



Pediatric Sepsis: From Guidelines to Outcomes

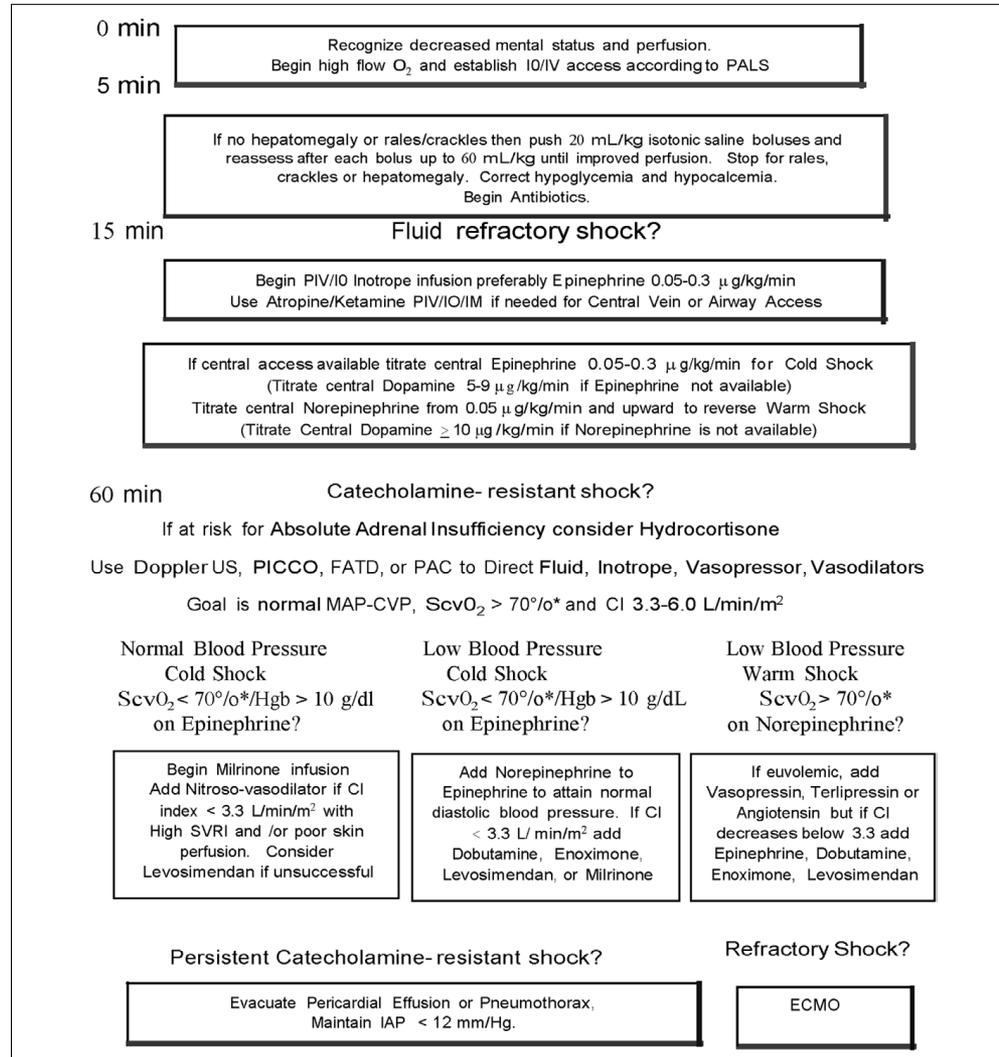
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Objectives

- Brief overview of current pediatric sepsis guidelines
- Review published outcomes in pediatrics associated with historic sepsis guideline adherence

ACCM/PALS Guidelines – 2002 - Current



Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children

- ‘Yes, and...’
- Largely expert consensus recommendations
- Few recommendations with more than ‘low quality evidence’
- 9 Best Practice Statements
- 6 Strong recommendations
- 49 Weak recommendations

• Best Practice Statements

- Implement protocol/guideline for management of children with septic shock or sepsis associated organ dysfunction
- Obtain blood cultures before initiating antimicrobials where this does not substantially delay antimicrobial administration
- Source control should be implemented as soon possible if infection is felt amenable to intervention
- Empiric broad-spectrum therapy to cover all likely pathogens
- Narrow empiric coverage once pathogens & sensitivities are known
- If no pathogen identified, narrow or stop antimicrobials given clinical course and expert advice
- Utilize antimicrobial dosing strategies based on best evidence
- Assess daily for de-escalation of antimicrobials
- Duration of antimicrobial therapy; based on site of infection, pathogen, response to treatment, and ability to achieve source control

Pediatric Critical Care 2020

Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children

- Strong Recommendations
 - For septic shock: antibiotics within 1 hour of recognition
 - Remove intravascular access felt to be source of infection
 - Against - use of starches for resuscitation in septic shock
 - Against - tight glucose control with insulin
 - Against - routine use of iNO in sepsis associated PARDS
 - In settings without ICU resources: Against - bolused fluid resuscitation in absence of hypotension

Adherence to PALS guidelines

- Han, et al. 2003
 - Referring centers prior to transport team arrival
 - Decreased mortality in those with shock reversed or resuscitation consistent with PALS
- de Oliveira, et al. 2008
 - RCT! of 'goal directed therapy'/use of continuous SvO2 monitor
 - Intervention group had 12% vs. 39% 28d mortality in control group
- Paul, et al. 2012
 - Tertiary, Peds ED
 - Patients who received care consistent with PALS (19%) had decreased hospital LOS

Pediatrics 2003

Pediatric Sepsis Bundles

- Arikan, et al. 2015
 - Pre & Post implementation of a 'Sepsis Resuscitation bundle' in a Pediatric ED
 - AKI, mortality, ICU & Hosp LOS all improved*
- Balamuth, et al. 2016
 - Retrospective cohort in Peds ICU comparing those who did & did not receive 'protocolized' sepsis care in the ED
 - Organ dysfunction on Hosp d2, ICU & Hosp LOS all improved with use of protocol

Pediatric Sepsis Bundles

- Workman, et al. 2016
 - Retrospective cohort of patients with septic shock resuscitated in Peds ED, directly admitted to ICU according to SSC guidelines vs. not
 - No substantial differences in outcomes
- Lane, et al. 2016
 - Retrospective cohort of all patients with septic shock admitted to the hospital via Peds ED (same center & time period as above)
 - Comparison of those who received ‘bundle compliant care’ vs. not
 - Those who received ‘compliant care’
 - 1.2 vs. 4.2% mortality
 - ICU & hospital LOS unaffected

Conclusions

- AHA/PALS Guidelines continue to represent global best practice in pediatric septic shock resuscitation
- New Surviving Sepsis Campaign Guidelines provide additional detail & recommendations as well as defining areas of limited evidence
- Protocolized care of pediatric sepsis & septic shock likely improves outcomes & has not been associated with harm
- Our collective agreement on definitions, a starting place for treatment and ideal outcomes will enable us to push the field forward & improve our care

Pediatric Sepsis

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