

Predicting Appendicitis: Making a Cutting-Edge Decision with the Most Cost-Effective Diagnostic Strategies

January 27, 2020

All of us who practice pediatrics have come across patients with acute abdominal signs and symptoms that raise the possibility of appendicitis.

Lewis First, MD, MS, Editor in Chief, Pediatrics

Content License: FreeView

Article type: [Pediatrics Blog](#)



All of us who practice pediatrics have come across patients with acute abdominal signs and symptoms that raise the possibility of appendicitis. Yet once we are concerned, how we move forward to confirm or rule-out the diagnosis can take many pathways based on risk and availability of services (e.g, going directly to the operating room; imaging with CT, MRI, or ultrasound). These approaches can be combined into many permutations. In a study being early released this week, Jennings et al

([10.1542/peds.2019-1352](#)) conducted a cost-effectiveness analysis based on a hypothetical cohort of. The strategies the authors selected ranged from not imaging and either operating or sending a patient home to getting an MRI if the ultrasound does not visualize the appendix but does show secondary signs of inflammation such as periappendiceal fluid collections or an appendicolith, to name just a few.

The results of this study demonstrate that the most cost-effective strategy for those at moderate risk for appendicitis is to obtain an ultrasound and follow it with a CT scan if the appendix cannot be visualized by the ultrasound or if secondary signs of appendicitis are seen. The authors also note that if the chance of appendicitis is less than 16% or over 95%, then no imaging would be most cost-effective. The authors suggest that this kind of analysis can lead to a personalized approach to care that can improve outcomes and decrease cost

Yet what looks good in a theory may not work in reality—at least accordingly to an accompanying commentary ([10.1542/peds.2019-3349](#)) by pediatric surgeons Drs. Rebecca Rentea and Charles Snyder from Children’s Mercy Hospital in Kansas City. Drs. Rentea and Snyder reiterate the solid methodology used to look at cost-effectiveness in this study, but also raise some limitations for us to consider before we implement the algorithmic approach of Drs. Jennings et al. For example, they note hidden costs, the quality of the person doing the ultrasound, and other diagnostic strategies not considered in the study. There is also the option of non-operative management of appendicitis. While this study may not be the ultimate

solution as to what is the most cost-effective solution for diagnosing appendicitis, it certainly takes us to the cutting edge and brings us even closer to reducing inappropriate variation, and assuring the highest quality outcomes at the lowest costs—and that's worth everyone's consideration. Check out both the study and commentary and see what we mean.

- [Outcomes of Nonoperative Management of Uncomplicated Appendicitis](#)
- [Alternatives to Appendectomy for Acute Appendicitis](#)
- [Development and Validation of a Novel Pediatric Appendicitis Risk Calculator \(pARC\)](#)
- [Facebook](#)
- [Instagram](#)

Copyright © 2020 American Academy of Pediatrics