



COVID-19: What's New?

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COVID-19 Risks: MIS-C and Under-Vaccination

Bernice D. Mowery

Editor's Note: Evidence-based practice is a challenge during the COVID-19 pandemic as science struggles to learn about the SARS-CoV-2 virus. To assist readers in identifying the latest findings, the *COVID-19: What's New?* column reviews and critiques two articles to share pertinent findings with practice implications.

Mowery, B.D. (2021). COVID-19 risks: MIS-C and under-vaccination. *Pediatric Nursing*, 47(6), 303-304.

Key Words: COVID-19, coronavirus, pandemic, MIS-C, multi-system inflammatory syndrome in Children

COVID-19 pediatric hospitalizations and emergency visit rates increased dramatically in August 2021 with the Delta variant and are highest in areas with low vaccination rates (Siegel, 2021). In the September 3, 2021, issue of *APA News*, the American Academy of Pediatrics (AAP) attributed the rising hospitalization rate to increased disease in the community (Jenco, 2021).

This issue's COVID-19 column focuses on new research explaining the etiology and possible treatment for multisystem inflammatory syndrome in children (MIS-C), and a Centers for Disease Control and Prevention (CDC) publication with evidence-based methods health care providers can use to encourage COVID-19 vaccination. Both address the current biggest COVID-19 risks for children.

MIS-C Is Driven by Zonulin-Dependent Loss of Gut Mucosal Barrier

Multisystem inflammatory syndrome in children (MIS-C) occurs weeks after children have been exposed to SARS-CoV-2, the virus causing COVID-19. Usually, the virus cannot be cultured from the respiratory tract of children with MIS-C respiratory tract, so the cause of MIS-C is undetermined. Standard treatment, steroids, and immunoglobulin therapy (IVIG) target the inflammatory response but not the cause. Measures to identify MIS-C etiology and develop a treatment for MIS-C early before cardiac complications occur are needed.

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Yonker and colleagues (2021) investigated 100 children, 19 with MIS-C, 26 with COVID-19, and 55 controls. Significantly more children with MIS-C had gastrointestinal symptoms (GI) (89%) than children with COVID-19 (27%), as well as significantly higher levels of SARS-CoV-2 in stool samples. The authors hypothesized that prolonged presence of SARS-CoV-2 in the GI tract leads to release of zonulin, a protein biomarker of intestinal permeability, with consequent trafficking of SARS-CoV-2 into the bloodstream, resulting in antigenemia and hyperinflammation. Increased circulating zonulin has also been noted in inflammatory diseases, including celiac and Kawasaki diseases. The authors included informative illustrations that make it easy to follow research steps and rationale for their hypothesis.

To further confirm the role of zonulin in MIS-C, the authors administered a zonulin antagonist, larazotide (clinical III trials for Celiac disease), to a critically ill 17-month-old failing to respond with standard therapy, reducing spike antigenemia, cytokine storm, and improving clinical status. Further research with larger samples is needed to confirm pathogenesis and to explore the prevention and treatment of MIS-C.

COVID-19 Vaccination Field Guide: 12 Strategies for Your Community

The CDC (2021) recently published the field guide, *COVID-19 Vaccination Field Guide: 12 Strategies for Your Community* to provide an evidence-based approach to promote COVID-19 vaccine confidence and uptake using implementation science strategies. Although the guide is

The **COVID-19: What's New** column focuses on issues, information, and strategies relevant to the current COVID-19 global pandemic and pediatric patients. To suggest topics, obtain author guidelines, or to submit queries or manuscripts, contact Bernice D. Mowery, PhD, RN, or Jean Ivey, PhD, ARNP, PNP, FAANP, *Pediatric Nursing*; East Holly Avenue/Box 56; Pitman, NJ 08071-0056; (856) 256-2300 or FAX (856) 589-7463; pnjrnl@ajj.com

long (48 pages), the table of contents makes it easy to locate information. It is divided into three primary sections: Common Barriers, Understanding Your Community, and Vaccine Confidence and Uptake Strategies. The guide also includes group exercises for community projects and successful examples of proposed strategies, such as using schools for vaccination sites. Additionally, there are helpful hyperlinks from the electronic version, such as to supporting articles and resources. The theoretical model used is the World Health Organization's Behavioral and Social Drivers (BeSD) Framework, which addresses the *thinking and feeling* and *social process* factors affecting motivation to get vaccinated, and *practical issues*, such as availability, affordability, and ease of access.

With nurses being the largest group of health care professionals and also recognized as being trusted, comes responsibility for nurses to know scientific information about COVID-19 and vaccinations, as well as common misinformation (untrue information shared by people not intending to mislead) and disinformation (false information generated with malicious intent [CDC, 2021, p. 7]). Information in the *COVID-19 Vaccination Field Guide* (CDC, 2021) can assist nurses with this information and how to best help parents and communities make informed decisions about COVID-19 vaccination for themselves and their children. ■■■

References

- Centers for Disease Control and Prevention (CDC). (2021). *COVID-19 vaccination field guide: 12 strategies for your community*. <https://www.cdc.gov/vaccines/covid-19/downloads/covid19-vax-field-guide-12-strategies.pdf>
- Jenco, M. (2021, September 3). CDC: Delta variant causing increase in pediatric COVID-19 cases, not severity. *APA News*. <https://www.aappublications.org/news/2021/09/03/covid-delta-variant-children-hospitalizations-090321>
- Siegel, D.A., Reses, H.E.; Cool, A.J., Shapiro, C.N., Hsu, J., Boehmer, T.K.; Cornwell, C.R., Gray, E.B., Henley, J., Lochner, K., Suthar, A., Lyons, B.C., Mattocks, L., Hartnett, K., Adjemian, J., van Santen, K., Sheppard, M., Soetebier, K., Logan, P., ...Raizes, C. (2021). Trends in COVID-19 cases, emergency department visits, and hospital admissions among children and adolescents aged 0-17 years – United States, August 2020-August 2021. *Morbidity and Mortality Weekly Report*, 70(36), 1249-1254. https://www.cdc.gov/mmwr/volumes/70/wr/mm7036e1.htm?s_cid=mm7036e1_w
- Yonker, L.M., Gilboa, T., Ogata, A.F., Senussi, Y., Lazarovits, R., Boribong, B.P., Bartsch, Y.C., Loiselle, M., Rivas, M.N., Porritt, R.A., Lima, R., Davis, J.P., Farkas, E.J., Burns, M.D., Young, N., Mahajan, V.S., Hajizadeh, S., Lopez, X., Kreuzer, J., ... Fasano, A. (2021). Multisystem inflammatory syndrome in children is driven by zonulin-dependent loss of gut mucosal barrier. *The Journal of Clinical Investigation*, 131(14), e149633. <https://doi.org/10.1172/JCI149633>