

Sniffing out disease with smartphones

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Credit: CC0 Public Domain

Gastric cancer, also known as stomach cancer, is the fifth most common cause of cancer-related deaths in Europe. Because of the lack of early signs specifically related to the disease, it's usually only detected at an advanced stage—when treatment is for the most part ineffective.

Driven to improve stomach and other cancer survival rates, for many years scientists around the world have been researching the use of breath tests as a means of early detection. The idea of breath tests is based on the fact that people with [gastric cancer](#) have unique mixtures of chemicals in their breath compared to other diseases and healthy people. These [volatile organic compounds](#) (VOCs) that are produced by the cancer are found in patients' [exhaled breath](#). VOCs have a distinctive smell that can help doctors to detect early signs of the disease.

Furthering global scientific efforts towards early cancer detection using breath tests, the EU-funded project SNIFFPHONE has now developed a [smartphone app](#) that can identify whether someone has [stomach cancer](#). The app analyses exhaled gases using the SniffPhone, a compact handheld sensor device that is plugged into a smartphone. Providing instant results, this non-invasive method has the potential to radically change cancer screening in the future.

How does it work?

Users hold the device in front of their mouths and exhale, providing the breath sample. Using its highly sensitive nanomaterial-based chemical sensors, the SniffPhone measures the VOCs in the exhaled breath. Using a smartphone, the measurements are then sent via Bluetooth to a dedicated cloud platform for analysis by medical personnel. If the data shows signs of cancer, the patient's doctor is alerted.

The SniffPhone screening method has a number of advantages. "The device is comfortable and painless to use. In addition, it provides a simple, fast and cost-effective alternative for screening gastric cancers," says Dr. Kari Antila of project partner VTT Technical Research Centre of Finland in a news item posted on the website of the digital newspaper "The London Economic." Equally important, SniffPhone users can also look forward to fewer compatibility hassles, since the app that's installed

on the smartphone supports both Android and iOS.

Recognition and next steps

SNIFFPHONE (Smart Phone for Disease Detection from Exhaled Breath) received the European Commission's 2018 Innovation Award for Most Innovative Project in November last year. Currently, the SniffPhone prototypes have been distributed among the project's medical partners for further clinical testing. "The next step in the project is finding financiers for this kind of novel cancer screening method. Commercialisation of the device is planned to take place through a spin-off company," reports Dr. Antila. The project team's ultimate aim is for the method to work for other forms of [cancer](#), too.

More information: SNIFFPHONE project website:
www.sniffphone.eu/

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