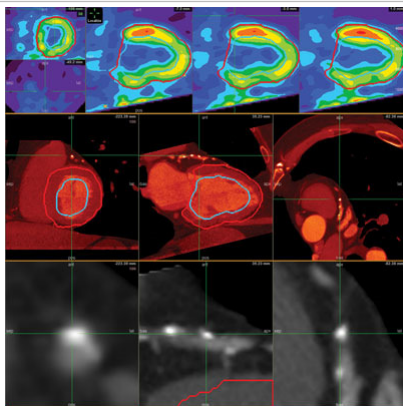


## TOP STORIES

# SCCT Feature: Can docs accurately diagnose CAD on an iPhone?



An evaluation of coronary artery disease (CAD) on an Apple iPhone has high sensitivity and negative predictive value among evaluable arteries, according to a proof-of-concept study presented at last week's Society of Cardiovascular Computed Tomography (SCCT) meeting in Orlando, Fla.

The study's authors noted that as the screen resolution and power of mobile handheld devices improve, there is increased potential for remote interpretation of medical imaging studies.

In an interview, Troy LaBounty, MD, from Weill Cornell Medical College in New York City, said that he and his colleagues sought to assess the diagnostic accuracy of interpreting coronary CT angiography (CCTA) using a handheld device for detection of significant CAD, compared with the gold-standard quantitative coronary angiography (QCA).

The researchers interpreted CCTAs of 50 consecutive patients (mean age, 57 years; 68 percent male) with prior QCA and ECG-gated 64-detector CCTA enrolled in the multicenter ACCURACY (Assessment by Coronary CT angiography of individuals Undergoing Invasive Coronary angiography) study, which was presented at the 2007 RSNA and partially funded by GE Healthcare.

LaBounty said that the participants in the ACCURACY study had a relatively low presence of CAD, with only 26 percent having significant CAD. He added that this study's patient population is generally reflective of a real-life patient population for whom CCTA get ordered because they had an intermediate risk of having CAD.

Two level III, blinded readers independently interpreted axial CCTA images on an iPhone 3G device (Apple, Cupertino, Calif.) using Mobile MIM software from Cleveland-based MIMVista; a third level III blinded reader achieved consensus. A separate blinded reader interpreted QCA. CCTA studies were assessed for the presence of significant CAD (diameter stenosis of at least 50 percent) on a per-artery and per-patient level in comparison to QCA. Segments with a diameter less than 1.5 mm were excluded.

While LaBounty said that there is the potential for these results to be reproducible with other personal device assistants (PDAs), "what makes this hardware especially useful is the touchscreen interface, and it has a relatively powerful computer and imaging capabilities. The Mobile MIMVista software makes it fairly easy to scroll through the image studies." He added that he and his colleagues received no funding for this study, and used their personally-owned devices.

The researchers found that the prevalence of significant CAD per-patient was 26 percent, and per-artery was 11 percent. Motion artifact prevented evaluation in 9/200 arteries (4.5 percent) in 7/50 patients (14 percent), and these were excluded from additional analysis. Agreement between readers was observed in 97 percent of arteries.

Based on their findings, the authors concluded that "mobile handheld devices permit high diagnostic performance for detection and exclusion of significant CAD."

LaBounty acknowledged that the small size of the patient population is a limitation of their study, and therefore they have currently doubled their study size to 100. He added that he and his colleagues are finalizing the data on those results. LaBounty also noted that another limitation of the PDA is that the nature of the device prohibits the more sophisticated post-processing and image resolution compared to a dedicated workstation. "We're limited to looking at axial images," he added.

Although this evaluative technique is investigational in the U.S., as it is pending FDA clearance, LaBounty suggested that this proof-of-concept showed that a mobile handheld device may be useful in the diagnosis of CAD. However, he acknowledged the need for additional multicenter, larger studies to confirm these findings. He also suggested expanding the evaluation for diagnosing other disease processes, such as pulmonary embolism.

"While computational technology and networking is improving, the ability to view images from multiple locations, without being tethered to a workstation is promising," he concluded. However, he said that as the technology improves, the ability to perform some post-processing on the mobile technology would be integral.

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