



The Next Doctor's Office?

The smartphone as a diagnostic tool is a work in progress.

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The same device used to take selfies and type out tweets is being repurposed and commercialized for quick access to information needed for monitoring a patient's health. A fingertip pressed against a phone's camera lens can measure a heart rate. When the phone is kept by the bedside, its microphone can screen for sleep apnea. Even the speaker is being tapped—to monitor breathing using sonar technology.

In the best of this new world, the data are conveyed remotely to a medical professional for the convenience and comfort of the patient or in some cases to support a clinician without the need for costly hardware.

But the smartphone as a diagnostic tool is a work in progress, experts say. Although doctors and their patients have found some real-world success in deploying the phone as a medical device, the overall potential remains unfulfilled and uncertain.

Smartphones come packed with sensors capable of monitoring a patient's vital signs. They can help assess people for concussions, watch for atrial fibrillation and conduct mental health wellness checks, to name the uses of a few nascent applications.

Companies and researchers eager to find medical applications for smartphone technology are tapping into modern phones' built-in cameras and light sensors; microphones; accelerometers, which detect body movements; gyroscopes; and even speakers. The apps then use artificial intelligence (AI) software to analyze the collected sights and sounds to create an easy connection between patients and physicians.

Some of these products have sought Food and Drug Administration clearance to be marketed as medical devices. That way, if patients must pay to use the software, health insurers are more likely to cover at least part of the cost.

Other products are designated as exempt from this regulatory process, placed in the same classification as a Band-Aid. But the agency is still adjusting how it handles AI and machine-learning-based medical devices to reflect software's adaptive nature.

Ensuring accuracy and clinical validation is crucial to securing buy-in from health care providers.

