

## What's a Remotoscope?

By: Linda Burr

Just when you think there couldn't possibly be another cell phone app created... how about transforming your iPhone into a pediatric medical device? No more late night ER visits with your child suffering from painful earaches. Parents will soon be able to turn to the [Remotoscope](#), a clip-on attachment and software app that turns an iPhone into a digital otoscope. This smartphone otoscope provides high-quality imaging through wireless communication that enables diagnosis by a remote physician. The images and video are sent to a doctor's email inbox and/or to the patient's electronic medical record.

[Wilbur Lam, MD, PhD](#), from Emory University and Georgia Institute of Technology, along with Erik Douglas, CEO of Cellscope, have teamed together to develop a smartphone-enabled otoscope for remote diagnosis of pediatric ear infections, which cause millions of doctor visits annually in the U.S. [CellScope](#) is a mobile health startup company, building systems for at-home diagnosis.



The first phase of the study was supported by the [Research Technologies](#) and [Pilot Grants](#) programs of the Atlanta Clinical & Translational Science Institute ([ACTSI](#)). The ACTSI, created in 2007, is part of a national consortium striving to improve the way biomedical research is conducted across the country. The consortium is funded through the National Center for Advancing Translational Sciences, part of the National Institutes of Health's Clinical and Translational Science Awards (CTSA). Carolyn C. Meltzer, MD, ACTSI's Research Technologies Program Director and Associate Dean for Research of Emory University School of Medicine is, "extremely excited for Dr. Lam and delighted to be a part of the launch of this new technology."

Throughout the first phase of the study, Kathryn Rappaport, a fourth-year Emory medical student, who is a member of the research team, gathered data from mostly urgent care situations with the consent of the parents. In addition to the Remotoscope, images from a standard, fiberoptic otoscope were collected as well. The second phase of the study will include physician comparison of standard otoscope images to the images produced by the Remotoscope. This feedback will determine the next phase of development.

Instrumental in moving his project forward, Dr. Lam credits, "having a group of people with the requisite expertise, with the same open-minded, think outside-of-the-box mentality." Among his engineering colleagues, he includes [Andi Shane, MD](#), ACTSI scholar and investigator, Assistant Professor of Pediatrics

at Emory School of Medicine and a physician at Children's Healthcare of Atlanta. Dr. Shane, an expert in clinical studies, is the principal investigator of the Remotoscope clinical study and recently completed the ACTSI KL2-Mentored Clinical and Translational Research Scholars (MCTRS) program, which supports career development for junior faculty.

Dr. Lam expects that there may be several prototypes before becoming commercially available. Although when it does, the Remotoscope is expected to be less than \$100, which could prove to be a tremendous savings for both families and healthcare systems. Ear infections or otitis media, are the most common diagnosis for preschoolers, resulting in more than 30 million office visits per year in the United States and thousands of prescriptions for antibiotics, which may not be needed. "The Remotoscope could reduce emergency room visits for kids who get ear infections frequently," Lam said. "At the same time, it could reduce unnecessary antibiotic use by making it easier for doctors to check infections every day and hold back on giving drugs for infections that improve on their own."

Although it was originally developed for iPhone 4, it can be used with the new iPhone 5, which houses an improved 8MP camera with enhanced HDR capabilities for better color, tone and reduced motion blur.