No need to go to the hospital can still diagnose middle ear otitis with a smartphone application

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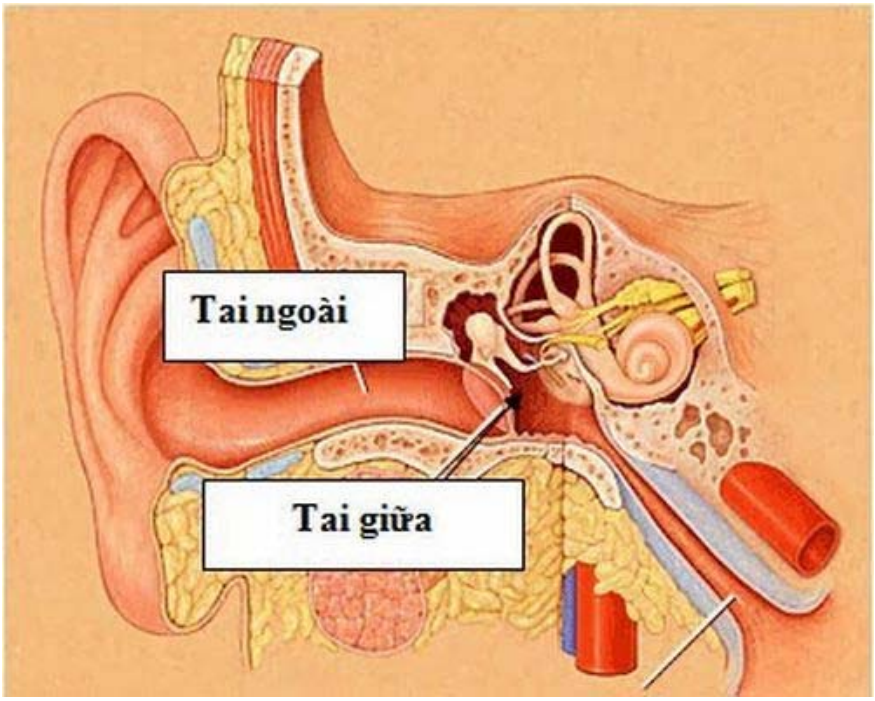
Surely many of us are no stranger, or at least have heard of otitis media. Ear infections, or ear infections, are one of the most common health problems for children. In it, middle ear inflammation emerges as the most common disease for young children in the early years of life. Research by Lucile Packard Children Hospital at Stanford, USA showed that most children have at least one ear infection (up to 80%) until 3 years old. Middle ear infection is usually a bacterial or viral infection that affects the middle ear. Middle ear infections often cause inflammation due to inflammation and accumulation of fluid in the middle ear and can have serious, even deafening consequences if repeated relapses are not diagnosed and treated properly.



1. IBM researchers analyzed breast cancer cell structure with AI

Thus, early detection and treatment of ear infections should be done quickly and thoroughly. In hospitals today, the diagnosis of ear infections in general is quite simple and fast with cost not too expensive. However, with the miraculous development of science and technology at present, we can completely diagnose middle ear ear infections at home through a special smartphone application, both convenient It is fast, cost-effective, while

ensuring the same accuracy if not higher than specialized medical equipment (in some situations).

Accordingly, a group of researchers at the University of Washington, USA recently developed a smart phone application, allowing parents to easily detect ear infections for their children. at home. The advantage of this application is that it does not need to come with bulky equipment like in the clinic, but only requires the use of a few simple household items - scissors, paper and adhesive tape - forming a small funnel to place in the ear. The application uses the smartphone's speaker and microphone, plays sound inside the ear through a paper funnel and retrieves the reflected waves similar to a clinic's dedicated meter.

1. Improve the effectiveness of assessing depression status by AI models

The specific mode of operation of the application is described as follows:

First, direct the funnel to the ear canal to focus the sound. The application will then emit a special type of sound, sounding almost like a chirp, at many different intensities. Next, the reflected sound waves continue to interfere with the waves emitted from the phone speaker, the microphone on the device will recognize and replay the sound waves bounce off the eardrum for analysis application.

The application will analyze that echo, if the baby's eardrum is completely healthy, without inflammation, the echo will be a broad spectrum vibration. In contrast, infected pus or fluid will alter the mobility of the eardrum and from there, make the reflected sound abnormal. After the analysis process is complete, the application will send you a document that clearly states the specific state of the eardrum, to determine if the presence of the epidemic is present - this is an important factor. In, along with other symptoms, can be used to diagnose the condition of otitis media with high accuracy.

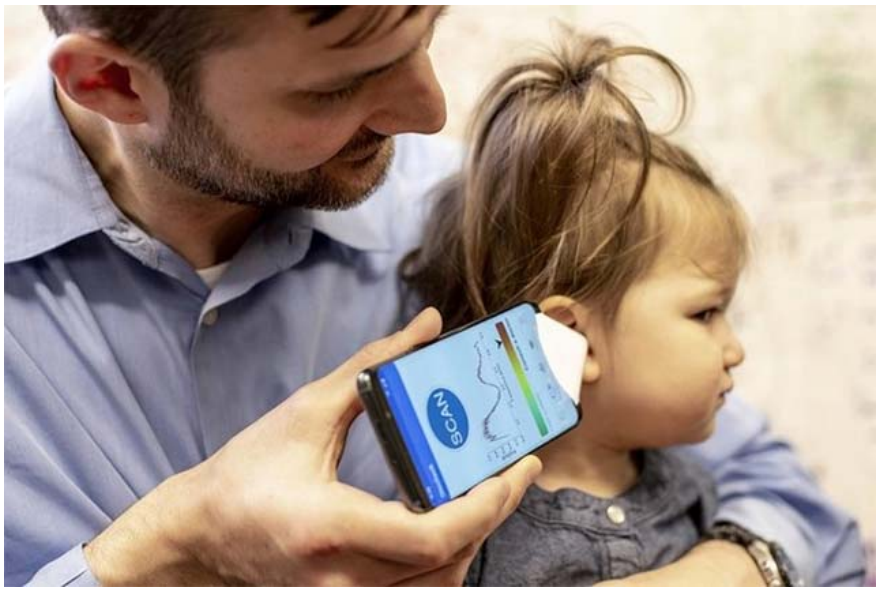
1. Scientists develop brain scanners like helmets

Researchers have published their report on the application - called EarHealth - last Wednesday in the Science Translational Medicine magazine.

Currently EarHealth application is being used to test with 2 groups of children in the US. Half of them have been admitted to Seattle Children's Hospital for surgery to remove accumulated fluid, while children have been completely diagnosed with normal and are performing relevant medical procedures. . This practical test showed that the application can detect dangerous infectious inflammation in a patient's ear with an accuracy of up to

85% - an extremely impressive number, not inferior to tests. From modern systems of hospitals, note that the detection of middle ear is quite complicated.

In addition, the researchers also tested applications on babies between the ages of 9 and 18 months - the age group has the highest risk of middle ear infection. The result was EarHealth for accurate diagnostics on all 15 babies involved in the test.



1. Sensors mounted on teeth track what you eat

"There is a really unique thing about this study that we have used the gold standard to diagnose ear infections. In fact, the advanced screening tools are not easy at all. Pus outbreaks can be detected in cases of otitis media. Instead, the only way you can be 100% sure is surgery, slitting into the eardrum and sucking out the pus. This type of surgery inspired our research, 'said Dr. Sharat Raju, an ENT surgeon at UW School of Medicine, co-author of the study.

In order to encourage parents to use home technology, researchers have also instructed parents on how to use this system so that it can be used to deliver the best results. If they follow the instructions, parents can also detect abnormal inflammation in the young ear with success rates almost equal to those of specialists in the hospital.

The development team hopes this application can be widely used in the future, helping parents to save considerable costs and effort, and it is important to promptly detect ear infections. my child. This will help children feel more comfortable and do not need to go to the hospital when not needed.

1. Magnetic nanoparticles are designed to prevent internal bleeding

EarHealth's prospects are huge. This application can be fully used in some underdeveloped countries, as well as in remote areas without the conditions to install modern medical machinery, to assist doctors here to diagnose well. far more than just using the naked eye as it is now.

The EarHealth research group has been awarded a prize by the National Science Foundation and the National Institutes of Health. At the same time, the researchers also applied to the US Food and Drug Administration (FDA) to license and through the EarHealth application as an intensive medical device.