



Journal Review

KPJ journal rounds

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Source: Sundararajan, S., Rabe, H. Prevention of iron deficiency anemia in infants and toddlers. *Pediatr Res* (2020). <https://doi.org/10.1038/s41390-020-0907-5>

The authors in this comprehensive review discuss feasible options, recommendations, interventions for tackling iron deficiency anemia (IDA), and iron deficiency states. Despite interventions at various levels across the world, IDA remains a significant problem to tackle. IDA contributes to death and disability and is an important risk factor for maternal and perinatal mortality, including the risks for stillbirths, prematurity, and low birth weight. Reduction in early infantile anemia and newborn mortality rates is possible with easily implemented, low- to no-cost intervention such as delayed cord clamping (DCC). DCC until 1–3 min after birth facilitates placental transfusion and iron-rich blood flow to the newborn. DCC, an effective anemia prevention strategy, requires cooperation among health providers involved in childbirth, and a participatory culture change in public health. It goes without saying that public intervention strategies must consider multiple factors associated with anemia listed in this review before designing intervention studies that aim to reduce anemia prevalence in infants and toddlers.

Source: Medvedev MM, Brotherton H, Gai A, Tann C, Gale C, Waiswa P, Elbourne D, Lawn JE, Allen E. Development and validation of a simplified score to predict neonatal mortality risk among neonates weighing 2000 g or less (NMR-2000): an analysis using data from the UK and The Gambia. *The Lancet Child & Adolescent Health*. 2020 Feb 28. DOI: [https://doi.org/10.1016/S2352-4642\(20\)30021-3](https://doi.org/10.1016/S2352-4642(20)30021-3)

This population-wide study, including data from 110 176 newborn babies at 187 hospitals in the UK and 550 newborn babies at one hospital in the Gambia, has derived and validated NMR-2000 for predicting in-hospital mortality. A strength of this work is that, to the best of our knowledge, this is the largest dataset that has been used to develop and validate a neonatal mortality risk score. About 18 candidate variables were selected for inclusion in the modeling process. The final model included three parameters: Birth weight, admission oxygen saturation, and highest level of respiratory support within 24 h of birth. Among neonates born at 32 weeks' gestation or earlier, the discriminatory ability of NMR-2000 was superior to that of CRIB-II, one of the most widely used neonatal risk scores. The authors interpret NMR-2000 as a validated mortality risk score for hospitalized neonates weighing 2000 g or less in settings where pulse oximetry is available. The score is accurate and simplified for bedside use.

Source: McCann ME, Soriano SG. Does general anesthesia affect neurodevelopment in infants and children? *bmj*. 2019 Dec 9;367. doi: <https://doi.org/10.1136/bmj.l6459>

In this state-of-the-art review, the authors deal with all the relevant neurological issues associated with the use of general anesthetics in children. The possibility of anesthetic-induced

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neurotoxicity occurring in children has led to concerns about the safety of pediatric anesthesia. A spectrum of behavioral changes has been documented after general anesthetic exposure in young children, including emergence delirium, which may be evidence of toxicity. Most clinical studies are retrospective; specifics about medications or monitoring are unavailable and many of the outcomes may not be sensitive to detect small neurocognitive deficits. Some of these retrospective studies have shown an association between anesthesia exposure at a young age and neurocognitive deficits, but others have not. Practitioners and families should be reassured that although general anesthetics have the potential to induce neurotoxicity, very little clinical evidence exists to support this.

Source: van derMade CI, Hoischen A, Netea MG, van de Veerdonk FL. *Primary immunodeficiencies in cytosolic pattern-recognition receptor pathways: Toward host-directed treatment strategies*. *Immunol Rev*. 2020;00:1– 26. <https://doi.org/10.1111/imr.12898>

In this excellent review, the authors simplify the approach to the ever-increasing types of primary immunodeficiency diseases (PIDs) and have also discussed a host-directed treatment approach, in which functional immunological testing in patients with and without a genetic diagnosis can illuminate the predominant disease mechanism and provide a rational basis for drug therapy.

Patients with PIDs constitute a formidable area of research to study the genetics and the molecular mechanisms of complex immunological pathways. The advancing understanding of cytosolic pattern recognition receptor pathways in the host innate immune response creates opportunities for the development of new treatment strategies.

The future therapeutic arsenal will, therefore, become increasingly tailored to the patient's unique molecular fingerprint. This personalized medicine approach will allow the titration of optimal treatment efficacy based on both clinical and biochemical improvement, weighed against the relatively minor harm inflicted by the targeted immunomodulatory drugs.

Source: Edwards BL, Dorfman D. *High-risk Pediatric Emergencies*. *Emerg Med Clin North Am*. 2020;38(2):383-400. doi:10.1016/j.emc.2020.01.004

Although data from India are not available in the countries that the authors have included, they have found that more than half of pediatric malpractice cases arise from emergency departments, primarily due to missed, or delayed diagnoses. All providers who take care of children in emergency departments should be aware of this risk and the most common diagnoses associated with medicolegal liability.

This article focuses on the diagnosis and management of high-risk diagnoses in pediatric patients presenting to emergency departments, including meningitis, pneumonia, appendicitis, testicular torsion, and fracture. It highlights challenges and pitfalls that may increase the risk of liability.

Children are not small adults. The diagnoses associated with malpractice are unique to the pediatric population and vary by age. All providers who take care of children in the emergency setting should be cognizant of the medicolegal risk associated with this population, not only to protect against liability but also to increase awareness of the pitfalls of these critical but complex diagnoses to improve outcomes for all pediatric patients. It concludes with a discussion on recognition and management of abuse in children, including when to report and decisions on disposition.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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