SimTigrate Lab helps Children’s Cardio Clinics Select Device for Electronic Medical Records

Georgia Institute of Technology

The benefits of switching to electronic medical records are clear, but implementing them without disrupting good patient care can be challenging for healthcare providers.

That’s why a group of doctors and nurses from Children's Healthcare of Atlanta Sibley Heart Center recently collaborated with a new virtual healthcare design lab at Georgia Tech to discover what device – desktop, laptop or tablet – is best to use with electronic medical records in their clinics.

At the SimTigrate Design Lab [1] at Georgia Tech this fall, Children’s Sibley doctors and nurses had the opportunity to test drive various devices to implement electronic medical records during a simulated patient encounter in a mocked-up exam room.

The room was designed by the SimTigrate Lab to have the exact configuration as the Sibley clinics so the doctors and nurses could experience the usability of each device in a realistic environment.

“It’s difficult to anticipate ahead of time what device is needed and which will run best with the software in the actual clinical space,” said Megan Denham, research faculty in the College of Architecture and member of the SimTigrate lab.

After a day’s worth of discussion and simulation, the Children’s Sibley group selected the Lenovo x230 convertible table, which is a laptop with a screen that can be flipped to lay flat to function like a tablet.

“The doctors and nurses found that when actually in a room with a patient, their first choice device actually didn't function as well as they thought,” said Danny Presten, project manager at the Sibley Heart Center [2]. “After several iterations, the team began to see some obvious differences in individual user needs.”

Using electronic medical records can reduce paperwork and administrative burdens, cut costs, reduce medical errors and improve the quality of care, advocates say. Many U.S. hospitals and healthcare systems have transitioned to electronic medical records, but clinics still largely use paper records because of the expense and hassle involved with the conversion. However, all healthcare providers and insurers are being encouraged to switch to electronic medical records as part of the Affordable Care Act [3].

The technological device a provider selects can set the tone for the entire implementation of medical records, Presten said. Ideally, a device will allow a

healthcare provider to maintain good interaction with the patient and to efficiently document the visit in a variety of settings, from the patent room to the doctor's office.

Funded jointly by Georgia Tech's Institute for People and Technology [4] and the Sibley Heart Center, the simulated project was unique and innovative compared to how other facilities implement electronic medical records, Denham said. By doing a mock office visit with a patient, the doctors and nurses could see first hand whether the placement of the device prevented or facilitated effective communication.

"While the undertaking was designed to limit the negative impact of a computer in the doctor-patient interaction, a surprising observation was that patients viewed the presence of technology in the examination room as a positive experience when the platform was used as an educational tool to explain a heart defect," said Dr. Martha L. Clabby, a cardiologist at Sibley Heart Center and physician lead on the electronic records implementation project.

Researchers also used Microsoft Kinect for Windows software to record the simulations live, so they could observe changes in posture and movement within the room. This technology allowed them to review the sessions from any vantage point.

Another perk of going through the simulation is buy-in. Allowing both doctors and nurses to participate in the selection of the technology helped garner support as the devices rolled out at the clinics this month, Presten said.

"The end users are all very happy with the device's flexibility and look forward to continuing to explore some of its distinctive features as they grow more comfortable with the application we are using," Presten said. "Patient care has improved as relevant information is available 24/7 anywhere a provider has this computer."

Launched in March 2012 under the leadership of Professor Craig Zimring, Georgia Tech's SimTigrate lab, which is part of the College of Architecture [5], aims to develop innovative solutions to improve healthcare facilities and environments.

"One of our goals is to develop and test solutions through evidence evaluation, computer modeling, lab tests and field tests," Denham said. "Our hope is that these solutions will improve healthcare facilities and environments. We also focus on educating the next generation of professionals to improve the field itself."

Related Links

- Sibley Heart Center Cardiology [2]
- SimTigrate Design Lab [1]

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