NEWS

High rates of false positives are likely in diabetes screening programmes in India

Sanjeet Bagcchi

Kolkata

Large scale community based diabetes screening in India is likely to be associated with a high rate of false positive results, particularly when using risk score questionnaires, a simulation study published in *PLOS Medicine* has found.

India recently started a diabetes screening programme using either risk scoring questionnaires or random blood glucose testing, and the government plans to expand this over the next few years. But even though up to 53 million people have been screened so far, no data have been collected on the performance of the screening programme.

The simulation study used data from 58 cohort studies of diabetes in India and applied the model to a nationally representative sample of people aged 25-65 years.[1] The researchers used a microsimulation model to assess the diagnostic and health system implications of using three commonly used survey based screening instruments and glucometer based screening to screen for diabetes.

Researchers first estimated the disease burden using data from the United Nations. They anticipated that 586 million people would be in the 25-65 age group in 2015. Based on a 12% prevalence of diabetes in India (95% confidence interval 8.4% to 15.6%), they estimated that 70 million people in this age group would have diabetes (50 million to 91 million), 51 million of whom would have been undiagnosed before the screening programme (73.3%, 69.9% to 76.7%). People most likely to be undiagnosed included women, people on low incomes, and those in rural areas.

Analysing a population level projection, the researchers found that an estimated 567 million people in India (aged 25-65 years) were eligible for screening, 158-306 million of whom (27.9-53.9%) would screen positive for diabetes. However, only 26-37 million of these people would be expected to meet international diagnostic criteria for diabetes. The researchers noted that "because of the lack of specificity of the survey based screening instruments, between 186 and 273 million people without diabetes (36.0%-52.8% of those without diabetes screened) would be identified as false positives after confirmatory testing."

"Given our results, I think the most rational approach would be to initially focus on improving care for those already carrying the diagnosis of diabetes," said one of the authors of the study, Sandeep Vijan, a physician scientist at the Ann Arbor Veterans Affairs Hospital in Michigan, USA. "Attempts to identify those who have not been diagnosed should most likely focus on those with symptomatic diabetes, as initial symptom control is highly important in avoiding short term complications," he said.

"In the longer term," Vijan told *The BMJ*, "programmes that aim to improve early diagnosis of diabetes may be reasonable, but in order to be effective, we need to develop more accurate tests to limit the extraordinarily large number of false positives and more importantly, to ensure that these people actually have access to quality healthcare."

Vijan said that making diagnoses without effective treatment is of little long term use. "Unfortunately," he added, "rolling out screening, while complex, is still much easier than implementing treatment programmes, so it would not be surprising to see these programmes continue—but they are not likely to have much effect in the absence of broader healthcare access."

1   Basu S, Millett C, Vijan S, et al. The health system and population health implications of large-scale diabetes screening in India: a microsimulation model of alternative approaches. *PLoS Med* 2015;12:e1001827.

Cite this as: *BMJ* 2015;350:h3535