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Sepsis is SEPSIS! It's high time to globalize pediatric sepsis

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To the editors

We would like to thank Dr. Souza and colleagues¹ for their thoughtful commentary regarding our recent publication, “Pediatric Severe Sepsis in US Children's Hospitals”² (PCCM November 2014). We agree that a more global and user-friendly approach to pediatric sepsis definitions would advance the field. Although international consensus guidelines to identify pediatric sepsis do exist, these definitions pose several challenges. First, they can be cumbersome to apply in real time at the bedside. Second, these definitions were intended to define eligibility criteria for research studies and thus may not capture all patients who require sepsis therapies, particularly those who present early in illness with compensated shock. Third, prior studies have shown that consensus criteria and clinical diagnosis only moderately agree, and that ICD-9 codes only identify a portion of the patients meeting either consensus criteria or clinical diagnosis³ (Weiss 2012). The differences in sepsis prevalence between our study and the complementary study by Ruth et al published in the same issue are, at least in part, explained by our broader inclusion of all hospital admissions during the study period, while Ruth and colleagues focused specifically on children admitted to a PICU. We agree with the authors that the most useful definitions would apply regardless of differences in medical practices or economic development to allow a global understanding of the burden of disease.

The recently completed SPROUT (Sepsis Prevalence Outcomes and Therapies) point-prevalence study addresses many of these concerns in the Pediatric ICU setting. The SPROUT investigators screened several thousand pediatric children hospitalized in 128 PICUs spanning 26 countries for severe sepsis using both consensus research criteria as well as clinical diagnosis.⁴ The results of this study should provide comprehensive data about the prevalence, therapies used, and clinical outcomes for a large prospectively identified cohort of critically ill children with severe sepsis across multiple countries. This international study will hopefully address many of the problems noted by Dr. Souza and colleagues in trying to compare epidemiological estimates across single-center and even single-country studies that use different criteria to identify cases.

One ongoing challenge that remains, however, is that sepsis is not a disease, but rather a syndrome with inherent heterogeneity in host and microbiologic factors. An improved understanding of both the epidemiology of patients at risk for sepsis and the mechanisms causing this syndrome will help to more accurately identify patients not only as septic, but with distinct pathophysiology-based phenotypes who could be targeted for more specific therapies.

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