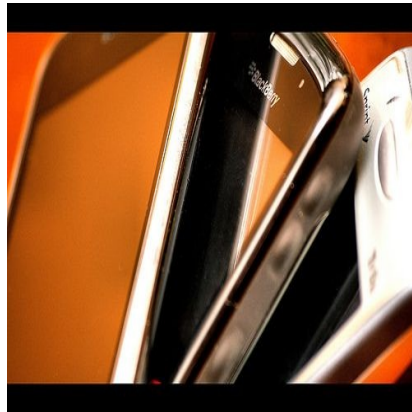




## Smartphone Technology Acceptable for Telemedicine, Study Confirms



In the time-sensitive effective treatment of stroke patients, vascular neurologists can call on the smartphone, researchers from the Mayo Clinic in Arizona have found. The study confirms the use of smartphone medical images to evaluate stroke patients in remote locations through telemedicine. Fast acquisition and interpretation of diagnostic brain imaging are key factors for delivering favorable clinical outcomes. Stroke neurologists conventionally view the brain CT scan of a stroke patient via a telemedicine network using a laptop or desktop workstation. The new method from the Mayo Clinic aims to reduce evaluation and treatment times. Researchers from the Mayo Clinic sought to determine the level of agreement of brain CT interpretation in a telestroke network between vascular neurologists using client-server-based teleradiology software (ResolutionMD, Calgary Scientific) on an iPhone 4 and radiologists using a PACS workstation. The study conducted by Dr. Demaerschalk and his team, which was published on 11 September, 2012 in *Stroke*, is the first to test the effectiveness of smartphone teleradiology applications in a real-world telestroke network. It included 53 stroke patients at Yuma Regional Medical Center in Yuma, Arizona; the patients had consented to receive a telemedicine consultation and participate in a registry. Brain CT studies for each patient were evaluated by one of five vascular neurologists on the iPhone, one of 10 radiologists on the PACS, as well as two blinded, independent telestroke adjudicators. The neurologists were based at the telestroke network hub at Mayo Clinic Hospital in Phoenix while the radiologists were at Yuma Regional Medical Center. Agreement over clinically important radiological features was measured in kappa ( $\kappa$ ) values, with 1.0 representing complete agreement between readers. "The agreement between VNs using [ResolutionMD] and radiologists and independent telestroke adjudicators using standard PACS and desktop viewers over identification of the most critical radiological features on noncontrast CT brain scans such as intracranial hemorrhage, neoplasm, and any contraindications to thrombolysis was excellent," the authors wrote. Agreement over the identification of more subtle radiological features such as early ischemic changes and hyperdense artery signs was only moderate and fair, however. The Mayo Clinic Telestroke Network in Arizona is now using the system clinically, applying the software in affiliated spoke hospitals for emergency stroke evaluations, Dr. Demaerschalk said. In addition, the Mayo Clinic Hospital in Phoenix is conducting a pilot adoption of ResolutionMD Mobile on the iPad and iPhone among physicians and surgeons in the departments of radiology, neuroradiology, neurology, neurosurgery, orthopedics, and transplants. Source: [www.mayoclinic.org](http://www.mayoclinic.org) Image: Phil Roeder | flickr

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