
Smartphone app outperforms traditional exam in cardiac assessment



Results of a randomised trial highlight the potential of smartphone applications to help clinicians make decisions at the bedside. In this study, a smartphone app using the phone's camera function performed better than traditional physical examination (known as the Allen test) to assess blood flow in a wrist artery for patients undergoing coronary angiography. The findings are published in the *Canadian Medical Association Journal*.

Smartphones are widely available and their use as a point-of-care diagnostic tool in clinical settings requires minimal or no cost, explains co-author Benjamin Hibbert, MD, of the University of Ottawa Heart Institute, Ottawa, Ontario. For example, he says, built-in cameras with dedicated software or photodiode sensors using infrared light-emitting diodes have the potential to render smartphones into functional plethysmographs – instruments that measure changes in blood flow.

The journal study compared the use of a heart-rate monitoring app (the Instant Heart Rate application version 4.5.0 on an iPhone 4S) with the modified Allen test, which measures blood flow in the radial and ulnar arteries of the wrist, one of which is used to access the heart for coronary angiography. Researchers divided the participants (n = 438) into two groups: one group was assessed using the app and the other was assessed using the Allen test, a gold-standard traditional physical examination.

According to researchers, the smartphone app had a diagnostic accuracy of 94 percent compared with 84 percent using the traditional method. As Dr. Hibbert points out, the study "highlights that a smartphone application can outperform the current standard of care and provide incremental diagnostic yield in clinical practice."

The study's lead author, Dr. Pietro Di Santo, cites the need for rigorous testing before smartphones and apps are used as tools in patient care. The doctor says "while they aren't designed as medical devices – when smartphones and apps begin to be used clinically – it is important that they are evaluated in the same rigorous manner by which we assess all therapies and diagnostic tests." The author added:

"When we designed the iRadial study we wanted to hold the technology to the highest scientific standards to make sure the data supporting its use was as robust as possible."

The healthcare profession and regulatory agencies should proactively address the challenges associated with bringing mobile health (mHealth) solutions into practice to maximise their benefits, writes Dr. Kumanan Wilson, of The Ottawa Hospital and the University of Ottawa, in a related commentary.

"Referred to as a new industrial revolution, the impact of digital technologies will be both disruptive and transformative," he writes. "The continued maturation of technologies, such as artificial intelligence, virtual reality and blockchain, will further expand the possibilities for mHealth in both diagnosis and treatment in healthcare."

Source: [Canadian Medical Association Journal](#)

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