

# Cystic Fibrosis Research News

## Title:

**GLYCATED HEMOGLOBIN CANNOT YET BE PROPOSED AS A SCREENING TOOL FOR CYSTIC FIBROSIS RELATED DIABETES**

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## What was your research question?

Cystic fibrosis (CF) related diabetes (CFRD) is an increasingly frequent complication. Glycated hemoglobin (HbA1c) is a measure of average blood sugar level over the previous 3 months and can be used to diagnose the most common form of diabetes (type 2 diabetes). Our goal was to work out if HbA1c could be useful in screening for CFRD.

## Why is this important?

From the age of 10, people with CF should be screened every year for CFRD using the 2-hour oral glucose tolerance test (OGTT). However, this test is criticized because it can be a burden for patients, who already need multiple treatments and tests, as well as for medical teams. Research is ongoing to reduce OGTT testing or to use alternative glucose tolerance screening methods. One such alternative is to measure HbA1c as it can be obtained following a simple blood sample. However, validation of HbA1c as a screening tool in CF has been questioned, as it appears to underestimate actual mean blood glucose in people with CF.

## What did you do?

A recent study suggested using a lower HbA1c threshold of 5.8% to identify those people with CF who are at risk of developing diabetes, instead of 6.5% which is used to identify type 2 diabetes. Therefore, we wanted to confirm those results in the Montreal Cystic Fibrosis Cohort – a group of people with CF in Montreal, Canada. We assessed results from 207 people with CF who had an OGTT between 2004 and 2015 and for whom an HbA1c value

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was also available. We compared CFRD diagnosis using the proposed CF-specific 5.8% HbA1c level against the standard 2-hours OGTT reference test.

## What did you find?

We saw that even with a CF-specific HbA1c level to screen for CFRD in our group of people, 32% of CFRD cases would be missed. Our findings thus suggest that nearly one third of the people with CFRD had an HbA1c value lower than the newly proposed 5.8% threshold. The lack of agreement with the previous study is likely due to the difference in rates of CFRD, ongoing care and lung function, etc.

## What does this mean and reasons for caution?

Based on our results, we believe that HbA1c does not necessarily possess the characteristics of a suitable initial screening test for CFRD as very few individuals may be spared the need for an OGTT while some cases of CFRD could be missed. We believe that additional research efforts aiming to simplify CFRD screening are required.

## What's next?

It is possible that the combination of HbA1c with another potential screening method such as the continuous glucose monitoring system, a small device that continuously measures plasma glucose, could reduce OGTT-associated burden. Until the validity of alternative screening methods is established, OGTT should remain the standard CFRD screening test.

## Original manuscript citation in PubMed

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