Background

Cincinnati Children’s Hospital Medical Center (CCHMC), a nonprofit academic medical center, offers comprehensive clinical services, from treatments for rare and complex conditions to well-child care. CCHMC has more than 600 registered beds and 1.3 million patient encounters to date.¹

Problem

Inspired by the Choosing Wisely campaign and the Society of Hospital Medicine’s recommendation against using continuous pulse oximetry (CPOx) routinely in children with acute respiratory illness who are not on supplemental oxygen,² then-fellow Amanda Schondelmeyer, MD, MSc, began a quality improvement overuse reduction group within CCHMC’s Department of Pediatrics. She was also motivated by the nursing staff’s excitement and the prevalence of bronchiolitis and asthma, two of the most common pediatric diagnoses.

Solution

The group collected vital signs and continuous pulse oximetry data over one month from electronic health records and nursing documentation.³ Overuse reduction initiatives began with education for both nurses and medical residents to explain potential harms of pulse oximetry, including over-testing and unnecessary extensions of hospital stays.

Interventions included educating staff, developing criteria on when to discontinue monitoring and incorporating this criteria into CCHMC’s electronic health record order set and a checklist incorporated into nursing handoffs. “This provided nurses with autonomy so that if they did not have clinical concerns, admitted patients could be transitioned to intermittent oximetry without calling the resident team to change the orders,” said Schondelmeyer, now an Assistant Professor of Pediatrics at the University of Cincinnati, and an attending physician in the Division of Hospital Medicine at CCHMC.

A temporary intervention was the utilization of a checklist at nursing handoff. Clinicians were prompted to discuss with patients whether continuous monitor status was necessary. “This served as an opportunity for both clinical reminders and data collection for CCHMC staff to learn more about why patients were kept on their monitors for longer,” said Schondelmeyer.

Results indicated that median time per week on CPOx decreased from 10.7 hours to 3.1 hours on the intervention unit, and median time per week on CPOx on the control unit which received education alone decreased from 11.5 hours to 6.9 hours.⁴
CCHMC leaders have implemented ongoing initiatives to ensure sustainability. Nurses educate new clinical staff members as they onboard; key nursing staff members have dedicated themselves to addressing ongoing issues, such as working with individuals who may not understand guidelines. Educational refreshers occur periodically by posting reminders around the unit. “We rely on a combination of formal and informal systems to manage patients and ensure sustainability,” said Schondelmeyer.

**Challenges**

- **Initial pushback.** Some staff members expressed initial concerns that this implementation would not be safe for patients. CCHMC overuse reduction leaders focused on education and empowering nurses to make clinical decisions. They emphasized the lack of support in the literature for the benefits of monitors. Nursing leaders who strongly agreed with the overuse initiative have dedicated themselves to educating new nurses about this topic.

- **Automated process logistics.** CCHMC leaders recognized that standard criteria will be appropriate for most patients, but not all, and thus avoided choosing 100% as a goal. “Any process where human decision making and judgement calls are critical, such as deciding to put a patient on monitors or turn monitors off, fully automated processes are not ideal,” said Schondelmeyer.

**Keys to Success**

- **Electronic health record order set changes.** “There were nurses who were frustrated by the way that staff were using monitors,” Schondelmeyer said. “Combining criteria to stand by with an order set empowered them to speak.”

- **Establish change to nursing set culture.** CCHMC set the stage for why clinical implementation is occurring. “We created a culture of questioning around monitors,” Schondelmeyer said. “We questioned if and why patients had trouble breathing – was this expected as part of their disease process? This was a positive change as compared to a previous process of automatically placing most of these patients on monitors.”

- **Generate hospital rapport.** Creating excitement around overuse reduction initiatives encourages staff member involvement.

**References**


Choosing Wisely® is an initiative of the ABIM Foundation.