

Study looks at how telemedicine stacks up against bedside evaluations

February 8, 2016

Carla Kemp, Senior Editor

Article type: [News](#)

Topics: [Telehealth Care](#)

Assessments of the severity of illness in children made by health care professionals using telemedicine were similar to those by clinicians at the patients' bedside, a new study shows.

Telemedicine is being used increasingly to provide specialty care to patients in rural and underserved areas. Few studies, however, have evaluated whether observations of seriously ill children made using video technologies match those seen at the bedside.

To fill this knowledge gap, researchers conducted a prospective study of patients seen in a pediatric emergency department with fever or respiratory distress.

"The importance of determining whether observations made via telemedicine are similar enough to observations made in person underlie the important application of telemedicine: to make clinical assessments and treatment plans for patients being evaluated with telemedicine when bedside evaluation is not possible," the author said in the study "Reliability of Telemedicine in the Assessment of Seriously Ill Children" (Siew L, et al. *Pediatrics*. Feb. 5, 2016, <http://pediatrics.aappublications.org/content/early/2016/02/03/peds.2015-0712>).

Patients were evaluated at the bedside and remotely by pediatric emergency attendings, fellows or mid-level providers. Remote providers used the FaceTime application on an iPad. Although the observers worked simultaneously, they could not see each other and were blinded to each other's results. Bedside evaluations were considered the gold standard.

Clinicians used the Yale Observation Scale to assess 132 febrile patients ages 2-36 months. The tool includes six items: cry, response to parent stimulation, ability to be aroused, color, hydration status and response to social overtures. A score of 16 or higher predicts underlying serious illness.

In addition, 30 children were assessed by two observers simultaneously at the bedside and two observers via telemedicine to further evaluate inter-observer reliability.

Results showed excellent agreement between bedside and telemedicine observers across all scores. There also was excellent agreement between both bedside observers and between both telemedicine observers.

In addition, 145 children ages 2 months to 18 years with respiratory symptoms were evaluated using the Respiratory Observation Checklist, which was developed by the authors based on two validated scales. It contains only visual signs of respiratory distress so it can be used with telemedicine: age-appropriate

tachypnea; perioral cyanosis; nasal flaring; tripodding; thoracoabdominal asynchrony; supraclavicular, substernal and intercostal retractions; and mental status.

There was excellent agreement between observers on whether the patient was in respiratory distress; good agreement for thoracoabdominal breathing, age-appropriate tachypnea, supraclavicular retractions, nasal flaring and substernal retractions; and fair agreement for intercostal retractions.

“Such strong agreement by observers that a subject was in respiratory distress suggests that clinical impressions or ‘gestalt’ is not lost with telemedicine,” the authors stated.

Furthermore, agreement between both bedside observers and both telemedicine observers was good to excellent.

The authors listed several limitations to the study. First, only 15 patients had scores greater than 16 on the Yale Observation Scale, and some of the signs of severe respiratory distress were not observed. This could be due to the exclusion of patients who were too unstable to consent to participation in the study, they said. In addition, the results might not be generalizable to providers without pediatric emergency medicine training.

They said they plan to conduct additional studies on the reliability of telemedicine as technologies evolve.

Resources

- [AAP Section on Telehealth Care](#)
- [American Telemedicine Association](#)

Copyright © 2016, The American Academy of Pediatrics