Pediatric Global Sepsis Initiative

Fedora M
KDAR LF a MU Brno
World Federation of Pediatric Intensive & Critical Care Societies

World Federation of Pediatric Intensive & Critical Care Societies

Creating a global environment where all children have access to a high standard of care.

World Federation of Pediatric Intensive & Critical Care Societies

WHAT WE DO
We promote a high standard of pediatric critical care worldwide through educational, scientific and charitable endeavors.

World Federation of Pediatric Intensive & Critical Care Societies

HOW YOU CAN HELP
Support the work we do by donating or joining the World Federation of Pediatric Intensive & Critical Care Societies at:
www.wfpiccs.org

World Federation of Pediatric Intensive & Critical Care Societies

ASSOCIATIONS
The WFPICCS collaborates with 25 different associations in Europe, Africa, North America, South America, Oceania & Asia.

World Federation of Pediatric Intensive & Critical Care Societies

Groups include national associations as well as allied health specific groups - all working together to ensure a higher standard of care for children everywhere.

Names and contacts can be found on our website at:
www.wfpiccs.org
HOW WE DO IT

Through collaborations with professionals worldwide, activities include:

Education
Bringing best practices to life through journal publications, conferences, fellowship programs, web access, and educational courses.

Research
Advancing a high standard of pediatric and critical care through international collaboration, publications, facilitation, presentations, support and alignment of research initiatives.

Clinical
Encouraging the development of new clinical treatments and appropriate application of new and existing critical care technologies and treatments to infants, children, and adolescents with life threatening illness.

CURRENT WORK

Initiatives
Sepsis
An ongoing worldwide, collaborative campaign to decrease the burden and ravages of sepsis on children.

WHO Handbook
Promotion of the WHO Handbook and educational courses.

Journal
A bi-monthly publication featuring information on continuing medical education, original research, and critical care focused communications.

Fellowships in Pediatric Critical Care
Providing opportunities for postgraduate clinical, research and training worldwide.

WFPICCS Website
Provides updates on research, regional meetings, conferences and educational links.

EVENTS

World Congress (held every 4 years)

Annual Regional Meetings (held several times annually)

Topic Specific Conferences (see website for times and locations).

Events are multidisciplinary and aim to transfer current knowledge and information on best practices in the care of critically ill children.

www.wfpiccs.org
Pediatric Sepsis Initiative

Creating a global environment where all children have access to a high standard of care.
Welcome to the WFPICCS website

The World Federation of Pediatric Intensive and Critical Care Societies (WFPICCS) was established in 1997. It arose from the vision of several world leaders in the field of Pediatric Critical Care who saw the opportunity to combine international expertise, experience and influence to improve the outcomes of children suffering from life threatening illness and injury.

WFPICCS is committed to a global environment in which all children have access to intensive and critical care of the highest standard. With this in mind, WFPICCS has defined its mission as exclusively for the benefit of pediatric critical care.
International Pediatric Sepsis Initiative

A worldwide campaign to decrease the burden and ravages of sepsis in children.

Chair(s):
Niranjan Kissoon, MD
Acute and Critical Care Medicine
British Columbia's Children's Hospital
Department of Pediatrics, University of British Columbia
Email: nikissoon@cw.bc.ca

Joseph Carcillo, MD
University of Pittsburgh Physicians
Department of Critical Care Medicine
Children's Hospital of Pittsburgh
Email: carcillja@anes.upmc.edu

Sepsis Initiative Committee members (at large):
Andrew Argent South Africa aargent@ich.uct.ac.za
Peter Boone United Kingdom peterboone@yahoo.com
Santiago Campos Ecuador scamentos@life.com.ec
Pedro Celiny Ramos Garcia Brazil celiny@puces.br
Trevor Duke Australia trevor.duke@rch.org.au
Clinical Guidelines

Clinical practice parameters for hemodynamic support of pediatric and neonatal patients in septic shock (PDF)

Surviving Sepsis Campaign guidelines for management of severe sepsis and septic shock (PDF)

Guidelines Part 1: Management of hemodynamic support (Html)

Management of Septic Shock (Html)
Recognize decreased mental status and perfusion. Maintain airway and establish access according to PALS guidelines.

5 min
Push 20ml/kg isotonic saline or colloid boluses up to and over 60 ml/kg. Correct hypoglycemia and hypocalcemia.

15 min
Fluid responsive
[Example Cases: C D K M1]
Observe in PICU
Establish central venous access, begin dopamine therapy and establish arterial monitoring.
[Example Cases: E O]

Fluid refractory - dopamine resistant shock
Titrate Epinephrine for cold shock, norepinephrine for warm shock to normal MAP-CVP and SVO2 saturation > 70%
[Example Cases: I L P]

Catecholamine - resistant shock
At Risk of Adrenal Insufficiency?
Give hydrocortisone
[Example Cases: G Z]
Not at Risk?
Do not give hydrocortisone

Normal blood pressure
COLD SHOCK
SVCO2 sat < 70%
Add vasodilator or Type III PDE inhibitor with volume loading
[Example Cases: A M H]

Low blood pressure
COLD SHOCK
SVCO2 sat < 70%
Titrate Volume & Epinephrine
[Example Cases: E1]

Low Blood pressure
WARM SHOCK
Titrate Volume & Norepinephrine (Vasopressin or angiotensin)
[Example Cases: R B]

Persistent Catecholamine - resistant shock
Place pulmonary artery catheter and direct fluid, inotrope, vasopressor, vasodilator, and hormonal therapies to attain normal MAP-CVP and CI > 3.3 and < 6.0 L/min/m²
[Example Cases: J1 U W]

Refractory shock
Consider ECMO
[Cases: B1 N O1]

© 2010 Pediatric Sepsis Initiative
Guidelines: Part 1

Recommendation for stepwise management of hemodynamic support with goals of normal perfusion and perfusion pressure (MAP-CVP) in infants and children with septic shock. Proceed to next step if shock persists.

Click on case letter to view patient video.

© 2008 SepsiS Initiative

© 2010 Pediatric Sepsis Initiative
World Federation of Pediatric Intensive & Critical Care Societies
Pediatric Sepsis Initiative

Creating a global environment where all children have access to a high standard of care.

Sepsis Guidelines
» You are here
» Clinical Guidelines
» Educational Resources
» Videos

Clinical Guidelines

Clinical practice parameters for hemodynamic support of pediatric and neonatal patients in septic shock (PDF)
Surviving Sepsis Campaign guidelines for management of severe sepsis and septic shock (PDF)
Guidelines Part 1: Management of hemodynamic support (html)
Management of Septic Shocks (html)
Select Appropriate Bundle

- Your Facility: Children Hospital Brno [Czech Republic]
- Change Your Facility

- **GROUP A**: Non-industrialized setting with child mortality rate > 30/1,000
- **GROUP B**: Non-industrialized setting with child mortality rate < 30/1,000
- **GROUP C**: Industrialized developing nation
- **GROUP D**: Industrialized developed nation

View your existing submissions.
To view submissions you have already made please [CLICK HERE](#).
## Administrative Bundle:

### WHO+IMCI guidelines available

#### Region has:
- Potable water
- Rural/urban health care workers
- Immunization program
- Vitamin A supplementation
- Zinc supplementation

### Provide hospital emergency room/clinic stocked with:
- IV fluids – D10, NS, LR, albumin (malaria belt)
- IV catheters
- IV antibiotics/anti-malarials
- Oxygen with high flow capabilities (pneumonia)
- ED/ICU available for patients
- High flow O2 available to all patients
- Ventilator available for all patients
- Peripheral and Central IV catheters available to all patients
- Inotropes available for all patients
- Intravascular pressure monitoring available for all patients
- SVC or IVC/RA oxygen saturation monitoring available for all patients
- Dialysis available for patients
- Infusion pumps available
- Cardiac Output monitoring available for all patients
- CRRT available for all patients
- Plasma exchange available for all patients
- ECMO available for all patients
- HFOV available for all patients
- iNO available for all patients for PPHN
World Federation of Pediatric Intensive Care and Critical Care Societies: Global Sepsis Initiative*  

Niranjan Kissoon, MD; Joseph A. Carcillo, MD; Victor Espinosa, MSc; Andrew Argent, MD, PhD; Denis Devictor, MD, PhD; Maureen Madden, RN, MSN; Sunit Singhi, MD; Edwin van der Voort, MD; Jos Latour, RN, PhD; and the Global Sepsis Initiative Vanguard Center Contributors
World Federation of Pediatric Intensive Care and Critical Care Societies

Niranjan k
Denis Dev
Jos Latou

Bundles A-D
A Child mortality > 30 / 1,000
B Child mortality < 30 / 1,000
C Developing nation
D Developed nation

Sao Paolo reports reduction in mortality from 40% to 12%
In Septic Shock with ScvO2 Guided to 70% with fluid, Inotropes, pRBCs

Thailand reports 60% drop in mortality with NP high flow O2 for Pneumonia

GLOBAL NEWBORN AND CHILD SEPSIS INITIATIVE

Transport

1st Hr IV Antibiotics
Fluid Resuscitation
Inotrope infusion
Mechanical Ventilation Available to All (PICU)

C

1st Hr IV Fluids and Antibiotics
O2 / np CPAP
Available in Emergency Clinic

B

D Extra Corporal Support

Rotterdam and St Mary’s Report 1-2% mortality with Meningococcal Septic Shock with 1st hour resuscitation and transport (was 20-22%)

India reports 4% mortality with Malaria,
Vietnam reports 0 -1% mortality with Dengue Shock with IV fluid resuscitation (was 24-60%)

A

Immunizations, Potable Water, Nutrition
Zinc, Vitamin A
IM Antibiotics available to All through HCW

Gandhirol, India reduced neonatal mortality from 16% to 2% with HCW + IM Abx


### Bundle C

<table>
<thead>
<tr>
<th>Number of Cases</th>
<th>84</th>
</tr>
</thead>
</table>

#### Appropriate timing of antibiotics

<table>
<thead>
<tr>
<th>%</th>
<th>yes</th>
<th>no</th>
<th>n/a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="chart1.png" alt="Bar chart" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Patient Outcomes

<table>
<thead>
<tr>
<th>%</th>
<th>Normal</th>
<th>Death</th>
<th>Neurologic Morbidity</th>
<th>Others New Morbidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="chart2.png" alt="Bar chart" /></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Treatment Methods Usage

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilator Provided</td>
<td><img src="chart3.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Surgical Nidus Removed</td>
<td><img src="chart4.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Peripheral Epinephrine</td>
<td><img src="chart5.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Oral Gly Meningitis</td>
<td><img src="chart6.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Normal MAP/CVP/SVC</td>
<td><img src="chart7.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Ketamine Used</td>
<td><img src="chart8.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>IVIG Given</td>
<td><img src="chart9.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Immune Suppressants Held</td>
<td><img src="chart10.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Hyperglycemia Controlled</td>
<td><img src="chart11.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>High Flow Oxygen</td>
<td><img src="chart12.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Fluid Resuscitation</td>
<td><img src="chart13.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Effective Tidal Volume Maintained</td>
<td><img src="chart14.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>D10 With Na Given</td>
<td><img src="chart15.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Clindamycin Given</td>
<td><img src="chart16.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Central Epinephrine</td>
<td><img src="chart17.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Capillary Refill Restored</td>
<td><img src="chart18.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>BPRestoredToNormal</td>
<td><img src="chart19.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Appropriate Sensitive Antibiotic</td>
<td><img src="chart20.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Administer IV Fluids in ED</td>
<td><img src="chart21.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Administer IV Antibiotics Anti Malarials</td>
<td><img src="chart22.png" alt="Bar chart" /></td>
</tr>
<tr>
<td>Absolute Adrenal Insufficiency</td>
<td><img src="chart23.png" alt="Bar chart" /></td>
</tr>
</tbody>
</table>