Biomedical Informatics Grand Rounds
Wednesday, March 23rd, 2022 3:00 pm – 4:00 pm

Children and SARS-CoV-2: Pediatric Insights from the National COVID Cohort Collaborative

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Remote Access
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Bio: Dr. Blake Martin M.D. is an assistant professor of pediatrics at the University of Colorado School of Medicine and pediatric critical care physician at Children's Hospital Colorado. He received his B.A. in astrophysics from Princeton University and his medical degree from the University of Colorado School of Medicine. He completed his pediatrics residency at the Boston Combined Residency Program (Boston Children's Hospital and Boston Medical Center) before moving back to his home state of Colorado to complete his fellowship in Pediatric Critical Care Medicine at the University of Colorado School of Medicine.

His research interests include 1) the development and application of machine learning-based predictive models within the pediatric intensive care unit (PICU) to optimize antibiotic decision-making, 2) development and implementation of clinical decision support tools within the PICU, and 3) multi-center, observational research to improve our understanding of pediatric SARS-CoV-2 infection and multisystem inflammatory disorder in children (MIS-C).

Abstract: A thorough understanding of pediatric SARS-CoV-2 impact has been limited by the lack of large, granular, multicenter studies. Using data from the National COVID Cohort Collaborative (N3C), we illustrate changes in pediatric SARS-CoV-2 severity, hospitalizations, and age distribution over time during the pandemic. We identify demographic and comorbidity risk factors associated with the highest severity disease among children hospitalized with SARS-CoV-2. We visualize the evolution in medication regimens used to treat hospitalized children with SARS-CoV-2 as our understanding of SARS-CoV-2 itself evolved. And, lastly, we identify the characteristic, comorbidity, and clinical outcome differences among hospitalized children diagnosed with multisystem inflammatory syndrome in children (MIS-C) as compared to those with acute COVID-19.

Educational Objects: Upon completion, participants should be able to:
- Understand changes in case incidence and clinical severity over time among children with SARS-CoV-2 from within the National COVID Cohort Collaborative (N3C)
- Identify risk factors associated with severe disease among children hospitalized with SARS-CoV-2
- Identify demographic and comorbidity features associated with increased risk for MIS-C diagnosis among children hospitalized with SARS-CoV-2
- Recognize the differences (and implications for severity prediction) in day of hospitalization vital sign and laboratory result values among children of varying peak clinical severity