

NEW PERSPECTIVES: PART II

Population-based risk Reduction for Cardiovascular Disease, Diabetes, and Kidney Disease in England

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The burden of cardiovascular disease, type 2 diabetes, and kidney disease will increase, both in developed countries with ageing populations and in developing and middle income countries that are undergoing economic and demographic transitions.¹ These diseases all share risk factors that include smoking, hypertension, obesity, physical inactivity, and impaired glycemic status. Integrated approaches to their prevention, early identification, and effective management could therefore have major public health and economic benefits and help limit the impact of the predicted future rise in non-communicable diseases. For example, even modest reductions in population risk factor prevalence could prove to be highly effective in reducing their impact.²

The importance of managing risk factors for cardiovascular diseases, type 2 diabetes, and kidney disease and for improving their prevention and management were emphasized at the First Global Ministerial Conference on Healthy Lifestyles and Non-communicable Disease Control. This conference was part of the build up to the United Nations High Level Meeting on Non-communicable Diseases held in New York on September 19-20, 2011.³ Lessons from a new population-based risk reduction program in England could provide valuable information on the development and implementation of similar programs in health systems in other countries.

Despite downward secular trends, as in other developed countries, cardiovascular disease remains the largest single cause of mortality in England, accounting for around 34% of deaths annually. Cardiovascular disease also contributes signifi-

cantly to health disparities, with risk factors, prevalence of established disease, adverse health outcomes, and premature death highest in people from lower socio-economic and ethnic minority groups. In an attempt to address the high burden of these diseases, NHS Health Checks, a population-wide primary prevention program, was established by the Department of Health for England in 2009.⁴ The program is a major investment in “upstream” health promotion and disease prevention activities (around \$400 million annually) and evidence of a serious attempt by England’s National Health Service (NHS) to improve public health and contain health service spending on potentially preventable diseases. When fully established, the program could prevent around 650 deaths and 9,500 non-fatal myocardial infarctions and strokes each year through better risk-factor management. Additional benefits are predicted to result from reduced complication rates in people who have previously undiagnosed cardiovascular disease, type 2 diabetes, and kidney disease detected and treated.

All people living in England between ages 40 and 74 who have not been diagnosed with cardiovascular disease, diabetes, and chronic kidney disease (about 15 million people in total) will be invited for a health check once every five years (Table 1, page 12). Serum creatinine and assessment of glycemic status are optional parts of the health check but are being offered as part of the core check in many areas of England. The health check will generally take place at the patient’s own family practice, but health checks are also being offered in

community settings such as pharmacies and places of worship to encourage wide uptake of the program, particularly among people from lower socio-economic and ethnic minority groups.

Based on the information collected at the health check, primary care staff will provide personalised advice on how patients can lower their risk of cardiovascular disease, diabetes, and kidney disease and maintain a healthy lifestyle. They can also refer people on to local health services, such as smoking cessation clinics, nutrition counseling, or specialist clinics, for additional support. The program aims: 1) to prevent the onset of cardiovascular disease, type 2 diabetes, and chronic kidney disease by improving management of their risk factors and 2) to improve care for people with newly diagnosed disease that has been detected by the program by placing them in evidence-based care pathways. Through this process, the program aims to accelerate reductions in overall cardiovascular disease mortality and to reduce socio-economic and ethnic disparities in health in England. To support the effective development and implementation of the program, the Department of Health has established a national Health Check Learning Network to share the experiences of Health Check programs across the country and to encourage sharing of examples of good practice.

As one of the most ambitious and wide-ranging programs of its kind in the world, the results of the NHS Health Check program will be of wide interest and could help in the development of related pro-

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Table 1. Components of NHS Health

<i>Risk measurement</i>	<i>Risk management</i>
• Smoking status	• Behavioural change programs
• Physical activity	• NHS smoking cessation services
• Family history	• Exercise intervention
• Ethnicity	• Weight management program
• Body mass index	• Statin treatment
• Blood cholesterol	• Antihypertensive treatment
• Fasting glucose or Haemoglobin A1c	• Referral to specialist cardiovascular, diabetes, or kidney disease clinic
• Serum creatinine	

grams in other health systems. Some of the current uncertainties in preventive medicine that the program will address include:

1. Will people with little prior contact with health services respond to an invitation to attend a health check?
2. Will people who may have regarded themselves as previously healthy be prepared to take long-term statin therapy for primary prevention if found to have a high cardiovascular risk or antihypertensive therapy if found to have raised blood pressure?
3. What effect will the program have on risk factors such as smoking, obesity, physical inactivity, and blood pressure?
4. Will there be any impact on health disparities?
5. How will the program influence the longer-term outcomes of cardiovascular disease, kidney disease, and diabetes, and will the program prove to be cost-effective?⁵

New information will also be generated through “health care delivery research,” such as the evaluation of interventions aimed at supporting behavioural change. National collection of patient-level data from the program will provide some of the information needed for evaluation and help answer these questions. This research and evaluation will be facilitated by widespread use of electronic medical records in primary care in England and by the availability of a unique patient identifier (NHS number) that can allow linkage of data from the Health Check program with data from other sources, such as NHS hospital admission records and mortality statistics.

Because England’s NHS provides universal coverage and has already established population-based disease registries and call-recall systems for screening and disease management, the program can be rolled out nationally at relatively low cost. The lack of financial barriers to access the program and any subsequent medical interventions and

health services means that no section of the population will be excluded. The program is therefore well placed to help answer some of the current uncertainties in preventive medicine and show whether a large investment in population-based screening and prevention will reduce the burden of morbidity and mortality from cardiovascular disease, kidney disease, and type 2 diabetes, in addition to reducing financial pressures on health systems that result from treating these disorders.

References

1. World Health Organization. Global status report on noncommunicable disease 2010. WHO, 2011. www.who.int/chp/ncd_global_status_report/en/index.html
2. Barton P, Andronis L, Briggs A, McPherson K, Capewell S. Effectiveness and cost effectiveness of cardiovascular disease prevention in whole populations: modelling study. *BMJ* 2011; 343:d4044.
3. Smith R. Health ministers pledge to tackle non-communicable diseases with global action. *BMJ* 2011; 342:d2796.
4. NHS Health Check. <http://www.healthcheck.nhs.uk/Default.aspx>
5. Dalton ARH, Bottle A, Okoro C, Majeed A, Millett C. Uptake of the NHS Health Checks programme in a deprived, culturally diverse setting: cross-sectional study. *J Public Health* 2011 (first published online May 5, 2011 doi:10.1093/pubmed/fdr034).

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