

## Screening for diabetes

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### Abstract

This article discusses the rationale and method of screening for diabetes in a primary care setting. It describes guidelines laid down by international organizations, while adding pragmatic suggestions based upon reality in South Asian and other developing countries.

**Keywords:** Type 2 diabetes, Diagnosis of diabetes, OGTT.

### Introduction

A primary goal of health care is to prevent disease, or detect it early enough, so that intervention will be more effective. Without screening, diagnosis of disease only occurs after symptoms develop. However, disease frequently begins long before symptoms occur, and even in the absence of symptoms there may be a point at which the disease could be detected by a screening test. Pakistan has high prevalence of diabetes and diabetes is one of the ideal disease for screening.<sup>1,2</sup> About one third of people with diabetes do not know they have it, and the average lag between onset and diagnosis is 7 years for diabetes.<sup>3</sup> The screening tests are easily available and are not too expensive, and effective interventions exist to prevent progression of prediabetes to diabetes and to reduce risk of complications of diabetes.<sup>4</sup>

### Whom to Screen

American Diabetes Association (ADA) recommends screening for diabetes in all persons aged 45 years and above, or overweight persons with one additional risk factor. The risk factors are family history of diabetes, high-risk ethnicity like South Asians, prediabetes on previous testing, history of gestational diabetes mellitus or delivery of a baby weighing > 9 pounds, women with polycystic ovary syndrome, hypertension, dyslipidaemia, cardiovascular disease, sedentary lifestyle and other clinical conditions like acanthosis nigricans associated with insulin resistance.<sup>2</sup> As we belong to high risk ethnicity, the indication for testing is very simple for us- we must screen any overweight individual for diabetes.

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Testing on the basis of age, should also begin at younger age, appropriately at age 30 in South Asians as the data from our region has shown increase in prevalence of diabetes from 25% of the total prevalence of diabetes in 2000 to 36% in 2006 in people younger than 44 years.<sup>1</sup> Apart from age and overweight, screening should extend to other high risk groups like patients with tuberculosis, diseases of liver and pancreas.

### When to Screen

If results are normal, screening should be done at three year intervals as per ADA. More frequent testing is indicated for prediabetes and those at high risk. Prediabetes should prompt annual testing.<sup>4</sup>

While these recommendations, put forward by the ADA, hold true from a public health perspective, they may not be appropriate for every individual. The rationale for the 3-year interval is that an individual will not develop significant complications of diabetes (but can develop diabetes) within 3 years of a negative test result.<sup>4</sup> Persons with abnormal results, multiple risk factors, or on medications known to cause dysglycaemia may be screened at three- monthly intervals as well.

### How to Screen

The screening procedure for diabetes is the same as the diagnostic methods detailed earlier in JPMA i.e. fasting plasma glucose, OGTT (75 g glucose load), and/or HbA1c.<sup>2,4</sup> OGTT though the gold standard, may not be practically feasible in all cases. Fasting plasma glucose and/or HbA1c are suitable options for widespread screening. There is no role for post-prandial glucose in either diagnosis or screening of diabetes. Urine glucose is not recommended as a diagnostic test either by ADA or WHO, whereas International Diabetes Federation in their latest guidelines mention that urine glucose as a screening test may have a place in low-resource settings where other procedures are not available, because of its high specificity (> 98%).<sup>2</sup> However, diagnosis should be confirmed with one of the recommended test.

### Art of Screening

What has been discussed above, is a one to one or individual approach, which serves only patients attending a physician's clinic. This approach, of catering

**Table:** Approaches to screening.

Level	Approach
Individual	Opportunistic screening for risk factors of Non communicable diseases like smoking/alcohol/dietary habits/level of activity in all patients we attend, irrespective of nature of illness.
Family	Testing or screening of family members at high risk of diabetes.
Community	Periodic awareness programmes conducted in health care premises, or in community settings and opportunistic screening of people attending these camps.
Interdisciplinary	Keeping other disciplines as equal partners. Example: Postpartum screening after gestational diabetes mellitus with gynaecology.
Interprofessional	Involving medical students and paramedical professionals in screening.

individual patients, is like dealing with the tip of the iceberg. With this approach alone, it will be impossible to create a significant impact in reducing the burden of diabetes. As physicians, it is our duty to cater to the whole community. We propose a framework (Table) which could have significant impact in reducing the burden of diabetes.

Community screening may not always reach the intended target, i.e., those at highest risk. The concept of 'diabetes camps' is prevalent in many parts of South Asia. These may have a valuable role in far flung, inaccessible areas where routine diabetes care is not available. Diabetes camps will be of value only if they are conducted on a regular basis, include counseling about lifestyle and

medication, involve local health care professionals, and incorporate a system of referral to specialist health care professionals in case of need. In such cases, they are better classified as outreach diabetes clinics, rather than as screening activities.

### References

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