

New smartphone app offers easy and inexpensive solution for hearing screening

July 14 2014



A hearing test that is child's play: Prof De Wet Swanepoel testing Keziah Maisiri (4) with hearScreen, a smart phone app.

A lightweight, automated and easy-to-use mobile health solution called hearScreen is ideal for developing countries and use in rural areas

An article published in the *International Journal of Audiology* on 7 July 2014 reports on an innovative smartphone app that will make it easier

and cheaper to screen people, including [young children](#) and the elderly, for hearing loss. The project was led by Prof De Wet Swanepoel from the University of Pretoria (UP), South Africa, in partnership with colleagues at UP and in Australia.

Data from the World Health Organisation shows that more than 5% of all the people in the world (about 360 million) suffer from permanent disabling hearing loss, and more than 32 million of these are children. In developing areas, up to 80% of people with hearing loss have no prospect of early detection.

"Hearing is the cornerstone for developing language, for learning to speak and to communicate," says Prof Swanepoel, an audiologist at the Department of Speech-Language Pathology and Audiology at the University of Pretoria. He is an expert in the early detection of hearing problems in babies and children. "Even minor hearing defects can have a major impact on language development and the academic performance of children, because they simply get lost within the noisy environs of a classroom."

With the introduction of a new South African health policy in 2012 that requires all Grade 1 learners – more than 1 million every year – to be screened for hearing loss, Prof Swanepoel saw the need to develop a mobile and easy-to-use hearing screening device that could replace the cumbersome and heavy apparatus that are currently used.

The newly developed app adheres to international calibration standards, can be loaded onto a low-cost, smartphone, is automated, and continuously monitors background noise to ensure reliable testing. A screening takes only one minute and the data can be uploaded via the mobile phone network to a centralised site for evaluation and recommendations.

"Anyone who knows how to operate a mobile phone can set up the 'hearScreen' device, says Prof Swanepoel, who is also an executive board member of the International Society of Audiology. "It significantly improves and alters current models of school and community-based identification of hearing loss."

"Africa needs cost-effective and sustainable methods with which to identify hearing loss in young children," he adds. "Mobile health technologies such as this app are becoming more and more important in taking healthcare to the people who would otherwise not have access to hearing screening."

Several field trials are currently underway in schools and primary health care settings. Findings demonstrate screening outcomes equivalent to the current gold standard. The user-friendly interface and affordability opens up new models for early access to [hearing loss](#) detection within underserved communities.

The hearScreen solution will be made available towards the end of the year. More information is available at www.hearscreen.co.za.

More information: De Wet Swanepoel, Hermanus C. Myburgh, David M. Howe, Faheema Mahomed & Robert H. Eikelboom, "Smartphone hearing screening with integrated quality control and data management," *International Journal of Audiology* 7 July 2014, [DOI: 10.3109/14992027.2014.920965](#)

Provided by University of Pretoria

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