

Choosing Wisely® in Pediatric Hospital Medicine: Time to Celebrate?

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The *Choosing Wisely*® campaign, launched in 2012 by the American Board of Internal Medicine, aims to reduce overuse of tests and treatments that do not add value for patients. The campaign has caught the attention of the medical profession and spread internationally. Over the last seven years, most specialty societies have published specific recommendations on what tests and treatments clinicians should stop doing. However, has this campaign actually had an impact on the testing and treating behaviors of clinicians?

In this issue of the *Journal of Hospital Medicine*, Reyes and colleagues examine changes in five overuse metrics linked with the 2013 *Choosing Wisely*® Pediatric Hospital Medicine recommendations at 37 children's hospitals from 2008 to 2017, five years before and after the recommendations were published.^{1,2} The tests and treatments targeted by these recommendations are not individually costly, but given the high prevalence of the conditions, the cumulative cost is not insignificant. More importantly, reducing the potentially harmful long-term effects of unnecessary radiation and adverse effects from exposure to inappropriate systemic steroids and antacids is a laudable goal. Results from unnecessary tests may also lead to a further cascade of unnecessary testing and/or treatment.³

The authors used an administrative data source, the Pediatric Health Information System (PHIS), to measure billing charges for the tests and medications linked with the overuse measures in over 278,000 hospitalizations. The good news is that overuse declined over the 10-year study period. After adjusting for differences in patient characteristics over time, they observed a substantial absolute reduction in bronchiolitis bronchodilator use (36.6%, from 64% in 2008 to 27.4% in 2017) and chest x-ray (CXR) use (31.5%, from 58.4% to 26.9%). There were also reductions for the other metrics: acid-suppressing medications for gastroesophageal reflux (24.1%, from 63% to 48.9%), asthma CXR use (20.8%, from 52.8% to 32%), and steroids for lower respiratory tract infections (2.9%, from 15.1% to 12.2%). We would not expect the goal for these overuse metrics to be zero percent given the diagnostic uncertainties in real-world clinical decision-making.

The *Choosing Wisely*® Pediatric Hospital Medicine recommendations, however, were associated with only a modest

impact on the overuse decline. A before-and-after interrupted time series analysis showed that the overuse measures were on the downturn prior to the recommendations being published. Then after publication, only the rate of CXR use in asthma decreased immediately. The rate of bronchodilator use for bronchiolitis declined in the following five-year period. There were no changes in the rate of decline in overuse for the other tests and treatments associated with the recommendations.

With such a widespread national campaign, a control group of hospitals to better understand the specific influence of the *Choosing Wisely*® recommendations was not possible. The decline in overuse over the 10-year period reported by Reyes et al. is likely due to a combination of efforts at multiple levels—including national society guidelines, local hospital guidelines and pathways, increased awareness by clinicians of the problem of overuse, and focused quality improvement efforts.

The use of the PHIS database provided Reyes et al. a powerful data source to evaluate overuse across a large number of patients and hospitals efficiently. However, there are limitations with administrative data that are important to consider. Detailed clinical data, such as patient disease characteristics and test and treatment indications, are not available, which limits the specificity of these measures. For example, one of the recommendations suggests that gastroesophageal reflux should not be routinely treated with acid suppression therapy. Using administrative data, it is impossible to know whether the use of antacids in hospitalized children with a primary discharge diagnosis code of gastroesophageal reflux was inappropriate or because they failed other treatments in the outpatient setting and/or had complicated disease appropriately warranting treatment. This misclassification would result in an overestimation of overuse. The authors did attempt to minimize the possibility of misclassification by excluding children with comorbidities, those who had longer hospital stays, those admitted to the intensive care unit, and those with greater severity of illness where some of these tests and treatments would be indicated.

While the report by Reyes et al. focuses on Pediatric Hospital Medicine *Choosing Wisely*® recommendations, it is important to recognize that tests and treatments for conditions like asthma, bronchiolitis, and lower respiratory tract infections are initially performed in the emergency department (ED). Collaboration between the ED and the Hospital Medicine Unit is essential to tackle the issue of overuse.⁴

The study by Reyes et al. provides a nice description of the trends in the *Choosing Wisely*® overuse metrics at a group of children's hospitals and is one of few such reports. The NIH fund-

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ed, Eliminating Monitor Overuse: pulse oximetry (EMO: SpO₂) study is focusing on the 5th *Choosing Wisely*[®] Pediatric Hospital Medicine recommendation that was not studied by Reyes.⁵

So then, with the decline in overuse reported in this study over 10 years, is it time to celebrate? Not yet. There is much work to do in the pursuit of *Choosing Wisely*[®]: developing a host of valid measures of overuse in pediatric hospital care, expanding the examination of overuse to community hospitals where the majority of children are hospitalized, and using implementation science theory to de-implement the ingrained practices.

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