

Swallowable Balloon Device Detects Barrett's Esophagus

Pam Harrison

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A small device that patients can swallow in any outpatient setting without being under sedation should allow for earlier detection of Barrett's esophagus (BE) and thereby prevent the development of esophageal adenocarcinoma (EAC), which can arise from these premalignant lesions.

The device, which is about the size of a vitamin pill, could be used for screening instead of the more invasive endoscopy, say the researchers. It could be used as an easy, inexpensive "one-time" test that physicians can use to screen all patients older than 50 years, the researchers suggest.

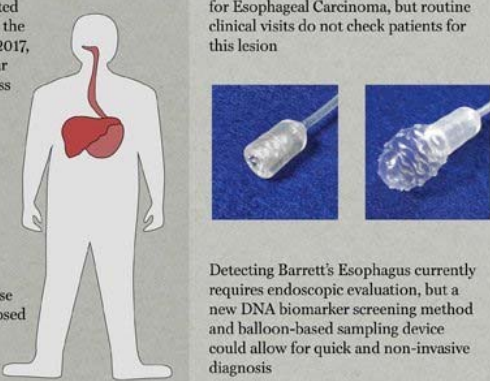
ESOPHAGEAL CARCINOMA

Esophageal Carcinoma caused an estimated 15,690 deaths in the United States in 2017, and has a five-year survival rate of less than 20%

Esophageal Carcinoma is associated with a poor prognosis because the disease is typically diagnosed at late stages

Barrett's Esophagus is the precursor for Esophageal Carcinoma, but routine clinical visits do not check patients for this lesion

Detecting Barrett's Esophagus currently requires endoscopic evaluation, but a new DNA biomarker screening method and balloon-based sampling device could allow for quick and non-invasive diagnosis



ENDOSCOPE DIAGNOSIS	DNA BIOMARKER
Time-consuming	Samples collected in less than five minutes
Patients must be sedated	Patients fully conscious
Based on tissue characteristics	DNA-sequence based
Expensive	Inexpensive

Science Translational Medicine

Medscape

MAAAS

Moynihan et al., *Science Translational Medicine* (2018)

The research was [published online](#) January 17 in *Science Translational Medicine*.

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"Our current understanding is that EACs virtually all arise from BE," senior author Sanford Markowitz, MD, PhD, Ingalls professor of cancer genetics,

Case Comprehensive Cancer Center, Case Western Reserve University, Cleveland, Ohio, told *Medscape Medical News*.

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— Dr Sanford Markowitz

"If we could identify everyone with BE and resect or ablate the BE when it shows dysplasia, we should be able to prevent the greater majority of EACs from ever developing," he added.

The incidence of EAC has "steadily increased" in the recent past, and esophageal cancer is still associated with a poor prognosis, the authors note.

Patients at highest risk for BE are white men older than 50 who have persistent heartburn.

Typically, to confirm the diagnosis for these high-risk patients, physicians perform endoscopy and biopsy of the target lesion.

"If the biopsy shows changes towards becoming frank cancer, then the Barrett's can be removed through the endoscopy by a process called endomucosal resection," Dr Markowitz explained. Alternatively, lesions can be burned away with radiofrequency ablation or frozen off through cryoablation.

The new device, which is less invasive than endoscopy, could be used to screen all individuals older than 50, instead of only patients at high risk, the researchers suggest.

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The team is actively seeking partners who can help them with the commercial development and distribution of their assay. National, multicenter trials are expected to be launched sometime this year.

Developing the Device

In developing the new device, the team first performed a genome-wide screening exercise to identify DNA methylation biomarkers that would signify the presence of BE through a molecular assay.

