Might the surviving sepsis campaign international guidelines be less confusing?

Authors' reply

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Dear Editor,

We thank Dr Briassoulis et al. for their comment on the 2020 Surviving Sepsis Campaign (SSC) guidelines in children. These guidelines are not intended to define specific recommendation for low- versus middle or high-resources settings (1). However, successful implementation of sepsis guidelines depends on local resources and healthcare systems (2). The SSC guidelines use a comprehensive, transparent methodological approach by a panel with geographic and professional diversity to provide an evidence-based approach to the management of septic shock and sepsis-associated organ dysfunction in children, including general management algorithms. Dr Briassoulis questions the clarity of the guidelines. Those were not intended to define a complex approach to sepsis, but this relative complexity is inherent in the current evidence. To ignore this is to be selective in the evidence with an inherent risk of bias. We are grateful for the opportunity to clarify the recommendations and accompanying algorithms (Figure 1).

A- **Initial resuscitation**

In children with septic shock, six key steps should be completed within the first hour: 1) IV/IO access, 2) blood culture, 3) empiric broad-spectrum antimicrobials, 4) blood lactate, 5) fluid bolus according to the fluid and vasoactive algorithm, and 6) vasoactive agents. In patients with suspected sepsis, expedited evaluation for infection and organ dysfunction, with implementation of these steps as soon as possible, but within 3 hours of sepsis recognition, is proposed.

B- Fluid and vasoactive-inotrope management

There are two extremes of clinical environments where children with septic shock might be managed: acute care environment (including PICU, medical retrieval and transport teams, ER/pediatric wards in a general hospital with adult intensivists) or healthcare system without any acute care resources (healthcare dispensary, community hospital, private practice). In acute care settings, fluid and vasoactive management are based on the principles of 1) fluid administration where the response to each bolus is assessed (10-20 mL/kg) 2) advanced

cardiac and hemodynamic monitoring is available, and 3) epinephrine or norepinephrine can be administered for myocardial or vascular dysfunction or following 40-60 mL/kg of fluid resuscitation. The same management is suggested in children with septic shock treated in resource-limited settings except that if the patient is not hypotensive, but only showing abnormal perfusion, the panel suggests limiting fluid administration to maintenance, monitoring hemodynamics and starting vasoactive drugs if available, irrespective of the type of vascular access (1). The rational for conservative fluid resuscitation is based not only on the FEAST trial - which provide the highest quality of evidence currently available - but the risk of acute decompensation of septic cardiomyopathy. Again, advanced cardiac and hemodynamic monitoring may assist in the titration and selection of adequate vasoactive drugs. We do agree that all children sepsis should not be treated exactly the same. Practical translation of this concept into a "unique" algorithm is, at best, not possible and potentially dangerous. We certainly welcome and encourage new data to harmonize universal principles of sepsis resuscitation and management (4), but we must be guided by the diversity of our patients and available resources even if this is "complex".

References

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Figure Legend

Figure 1: Management Algorithms for Children with Septic Shock or Suspected Sepsis

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