

EDITOR'S FOCUS

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EARLY CAREER INVESTIGATOR



Congratulations to Gregory Costain, the Early Career Investigator for March 2023. Dr. Costain is a medical geneticist and clinician-scientist in the Division of Clinical and Metabolic Genetics at The Hospital for Sick Children and SickKids Research Institute in Toronto, Canada. His work aims to understand the causes of unexplained health conditions in children as well as to maximize the benefits of genetic testing for families with a medically complex child. In an article in this issue, Dr. Costain and colleagues examine the role of pharmacogenetic profiling in children with medical complexity using existing genome sequencing data obtained in children for their diagnosis. They found that some children have variants in pharmacogenes that can indicate a potential gene-drug interaction. Asked for advice to others early in their career, Dr. Costain cited the aphorism "A jack of all trades is a master of none, but oftentimes better than a master of one." See pages 744 and 905

GLOBAL PEDIATRIC RESEARCH INVESTIGATOR



Congratulations to Khaled Saad, the Global Research Investigator for March 2023. Dr. Saad is a professor of pediatrics at Assiut University in Assyut, Egypt. He has had many mentors along the way, including his mother, who valued education and encouraged him to pursue his dream of becoming a pediatrician. Dr. Saad's work aims to improve treatments for children with a variety of diseases. In a study reported in this issue, Saad et al. evaluated the accuracy of the Cow's Milk-related Symptom Score in detecting allergy to cow's milk protein. The score was found to be a promising test to detect symptoms of cow's milk allergy and useful in assessing response to a cow's milk-free diet. As reported in another article, he and colleagues found that hydroxyurea treatment in children with sickle cell anemia increased hemoglobin and red blood cell count and improved immune profiles. His advice to others is that their "research should be rigorous and solve a significant medical problem." See pages 751, 772, and 918

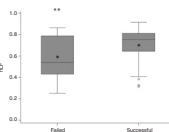
SARS-COV-2 VIRAL LOAD AND SYMPTOMS



Roversi et al. investigated the relationship between SARS-CoV-2 viral load in respiratory secretions and

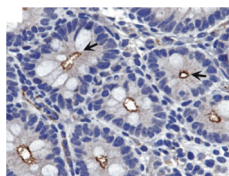
children's signs and symptoms of COVID-19 illness. They found higher SARS-CoV-2 viral loads in children with fever and respiratory symptoms as well as in those who had had previous exposure to the virus. While the authors acknowledge that viral load should not be used as a measure of clinical symptom severity, their findings improve our understanding of the variability in SARS-CoV-2 illness severity in children, which may be related to viral load. The authors of a related Comment on behalf of the Pediatric Policy Council discuss the impact that the lapse in federal COVID-19 funding will have on children. They describe several policy solutions that might help mitigate the impact, especially for uninsured children and those in underserved areas. (Photo: Paul Biris/Getty) See pages 897 and 745

AUTONOMIC MARKERS OF EXTUBATION SUCCESS IN PRETERM INFANTS



Hoffman et al. explored whether the balance between the sympathetic and parasympathetic components of the autonomic nervous system influenced extubation success in preterm infants. They analyzed heart rate variability metrics 24 h before extubation and in the 72 h following extubation. They found that infants who failed extubation had an autonomic imbalance with lower sympathetic tone and higher parasympathetic tone compared with infants who remained successfully extubated. In a Comment, Shalish and Sant'Anna discuss physiological variability, particularly the powerful analytical tool of heart rate variability. Continuous bedside measure of heart rate and other clinical parameters may in the future help neonatologists better know when a baby is ready for extubation. See pages 911 and 748

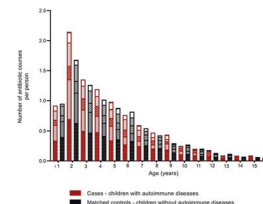
INTESTINAL EPITHELIAL CELL INJURY AND POOR GROWTH VELOCITY IN NEC



Wang et al. evaluated the mechanism of intestinal epithelial cell injury from necrotizing enterocolitis (NEC) in a mouse model exposed to the fatty acid butyrate at preterm and term ages. They found that sodium butyrate can induce necroptosis in preterm newborns compared with term newborns, and that necroptosis inhibitors can prevent cellular injury from butyrate. These findings may represent a potential preventive or treatment therapy for NEC. In a related clinical research article, Magnusson and colleagues evaluated body composition, child growth, and measures of bone density in a cohort of 5-year-old children who were born preterm and had NEC. They found that, compared with controls, children with NEC had lower weight, fat mass, and bone mineral density. This finding indicates the long-term impact NEC has on growth trajectory and bone health, which may have implications for bone health as children age into

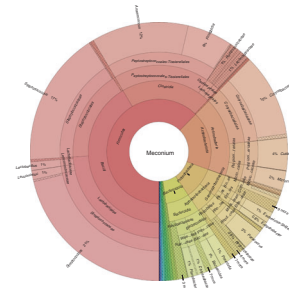
adulthood. In a related "Family reflections" piece, a parent relates the personal story of their daughter with NEC and the enduring medical complexity of short bowel syndrome. They look forward to future research and medical advances to help children with these conditions and their families. See pages 801, 924, and 1105

ANTIBIOTICS AND DEVELOPMENT OF AUTOIMMUNE DISEASE



Antibiotics have been studied in association with the development of autoimmune diseases. In this large population study from Finland, the authors studied antibiotic exposures and the development of type 1 diabetes, autoimmune thyroiditis, juvenile idiopathic arthritis, and inflammatory bowel diseases. They found that the use of broad-spectrum antibiotics was associated with juvenile idiopathic arthritis, but that use of antibiotics overall had a low risk regarding development of autoimmune diseases. Antibiotic stewardship may therefore also have a role in reducing future risk for autoimmune diseases. See page 1096

BACTERIAL EXTRACELLULAR VESICLES FORM PART OF THE EARLY GUT MICROBIOME



Turunen et al. present novel findings of the presence of bacterial extracellular vesicles (EVs) in the meconium of newborn infants. These findings indicate that the gut microbiome during fetal and perinatal development includes bacterial EVs, which are small and more likely to pass through biological barriers than whole-cell bacteria are. Infant delivery mode and maternal receipt of intrapartum antibiotics were not found to be significant factors. More work is needed to better understand how these bacterial EVs interact with the fetal gut and contribute to the microbiome of meconium. See page 887

ACKNOWLEDGEMENTS

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