

POLICY FORUM: PEER-REVIEWED ARTICLE

What the COVID-19 Pandemic Teaches Us About Pediatric Iatrogenic Risk

Katherine Pumphrey, MD, MHA and Jessica Hart, MD, MHQS

Abstract

Iatrogenic morbidity and mortality are pediatric public health risks. This article considers how the COVID-19 pandemic illuminates these risks, as clinicians have been forced to navigate increased diagnostic uncertainty and changes to pediatric health care systems, including closures, limited staffing, and new infection control guidelines.

Diagnostic Uncertainty and Inequity

Patient harm resulting from treatment by a member of the medical team is referred to as iatrogenesis. This harm may be secondary to an adverse outcome of evaluation or treatment, or it may be due to medical error^{1,2,3}; both iatrogenic morbidity and mortality are associated with medical error.⁴ Over the last two-and-a-half years, the COVID-19 pandemic has resulted in increased diagnostic uncertainty and diagnostic error and, therefore, an increased risk of iatrogenic morbidity and mortality for certain populations.⁵ More specifically, the COVID-19 pandemic highlighted iatrogenic morbidity and mortality as public health risks for pediatric patients.

Throughout the COVID-19 pandemic, physicians were forced to navigate diagnostic uncertainty. Physicians practiced within a rapidly changing health care system (eg, facility closures, limited staffing, telehealth delivery) while experiencing increased fatigue and stress, as well as emotionally charged scenarios. This changing environment resulted in increased opportunities for diagnostic error, defined by the National Academy of Medicine as “the failure to (a) establish an accurate and timely explanation of the patient’s health problem(s) or (b) communicate that explanation to the patient.”⁶ Diagnostic error increases risk of iatrogenic morbidity and mortality, secondary to availability bias, diagnostic momentum, and premature closure in the diagnostic process.^{7,8} For example, the diagnosis of COVID-19 for pediatric patients was complicated by multisystem inflammatory syndrome in children (MIS-C), a postinflammatory disease related to SARS-CoV-2 infection, which presents similarly to severe pediatric diseases, including bacterial sepsis, toxin-mediated disease, and viral syndromes.⁷ Referred to as the “COVID trap,” diagnostic error during the COVID-19 pandemic was identified by Fatemi and Coffin as an especially salient cause of preventable harm in a series of pediatric cases.⁷

Diagnostic Error as a Source of Iatrogenic Harm to Children

Although highlighted during the COVID-19 pandemic, diagnostic error is not new and is estimated to account for 5% to 15% of diagnoses.^{9,10} Previous work has demonstrated that a significant number of admissions to pediatric intensive care units (PICUs) were due to iatrogenic events, with diagnostic error being identified as one area with potential for improvement.^{11,12} Furthermore, diagnostic error has been identified as a priority research topic by the Children's Hospitals' Solutions for Patient Safety Network, with experts noting a lack of large, high-quality pediatric studies on the subject.^{10,13}

Although diagnostic error continues to be a common—and often serious—risk to patients, unlike other foci of patient safety, such as health care-associated infections or medication errors, few gains have been made, perhaps because diagnostic error may be more challenging to address via a systems solution. Nevertheless, researchers must be willing to examine the complex, multifaceted diagnostic process to reduce diagnostic error. This examination will require the health care system to ensure a culture of psychological safety, as physicians will need to discuss their own role in contributing to diagnostic error via **cognitive errors**. Recently, researchers have identified frameworks for improving reporting of diagnostic error, as it is believed that physician reporting could be a promising method for identifying risks of diagnostic error.^{14,15} However, reducing diagnostic error remains an uphill battle, as a culture of fear and low psychological safety still exists within many health care organizations.¹⁵ Until we can address these issues, diagnostic error is likely to continue.

Conclusion

In 2019, Congress authorized \$2 million for the Agency for Healthcare Research and Quality to investigate and solve the problem of diagnostic errors.¹⁶ The timing of the COVID-19 pandemic likely impeded this research, although it also highlighted why this work may be more important than ever before. In 1999, the Institute of Medicine's report, *To Err is Human: Building A Safer Health System*, challenged us to build a safer health care system⁴; however, **pediatric iatrogenic harm** continues to occur commonly without clear evidence of improvement.¹⁷ A changing health care landscape in the setting of the COVID-19 pandemic highlighted the ongoing risk of pediatric iatrogenic morbidity and mortality due to diagnostic error. However, before diagnostic error can be reduced, physicians must feel safe addressing their own role in contributing to diagnostic errors so that the diagnostic process can be improved.

References

1. Silber TJ, Hilliard MA. Iatrogenesis: ethical and legal aspects. *Adolesc Med State Art Rev*. 2011;22(2):289-300, x-xi.
2. Sharpe VA, Faden AI. *Medical Harm: Historical, Conceptual, and Ethical Dimensions of Iatrogenic Illness*. Cambridge University Press; 1998.
3. Matlow A, Stevens P, Harrison C, Laxer RM. Disclosure of medical errors. *Pediatr Clin North Am*. 2006;53(6):1091-1104.
4. Kohn LT, Corrigan JM, Donaldson MS, eds; Institute of Medicine. *To Err Is Human: Building a Safer Health System*. National Academy Press; 2000.
5. Muhrer JC. Risk of misdiagnosis and delayed diagnosis with COVID-19. *Nurse Pract*. 2021;46(2):44-49.
6. Balogh EP, Miller BT, Ball JR, eds; Institute of Medicine. *Improving Diagnosis in Health Care*. National Academies Press; 2015.
7. Fatemi Y, Coffin S. The COVID trap: pediatric diagnostic errors in a pandemic world. *Diagnosis (Berl)*. 2021;8(4):525-531.

8. Camporesi A, Díaz-Rubio F, Carroll CL, González-Dambrauskas S. Protecting children from iatrogenic harm during COVID19 pandemic. *J Paediatr Child Health*. 2020;56(7):1010-1012.
9. Isparo AJ, Patel SJ, Warner DC, et al. Declaring uncertainty: using quality improvement methods to change the conversation of diagnosis. *Hosp Pediatr*. 2021;11(4):334-341.
10. Marshall TL, Rinke ML, Olson APJ, Brady PW. Diagnostic error in pediatrics: a narrative review. *Pediatrics*. 2022;149(suppl 3):e2020045948D.
11. Reed RC, Buchino JJ. Pediatric iatrogenic deaths. In: Collins KA, Byard RW, eds. *Forensic Pathology of Infancy and Childhood*. Springer; 2014:775-805.
12. Salvini R, Frey B. Iatrogenic events contributing to paediatric intensive care unit admission. *Swiss Med Wkly*. 2021;151:w20414.
13. Hoffman JM, Keeling NJ, Forrest CB, et al. Priorities for pediatric patient safety research. *Pediatrics*. 2019;143(2):e20180496.
14. Marshall TL, Isparo AJ, Le M, et al. Increasing physician reporting of diagnostic learning opportunities. *Pediatrics*. 2021;147(1):e20192400.
15. Unal A, Seren S. Medical error reporting attitudes of healthcare personnel, barriers and solutions: a literature review. *J Nurs Care*. 2016;5(6):377.
16. Brady J. With increased funding, AHRQ to explore scope and causes of diagnostic errors. Agency for Healthcare Research and Quality blog. March 25, 2019. Accessed July 8, 2022.
<https://www.ahrq.gov/news/blog/ahrqviews/diagnostic-errors-exploration.html>
17. Stockwell DC, Landrigan CP, Toomey SL, et al. Adverse events in hospitalized pediatric patients. *Pediatrics*. 2018;142(2):e20173360.

Katherine Pumphrey, MD, MHA is a pediatric hospital medicine fellow at the Children's Hospital of Philadelphia in Pennsylvania and a master of science candidate in health policy research at the University of Pennsylvania.

Jessica Hart, MD, MHQS is a pediatric hospital medicine physician at the Children's Hospital of Philadelphia in Pennsylvania, where she is also the director of quality and safety for graduate medical education. Her scholarly interests include quality improvement, patient safety, and medical education.

Citation

AMA J Ethics. 2023;25(2):E130-132.

DOI

10.1001/amajethics.2023.130.

Conflict of Interest Disclosure

The author(s) had no conflicts of interest to disclose.

The viewpoints expressed in this article are those of the author(s) and do not necessarily reflect the views and policies of the AMA.

Copyright 2023 American Medical Association. All rights reserved.
ISSN 2376-6980