

Linking medically complex children's outpatient team with hospitalists improved care

November 30 2020, by Deborah Mann Lake



Ricardo Mosquera, MD, with one of his patients at the UT Physicians High Risk Children's Clinic, which is linking with hospitalists for continuity of care during a child's hospitalization. Credit: Dwight Andrews

When medically complex children are hospitalized, linking hospitalists to their regular outpatient providers through an inpatient consultation

service were more likely to improve outcomes, according to researchers at The University of Texas Health Science Center at Houston (UTHealth).

Results from the quality improvement trial, which showed the inpatient consultation service was more likely to reduce total [hospital](#) days, [hospital admissions](#) and readmissions, days in [pediatric intensive care](#) (PICU), and health care system costs, were published today in *JAMA Pediatrics*.

"We expected to see an improvement in parent satisfaction, but I was surprised to see how significantly an inpatient consultation from the outpatient providers reduced admissions, readmission, and PICU days, as well as total hospital days and health system costs," said Ricardo Mosquera, MD, first and corresponding author and associate professor of pediatrics at McGovern Medical School at UTHealth. Mosquera is director of the UTHealth High Risk Children's Program, a collaboration between UTHealth and Children's Memorial Hermann Hospital.

Jon E. Tyson, MD, MPH, professor and assistant dean in the Department of Pediatrics, was the senior author.

During a one-year period from 2016 to 2017, 167 children were randomized to inpatient consultation service and 175 to usual hospital care for the trial. Results showed that with the inpatient consultation service, the probability of reduced hospital days was 91%; of PICU days was 89%, and of mean total health care system costs was 94%.

In total numbers comparing inpatient consultation service to usual care, there were 296 versus 636 total hospital days; and \$24,928 versus \$42,276 per child year in costs. The [economic analysis](#) was done by health care economist and second author Elenir Avritscher, MD, Ph.D., associate professor in the Department of Pediatrics at McGovern

Medical School.

The trial also revealed that parents were more likely to give an overall rating of 9 or 10 (with 10 being the highest) to the providers of inpatient care.

"We knew that families were concerned about not seeing their regular health care provider while their children were in the hospital," Mosquera said. "It was reassuring for them to see us when necessary for visits in the hospital."

Children with complex medical needs account for 0.4% of U.S. children but are responsible for approximately 40% of pediatric deaths and 54% of all pediatric hospital charges. To help these fragile children have the best outcomes, the UT Physicians High Risk Children's Clinic was established by Mosquera and a multidisciplinary team of health care specialists 10 years ago, growing from one patient to 800.

A UTHealth study published in *JAMA* in 2014 showed that the outpatient comprehensive care program for high-risk children with medical complexity reduced emergency department visits, hospital and pediatric intensive care unit admissions and stays, and [health](#) systems costs. In 2018, the program was named to the national network for Children and Youth Special Health Care Needs, established by the U.S. Maternal and Child Health Bureau.

The UTHealth team recognized a gap because when patients did need to be hospitalized for acute illness, the hospitalists were unfamiliar with the child and their outpatient care, which could provide key insight to their needs while the child was in the hospital.

"In order to avoid fragmented care, we recognized that we should extend comprehensive care to all settings, including hospitalization," said

Mosquera. The clinic also offers telemedicine and, when possible, in-person home visits for its patients.

During the trial, parents of children randomized to the inpatient consultation service were asked to contact the outpatient care team when an emergency department doctor was considering hospitalization for the patient. A study nurse also reviewed the daily log to identify admissions of all study children, including those randomized to usual hospital care.

For the inpatient consultation service, an outpatient clinic provider spoke with a member of the child's in-hospital team before or soon after admission, at discharge, and intermittently during the stay for patients with more complicated care, if needed. The clinic team also participated in the post-hospitalization plan, called the patient within 36 hours of discharge, and scheduled a clinic appointment for no more than 10 days after discharge.

"Our physicians consulted with the hospitalists or emergency department physician to determine if the patient should be hospitalized, the course of treatment and care, and discharge and transition back to the outpatient setting," Mosquera said. "But the hospitalist team still retains full responsibilities. I think this model is important not just for [children](#), but for any risk population regardless of age."

More information: Ricardo A. Mosquera et al. Hospital Consultation From Outpatient Clinicians for Medically Complex Children, *JAMA Pediatrics* (2020). [DOI: 10.1001/jamapediatrics.2020.5026](https://doi.org/10.1001/jamapediatrics.2020.5026)

Provided by University of Texas Health Science Center at Houston

Citation: Linking medically complex children's outpatient team with hospitalists improved care

(2020, November 30) retrieved 6 May 2024 from

<https://medicalxpress.com/news/2020-11-linking-medically-complex-children-outpatient.html>

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