

# Toward a hand-held 'breathalyzer' for diagnosing diabetes

Washington, DC, USA (November 9, 2016) - For several years, scientists have been working toward "breathalyzers" that can diagnose various diseases without painful pricks, needles or other unpleasant methods. Now, one team has developed a new, portable breath analyzer that could someday help doctors diagnose diabetes conveniently in the office. The report appears in the ACS journal Analytical Chemistry.

Many studies examining the hallmarks of diabetes in exhaled breath have shown that elevated levels of acetone are strongly linked to diabetes. Detecting the concentrations of any given substance in breath is a simple way, however, is a major challenge. Breath contains a complex mix of compounds, including water, carbon dioxide and methane, that can throw results off. Mass spectrometry can do the job, but it's not very practical for point-of-care testing. Robert Powell and colleagues wanted to fix that.

The researchers created a hand-held device with an adsorbent polymer that can trap acetone from exhaled breath, then release it into a cavity where a laser probes its concentration. They tested the accuracy of the device on the breath of healthy subjects under different conditions, such as after overnight fasting or exercising, and compared results with mass spectrometry readings. The measurements were a close match and covered a wide range of concentrations, including those that would suggest a patient has undiagnosed type-1 diabetes, or has problems controlling their blood glucose. Adding to the practicality of the device, the researchers say it could be re-used many times.

The abstract that accompanies this study is available [here](#).

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