



Fact Sheet

Lewin Case Study II

HbA1c Screening for Type 2 Diabetes and Prediabetes

Substantial evidence supports the value of HbA1c testing as a screening and diagnostic tool for diabetes and prediabetes. Delaying the onset of diabetes can reduce vascular complications, reduce the risk of death, and reduce costs for treatment and management of type 2 diabetes.

Background

The HbA1c lab test reflects average blood glucose levels during the preceding 3-4 month period. It is the standard test for monitoring glucose levels once a patient has been diagnosed with diabetes, though there is significant interest in using HbA1c as a screening tool. The test is convenient for patients because it does not require fasting.

Twenty-four million Americans suffer from the disease, and another estimated 57 million are pre-diabetic. Diabetes is the leading cause of new cases of blindness, kidney failure, and disease-caused lower-limb amputations. The total cost of diabetes is \$174 billion a year, about \$58 billion of that attributable to lost productivity from worker absenteeism, reduced job performance, and premature death.

Highlights

- A wide range of studies support the value of HbA1c testing in screening and diagnosis for diabetes and prediabetes. Use of the HbA1c test:
 - Improves the ability to identify asymptomatic individuals with sustained elevated glucose levels
 - Aids in detecting cardiovascular disease and microvascular complications (retinopathy, nephropathy, neuropathy)
 - Enables an earlier start to therapy and lifestyle changes
 - Improves efficiency and patient convenience because test results are not affected by short-term diet changes
- Many studies have confirmed the effectiveness of HbA1c testing in identifying prediabetic individuals who will benefit from early interventions, contributing to substantial decreases in incidence of type 2 diabetes.

- Strong observational evidence shows the link between HbA1c levels and cardiovascular risk and mortality. A large scale UK study of men and women age 45-79 found that an increase of 1% in a patient's HbA1c level was associated with an increase in the relative risk of death of 1.24 % in men and 1.28 % in women.
- The HbA1c test improves clinical decisionmaking for early lifestyle and therapeutic interventions, which can play a key role in the incidence of type 2 diabetes. At a 3-year follow-up in the Diabetes Prevention Trial, incidence of diabetes was reduced 58% with an intensive lifestyle intervention and reduced 31% with therapeutic intervention.
- For an increasing number of health care stakeholders, the recognition of HbA1c as an important biomarker for cardiovascular risk strengthens the interest and potential for use of HbA1c as a screening test for diabetes, particularly since individuals with this disease are at higher risk for coronary heart disease and stroke.
- The ability of the HbA1c test to predict costly clinical complications of diabetes supports the test's cost-effectiveness. Economic value can be realized through reduced costs due to early detection and intervention, reduced costs for treatment and management of type 2 diabetes, and reduced costs of diabetes complications. A 2007 UK economic modeling study in a population age 40-70 found that screening with the HbA1c test was cost-effective across the overall population, with greatest cost-effectiveness in those age 50 and over.
- Findings from cost-effectiveness modeling of various testing modalities for diabetes and prediabetes indicate that screening can be cost-effective, especially for particular at-risk groups. Although HbA1c testing (typically used in combination with another confirmatory test) tends to be more costly than alternative types of testing, it is able to detect more cases of diabetes in a screened population and yields cost-effectiveness ratios in favorable ranges.
- An important 1998 study demonstrated the beneficial impact of glucose control on employee productivity. The study found that compared to a placebo group, the group that carefully controlled glucose levels had higher employee retention and greater productivity capacity. In addition, absenteeism rose 8.1% for the placebo group but decreased 0.8% for the group that controlled glucose levels.