify and engage with the many people amongst disadvantaged groups who would benefit from vascular risk assessment and may not readily access it via a GP.

## **Rationale**

### **Why develop a vascular risk assessment and management programme?**

Evidence shows that it is possible to identify the risk factors for these diseases, and also to act to change them. Early intervention to reduce risk can prevent, delay, and, in some circumstances, reverse the onset of vascular disease.

Preventive strategies and risk assessment are topics of considerable interest in the clinical community and the focus on the need for prevention has become sharper in recent years. We know that many GP practices already run preventive risk assessment programmes particularly in relation to coronary heart disease risk, and in some places, integrated programmes have been looking at vascular risk as a whole.

In late 2005, the UK National Screening Committee recommended that screening certain subgroups of the population who are at high risk of Type 2 diabetes is feasible, but that it should be undertaken as part of an integrated programme to detect and manage cardiovascular risk factors.

In response to this recommendation, we have been examining how a comprehensive vascular risk assessment and management programme could work, including assessment and modelling of clinical and cost effectiveness. The proposal to develop a system of vascular checks is a key element of this programme. We modelled the effects of a systematic primary care based programme, testing the whole population for vascular risk, within certain age limits, at specific intervals. The details of what a vascular check would comprise and what interventions would be offered are given later in this document (see page 9).

The conclusion from this initial phase of modelling work is that a systematic, integrated approach to assessing risk of vascular diseases for everyone between 40 and 74, followed by the offer of personalised advice and treatment and individually tailored management to help individuals manage their risk more effectively, is both clinically *and* cost effective.

We believe the benefits of this approach would be to:

- enable more people to be identified at an earlier stage of vascular change, with a better chance of putting in place positive ways to reduce substantially the risk of premature death or disability;
- enable the prevention of diabetes in many of those at increased risk of this disease;
- sustain the continuing increase in life expectancy and reduction in premature mortality that are under threat from the rise in obesity and sedentary living; and
- offer a real opportunity to make significant inroads into health inequalities, including socio-economic, ethnic and gender inequalities.

### **Alwen Williams, Chief Executive Tower Hamlets Primary Care Trust**

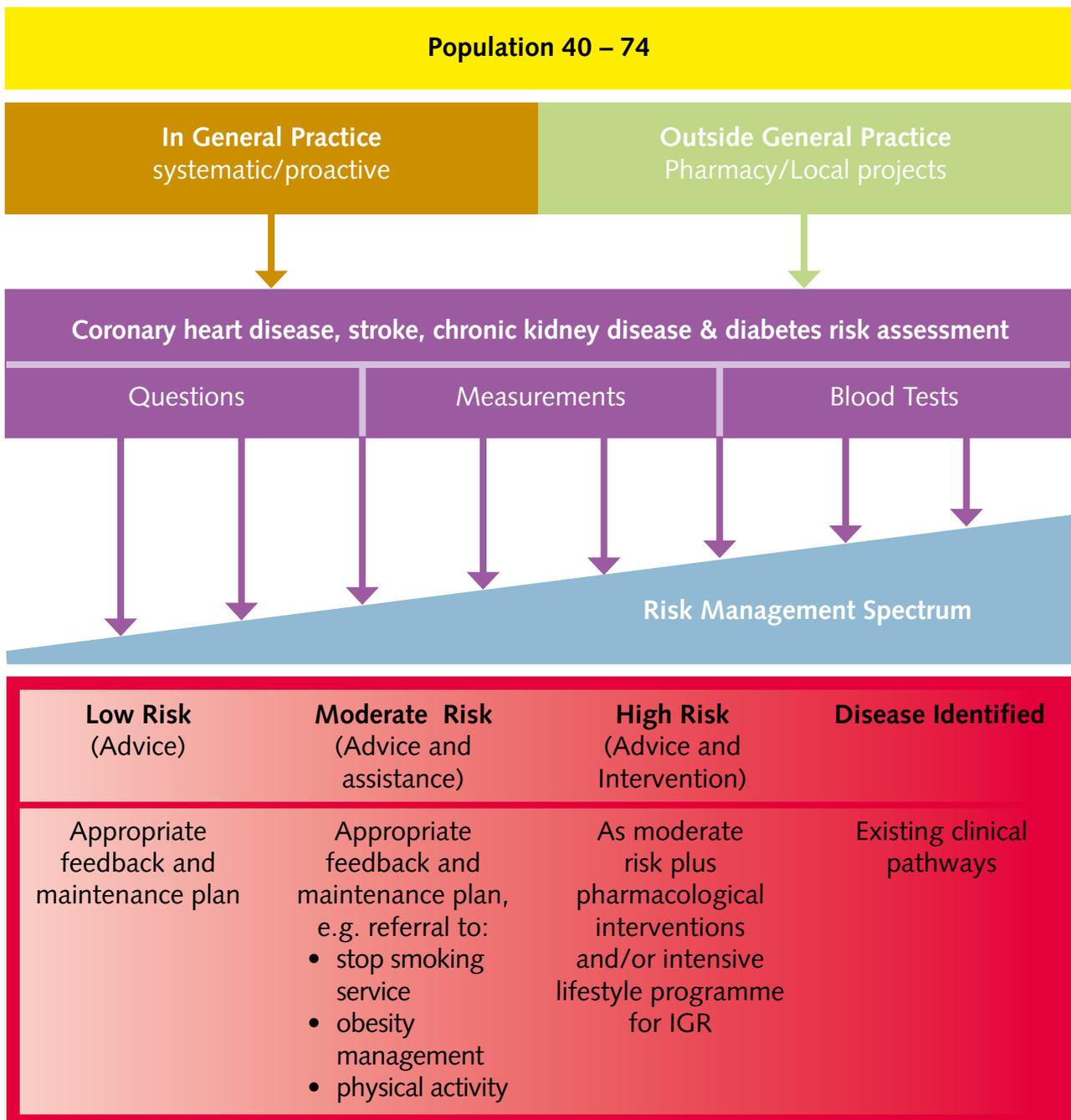
Vascular disease, that is coronary heart disease, stroke, diabetes and kidney disease, is a major killer and the biggest cause of health inequalities in our community. We have some of the highest rates in the country, and prevention is a top priority for us. We welcome this programme as it will provide a major boost to our efforts to systematically identify and manage those at risk of vascular disease. There is no doubt that this programme will save lives.

# Delivering a vascular risk assessment and management programme

The diagram below describes our approach to vascular risk assessment.

## Vascular Risk Assessment Programme

For everyone between 40 – 74 in the population to have vascular risk managed appropriately



## What would a vascular risk assessment involve?

To identify the risk of coronary heart disease, stroke, diabetes and kidney disease, we know that a standard assessment would be effective, based on straightforward questions and measurements. These would record basic information such as height, weight, current medication, age, family history, smoking and blood pressure, and include a simple blood test for cholesterol and (in some cases) glucose levels. Those who have been identified as at risk of kidney disease may then have further blood and urine tests.

This would be followed up with an individually tailored assessment setting out the person's level of vascular risk and what steps they could take to reduce it. For those at low risk, this might be no more than general advice on how to stay healthy. Others at moderate risk may be recommended a weight management programme, stop smoking service, or a brief intervention to increase levels of physical activity. Those at the highest risk might also require medication with statins (which help control cholesterol levels) or blood pressure treatment, or an intensive lifestyle management programme for those identified with impaired glucose regulation. A few may need further assessment that would require referral to a hospital consultant.

We also expect to identify people who already have a vascular disease where it has so far gone undetected, particularly diabetes and chronic kidney disease. In such cases, patients may benefit from an immediate start on a disease management programme to manage their condition and prevent adverse complications.

We know from the results of the modelling work that this approach would deliver very significant benefits. At medium levels of risk and above (see diagram on opposite page), smoking cessation advice, weight management and exercise programmes are all clinically effective at reducing risk factors, and are highly cost effective when targeted at the right individuals. At higher levels of risk, medication such as statins and antihypertensives, and intensive lifestyle management for impaired glucose regulation, are also known to be clinically and cost effective.

Overall, the modelling work has confirmed high levels of both clinical and cost effectiveness against a range of assumptions when this approach is applied to all those aged 40 – 74 years. We estimate that the programme has the potential to eventually:

- prevent at least 9,500 heart attacks and strokes a year (2,000 of which would be fatal);
- prevent at least 4,000 people a year from developing diabetes; and
- detect at least 25,000 people a year earlier with diabetes or kidney disease.

## Case Study – Hannah

### Part time teacher of a certain age

I am a mature lady – I am never too specific about my age! And yes I had a check with my practice nurse. She took my blood pressure, some blood for the cholesterol, weighed and measured me and asked various questions. The questions were probably the most painful part. That's because I smoke and know I should stop, but I'm only human.



Well I got a bit of a shock really. My blood pressure was high and I didn't know what I should do. The nurse gave me information on how to lower my blood pressure with life style changes but the bottom line was that I needed to stop smoking. I had some follow up visits where my blood pressure was tested again. As a result, I am now on a tablet everyday for my blood pressure and in the painful process of stopping smoking. The other important thing I discovered was that my dad having diabetes increases my chance of developing it. But if I keep active and watch my weight, it will reduce my chances of diabetes.

## Where will the assessments be available?



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It is crucial that vascular risk assessments are available in a variety of settings to ensure that we reach the widest possible range of people, including those traditionally harder for health services to reach. This will allow the programme to realise its full potential to narrow health inequalities rather than widening them. We are keen to stress that there is yet no blueprint for how best to deliver this programme, and we would not wish to begin drawing one up without the close involvement of a wide range of stakeholders.

At this stage, we envisage that PCTs will be responsible for commissioning this service and are likely, after taking into account the local health needs of their population, to want to look to a variety of service providers to deliver it. PCTs are already commissioning preventive health services from GP surgeries, health centres, walk in centres and pharmacies to ensure as many people can benefit from these as possible. They will also understand how best to reach those not in touch with organised health care and so, in some places, will want to look to the third sector (community, voluntary and faith sector) to help provide services for these

people. This will also enable PCTs to place this programme in the context of their existing programmes to improve health at the population level.

We believe, subject to taking the views of stakeholders, that vascular risk assessments could take place anywhere from a GP surgery or a pharmacy to a community hall, so long as there is need to do so and the right facilities are available.



### Case Study – Practice Nurse

Working as part of a primary care team based in general practice, I mostly care for people who have already been diagnosed with angina, heart attacks and strokes. So my work was focussed on people who have a disease but increasingly it has shifted towards trying to catch people before their vascular disease get serious.

Vascular risk assessment and management is quite simple really. I collect information about the person, their family history, take some measurements and do a blood test. When the results come through, I give them information and options to change their lifestyle where this is appropriate. In most cases it is! Sometimes you can also offer medication to lower people's personal risk.

It is easy to assume these days that we all understand our health and risks to it. But my experience, having worked with cardiovascular patients since the 1990s, is that the people who need to understand the most know the least! The impact of being more active, reducing salt intake, the role of alcohol, the effect that a “bit of a tummy” can have in the long term can be quite a revelation for some people. Having the opportunity to provide a vascular risk assessment on a systematic basis, then support people to change their habits and so prevent more serious vascular disease will be fantastic. It's what I joined the health service to do.



## What next?

We believe that the case for detecting vascular risk early and preventing further damage or disease has been established and reflects the vision that the Prime Minister and Secretary of State share for the NHS in the 21st century. It will enable individuals to take responsibility for looking after their own health and take steps to prevent vascular disease, within a programme supported by health care professionals.

The modelling work is continuing to establish the details of how the programme will best be delivered to achieve the greatest health benefit, while delivering value for money; and we will continue to work with our partners to ensure it reflects best clinical practice. The modelling work will be subject to external review and we will publish an impact assessment later this year, which will set out in full the costs and benefits of the programme. An option stage impact assessment is available on our website [www.dh.gov.uk](http://www.dh.gov.uk).

Now that we have good evidence for the programme, we want to work with our stakeholders on how best to deliver this programme in practice. Our stakeholders can help us to ensure we get the best form of delivery so we have a programme that people want to access to improve their quality of life, as well as offering best value in terms of clinical and cost effectiveness. We will also work with our stakeholders to ensure the programme has a positive impact on health inequalities.

We will conduct events and meetings with key stakeholders over the next few months. Only by working together can we take advantage of the enormous opportunity we now have to improve health and well-being by taking action against the biggest killers in England.

### **Fran Sivers Director Primary Care Cardiovascular Society Cardiovascular Nurse Leads**

Risk assessment and management is a corner stone for disease prevention. Our nurses in primary care often describe this as being 'up river' stopping people falling in rather than being 'down the river', as so often happens, dragging them out once they have established disease.

We welcome the opportunity to help develop an effective implementation and delivery strategy for vascular checks where primary care nurses will play a key role in assessing and supporting people to manage effectively their risk of vascular disease.



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