

# VIEWS & REVIEWS

## PERSONAL VIEW

### The NHS lacks cardiovascular screening tools suitable for patients of South Asian descent

The Quality and Outcomes Framework and NHS Health Check rely on algorithms based on the risk profiles of people of European ancestry, and they may give false reassurance or anxiety to others, warns **Kirti Kain**

*Kirti Kain clinical senior lecturer in cardiovascular medicine, Division of Cardiovascular and Diabetes Research, Leeds Institute of Cardiovascular and Metabolic Medicine, University of Leeds, Leeds LS2 9JT*

The NHS Health Check website gives an assessment of circulatory health for adults in England aged 40-74. By acting to reduce their diabetes risk, users can help to prevent the condition and its costly complications. The clinical screening tools consider risk factors such as blood pressure, body mass index, and total cholesterol. But this personalised risk assessment is unsatisfactory, because it does not cater for different populations. Depending on the population and the background risk, the risk assessment could be falsely low or high, giving false reassurance or anxiety.

Likewise, the targets of the Quality and Outcomes Framework (QOF) in England are inappropriate for different populations. To manage chronic diseases such as cardiovascular disease and diabetes, QOF targets include total cholesterol and blood pressure at a specific threshold in the preceding 15 months. But the 2011 census showed that the number of foreign born residents in England and Wales had risen, and the most common birthplaces outside the United Kingdom were India (694 000), Poland (579 000), and Pakistan (482 000).

#### Different risk factor profile

South Asians (originally from India, Pakistan, or Bangladesh) have greater incidences of premature cardiovascular disease than Europeans, and a different risk factor profile. People of South Asian origin are more likely to be viscerally obese, physically inactive, and insulin resistant—and to have an increased risk of diabetes and mortality from ischaemic heart disease and ischaemic stroke—than people of European origin.<sup>1</sup> The prevalence of atrial fibrillation in South Asians, however, is much lower than in Europeans, although the rates of ischaemic heart disease and stroke are higher.<sup>2 3</sup>

Cholesterol status is similar in both populations, but South Asians tend to have increased serum concentrations of triglycerides and decreased concentrations of high density lipoprotein cholesterol than Europeans. Also, in South Asians

the prevalence of smoking and alcohol consumption is lower. Raised alanine aminotransferase as a marker of non-alcoholic fatty liver disease is common in apparently healthy British South Asians and is significantly associated with an adverse metabolic and atherothrombotic risk profile.<sup>4</sup>

A study of patients with diabetes showed that, compared with European patients, the mean haemoglobin A1c concentration was greater among South Asian patients, but the mean systolic blood pressure and cholesterol concentration were lower.<sup>5</sup>

The prevalence of hypertension and its association with cardiovascular diseases is not significantly greater in South Asians than in Europeans.<sup>6</sup> The prevalence of peripheral arterial disease, as measured by an ankle brachial index (ratio of ankle blood pressure to arm blood pressure) of less than 0.9, is lower, but the increase in ankle blood pressures (two on the right leg and two on the left) and cardiovascular disease is much greater in South Asian patients than in Europeans with a history of type 2 diabetes.<sup>7 8</sup>

Unpublished pilot data have shown that, in separate analyses of European and South Asian patients after adjusting for age and sex, increased ankle blood pressures were associated with diabetes only in South Asians and not in Europeans. Increased right or left brachial pressures were not associated with diabetes in either group. A receiver operating characteristics curve, plotted using statistical model testing, showed that increases in ankle pressures were greater in the presence of diabetes in South Asians, after adjusting for age and sex.

Obesity assessed by body mass index is a measure of generalised obesity and is not appropriate for South Asians, because they are more likely to have visceral or metabolic obesity. Waist to height ratio is applicable for metabolic obesity. Moreover, ankle pressures and cardiovascular disease increase significantly more with metabolic obesity in South Asians than in Europeans.<sup>9</sup> These differences in risk profile can affect one, two, or even

three indicators for each of the clinical domains of coronary artery disease, primary and secondary cardiovascular disease, stroke, hypertension, diabetes, chronic kidney disease, peripheral arterial disease, and atrial fibrillation.

## Tackling health inequalities

NHS England claims that it is committed to “high quality care for all, and promoting equality and tackling health inequalities by increased prescribing of drugs to control blood pressure; increased prescribing of drugs to reduce cholesterol; increased smoking cessation services; increased anticoagulant therapy in atrial fibrillation; [and] improved blood sugar control in diabetes.” It admits that late diagnosis of the big killer diseases is common, particularly in disadvantaged communities, and that targeted approaches to case finding are needed.<sup>10</sup>

Yet the same interventions are being applied to different populations. Scoring QOF points by achieving the targets for risk factors in South Asian patients who are not contributing to their increased cardiovascular risk is a waste of resources, and it gives patients and health professionals false reassurances of better outcomes because the mortality rate from cardiovascular disease in people under 75 remains higher in South Asians than in Europeans.

Similarly, screening tests may also be failing in other populations, such as those of African-Caribbean heritage, as the British Heart Foundation states that people with an African-Caribbean background are most at risk of high blood pressure or a stroke and are among the highest risk for type 2 diabetes of all ethnic groups in the UK.

## Devising new clinical tools

NHS England should act on evidence from studies whereby clinical tools specifically for South Asians are devised and tested—for example, a cardiovascular disease risk calculator with postprandial glucose, triglycerides, and possibly ankle blood pressures (currently not routinely measured) as absolute variables and with blood pressure factors as adjusting factors.

Initial screening with non-invasive tools (for example, waist to height ratio and ankle blood pressures in South Asians) at lower age thresholds (18-30 years) could be tested to see whether this helps to identify people at high risk of diabetes as diagnosed by a blood test.<sup>11</sup> Such a study would help to determine whether different scores in Europeans and South Asians are clinically significant and whether treatment and outcomes are different. Only then will NHS England be seen to be tackling health inequalities.

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