

iPads show the way forward for medical imaging

Tablet computers such as the iPad are becoming more and more popular, but new research from the University of Sydney means they could soon be used in hospitals as a tool for doctors to view medical imaging.



Medical images such as x-rays and scans could soon be viewed on tablet computers like the iPad in our hospitals.

Results of the University of Sydney study, presented this month at the [International Society for Optical Engineering \(SPIE\)](#) Medical Imaging conference in San Diego, show tablet computers such as the iPad are as good as standard LCD computer screens when used as secondary display devices for viewing medical imaging. Secondary display devices can be used by doctors who move from patient to patient in hospital wards.

The lead researcher of the study, [Dr Mark McEntee](#) from the [Discipline of Medical Radiation Sciences](#) at the University of Sydney, says, "In the past, doctors would do their rounds in the wards, returning to a desktop computer to view images. Now they can do it at the bedside with an iPad or other tablet computer".

Dr McEntee assessed the diagnostic efficacy of iPads when compared with LCD secondary display monitors for identifying lung nodules on chest x-rays, intracranial bleeds and fractures.

Eight examining radiologists of the [American Board of Radiology](#) were involved in the assessment, reading chest images on both the iPad and an off-the-shelf LCD monitor. Thirty chest images were shown to each observer, of which 15 had one or more lung nodules.

The results demonstrate no significant differences in performance between the iPad and the LCD. The iPad screen - like other desktop screens - has a resolution of 130 dpi (dots per inch).

"This is great news for patients and staff alike. Instead of a patient having images referred to, they can see the images at the same time the doctor is talking to them and this will make the experience for the patient much more open."

However, Dr McEntee's study foresees possible complications with widespread use of iPads in hospital wards in the event of theft. Dr McEntee cites a risk to the security of patient records if they are stored on the tablet computer using applications such as [Mobile MIM](#), the first Food and Drug Administration-approved medical app. In response to this risk, he advises never storing patient data on the tablet, rather, images should be viewed using access codes to browse patient data using web browsers.

There are also guidelines to be followed that ensure best practice when reading x-rays on an iPad or tablet. These include the guarding against poor viewing conditions, viewing images on the move, and dirty, greasy screens.

Dr McEntee emphasises that while the iPad can be used for secondary diagnosis only, with primary diagnosis of medical images, such X-rays, CT, MRI and PET scans, to be carried out on specifically designed high-quality primary LCDs in accordance with regulations issued by the [American College of Radiology](#) and the [Australian and New Zealand Royal College of Radiologists](#). Such primary display devices have a dpi of between 508 and 750dpi and are defined as Class I.

"When no primary display device exists, diagnoses can be carried out on a secondary display device, such as an iPad, but this is only in the most urgent of cases, for example to determine whether a patient is suffering from an intra-cranial bleed," Dr McEntee says.

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