Appendix 1

Questionnaire Survey on Management of Septic Shock in Children in China

Dear doctors, thank you for your attention and participation in questionnaire survey project about “management of septic shock in children in China”. We hereby invite you to take time to complete the following questionnaire. Please fill in according to the actual situation of you and your unit. Thank you for your support.

### Information of Physician

<table>
<thead>
<tr>
<th>Age (single choice):</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (single choice):</td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional title (single choice):</td>
<td>Junior</td>
<td>Intermediate</td>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Academic qualification (single choice):</td>
<td>Associate</td>
<td>Bachelor</td>
<td>Master</td>
<td>PhD</td>
</tr>
</tbody>
</table>

### Information of Hospital

- The full name of hospital: ____________________________
- Hospital rank (single choice): Tertiary | Secondary
- ICU specialist training centers (single choice): Yes | No

### Information of ICU

- Authorized bed number: _____
- Type of ward (single choice): General pediatric ICU | Mixed (pediatric and adult) | Mixed (pediatric and neonate) | PCICU/PSICU | It has rescue space, but no independent ICU system
- Physician (Number): Junior: _____ Intermediate: _____ Senior: _____
- Number of patients with septic shock per year (single choice): 1-10 | 10-30 | 30-50 | 50-100 | more than 100

### Background on Management the Patients with Septic Shock

Q1. Do you know the 2015 consensus on the diagnosis and treatment of sepsis in children in China? (single choice) I don’t know | I know | I am very familiar with

Q2. Have you attended PALS training? (single choice) Did not attend | To participate in: The year? _______

### Investigation on Management of Septic Shock in Your Hospital

Q3. When treating a septic shock patient, which of the following tests should you perform in the first hour? (multi-choice)
- Blood analysis | Blood glucose | PCT | Blood lactic acid level
- Arterial blood gas analysis | Central venous blood gas analysis | Blood culture
- Liver and kidney function analysis | DIC | Other: _______

Q4. In your department, the common symptoms of septic shock patients are (multi-choice):
- Fever | Diarrhea | Cough | Skin bleeding | Shortness of breath
- Vomiting | Depression | Rash | Cyanosis | Other: _______

Q5. When treating patients with septic shock, the signs you usually pay attention to are (multi-choice):
- Consciousness | Heart sound and rhythm of the heart | Heart rate
- Central and peripheral pulsation | Lung signs | Toenails and skin color
- Peripheral and body temperature | Capillary filling time | Respiratory rate
- Other: _______

Q6. What are the common underlying diseases associated with septic shock in your department (multi-choice):
- Long-term use of immunosuppressants for autoimmune diseases
- Tumor | Organ transplantation | Congenital heart disease
- Congenital immunodeficiency disease | Other: _______
Q7. During the rescue phase of septic shock, monitoring you are sure to implement include: (multi-choice):
- Noninvasive blood pressure
- Arterial blood pressure
- Electrocardiograph
- Percutaneous oxygen saturation
- Central venous pressure
- Mixed venous oxygen saturation
- Urine output measurement
- Arterial blood gas analysis
- Central venous blood gas analysis
- Other: __________

Q8. Do you use invasive hemodynamic monitoring (transpulmonary thermodilution) for your patients with septic shock? When? (if you choose “no”, please go directly to Q9) (multi-choice)
- All patients with septic shock were treated
- When there is no response to conventional treatment
- When the liquid is resuscitated
- When vasoactive drugs are needed
- Other: __________

Q9. Do you perform non-invasive hemodynamic monitoring in your patients with septic shock? What are the methods if you chose YES? (multi-choice)
- Ultrasound cardiac output monitor (USCOM)
- Bioreactance system (NICOM)
- Intensivists led bedside ultrasound technology
- Cardiac output monitor based on repeated inhalation of CO2 (NICO)
- FloTrac/Vigileo system
- Other: __________

Q10. Common parameters for invasive/noninvasive hemodynamic monitoring by you: (multi-choice)
- CO/CI
- SV
- EF/FS
- TFC
- FTC
- SVR/SVRI
- SVV/PPV
- PVI
- EEO
- IVC width and variability
- Passive leg rising/ liquid challenge test
- BNP
- CVP
- VEDV
- GEDV
- LVEDV
- PAWP E/e’
- Atrial/ventricular size/structure, valve regurgitation
- DO2
- EVLWI
- VTI
- Other: __________

Q11. When did 24-hour urine volume monitoring begin for your patients with septic shock? (single choice)
- Within 1 hour after shock
- Within 3 hour after shock
- Within 6 hour after shock
- Other: __________

Q12. Which microcirculation monitoring can you use for your septic shock patients? (multi-choice)
- Blood lactic acid level
- Capillary filling time
- Urine output measurement
- ScvO2
- Pcv-aCO2
- SDF/IDF (Microcirculation microscopic)
- PtcO2/PtcCO2
- NIRS (Near infrared method)
- Other: __________

Q13. Difficult access to veins, what measures do you usually take to solve the problem? (single choice)
- The more competent nurse continued her efforts to open the peripheral vein
- Try other deep veins
- Open the vein bedside surgically
- Intraosseous access
- Other: __________

Q14. In your unit, septic shock fluid resuscitation may include optional medications (multi-choice):
- Saline/ringer's solution
- 5% Albumin
- Artificial colloid
- Plasma
- Concentrated red blood cells
- Whole blood
- Other: __________

Q15. When you treat the patients with septic shock, the time of initial antibiotic application (single choice)
- If antibiotics are used within 6 hours before diagnosis, they may not be used in the rescue phase
- Within 1 hour after diagnosis of septic shock
- Within 3 hour after diagnosis of septic shock
- Within 6 hour after diagnosis of septic shock
- Within 12 hour after diagnosis of septic shock
- Within 24 hour after diagnosis of septic shock
Q16. Other management that you may give to a patient with septic shock include (multi-choice):

- Debridement surgery
- Chest/abdominal drainage or puncture
- Vasoactive drugs
- Oxygen supply (oxygen/mechanical ventilation)
- Gamma globulin
- Glucocorticoid
- CRRT
- ECMO
- Other: ________

Q17. Female, 6 years old, 20 kg, Systemic lupus erythematosus, 1 year
• T38.5 °C; ABP 85/30 mmHg; CVP 10 mmHg; ScvO2 75%; Pcv-aCO2 5 mmHg;
• ABG: pH 7.35, PCO2 35, PO2 90, BE 1.2, Lac 1 mmol/L
• Warm extremities; Urine output in the last 3 hours: 10 mL/h
What would you do in this clinical case vignette? (single choice)

- Normal saline 400 ml (within 5-20 minutes)
- 5% Albumin 250 ml (within 5-20 minutes)
- Norepinephrine 0.1 µg/kg/min
- Dobutamine 5 µg/kg/min

Q18. Female, 3 years old, 15 kg, diagnosed with “acute leukemia” before 6 months.
Relief therapy, pulmonary infection. Antibiotic therapies with meropenem, vancomycin, voriconazole and sulfanilamide have been given.
MV: (BIPAP) PIP 23 cmH2O, PEEP 8 cmH2O, FiO2 0.6, f 30
During the treatment, the fever returned, and the ventilator parameters were as above
• HR 158; T38.5° C; SpO2 97%; ABP: 75/30 mmHg; CVP 7 mmHg; ScvO2 52%
• ABG: pH 7.37, PCO2 35, PO2 90, Lac 4.6 mmol/L
• Urine output in the last 3 hours: 10 mL/h
What would you do in this clinical case vignette? (multi-choice)

- The width of the inferior vena cava was 0.6 cm, the right ventricle was not dilated, and the respiratory variation of the inferior vena cava was 18%
- NICOM: PPV positivity
- PiCCO: SVV15%, PPV 18%, SVI 22 mL/m², CI 3.32L/min/m²
- Normal saline 300 ml (within 5-20 minutes)
- Concentrated red blood cells 2U
- Other: ________

Q19. Female, 11 months old, 10 kg, 5 months after VSD repair, 2 days of fever
T38.9 °C, HR 168, RR 40, SpO2: 98% (non-reinhalation mask)
Exam: Irritability, decreased consciousness, normal heart sound, short breath, rales in bilateral lung, cold extremities
Monitoring: According to the monitoring data before treatment (see table below), NS 200 mL (10 min bolus) and norepinephrine 0.2 µg/kg/min were given respectively.
The monitoring data after 1 hour are as follows:

<table>
<thead>
<tr>
<th>Before treatment</th>
<th>1 hour after treatment</th>
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<tbody>
<tr>
<td>• ABP 75/30 mmHg</td>
<td>80/34 mmHg</td>
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<tr>
<td>• HR 168</td>
<td>160</td>
</tr>
<tr>
<td>• CVP10 mmHg</td>
<td>14 mmHg</td>
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<tr>
<td>• ScvO2 52%</td>
<td>54%</td>
</tr>
<tr>
<td>• Lac 3.5 mmol/L</td>
<td>3.2 mmol/L</td>
</tr>
<tr>
<td>• PPV8%, SVV7%</td>
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<tr>
<td>• CI 3.3L/min/m²</td>
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<tr>
<td>• SVRI 1238 dyn.s.cm-2.m²</td>
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<tr>
<td>• Hb 10.5 g/dl</td>
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<td>• ABG: pH 7.37, PCO2 34, PO2 98</td>
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<tr>
<td>• Urine output: 5 mL</td>
<td>10 mL</td>
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What would you do in this clinical case vignette? (single choice)

- Normal saline 200 ml (within 5-20 minutes)
- Concentrated red blood cells 1U
- Norepinephrine 0.4 µg/kg/min
- Dobutamine 5 µg/kg/min
- Other: ________
Appendix 2

Dear Doctors,

You are welcome to attend and participate in the “Management of Septic Shock in Children in China” physician questionnaire project. To investigate the status on diagnosis and treatment of children with septic shock in pediatric intensive care units in China, we set the questionnaire of 22 questions, which are simple, easy to answer, and cost less time. With everyone’s efforts throughout the country, we hope to improve our practice on management of patients with septic shock. At the present stage, lists and E-mail addresses of all participants in the study of PICU (including senior, intermediate and established residents) are collected for the purpose of issuing questionnaires. Once the email addresses of you and your colleagues participating in the research are received, the questionnaire will be distributed 15 days later. You are expected to check and answer the questionnaire truthfully according to the actual diagnosis and treatment situation of you and your unit. We guarantee that your and your colleagues’ information will not be leaked and used for illegal purposes. Thank you for your cooperation!

Please fill in the following information such as participant, title, mailbox and hospital name.
Reply email: qianjuan710@189.cn. Thanks!

Information of the participants and hospitals

<table>
<thead>
<tr>
<th>Full name of the hospital:</th>
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<td>Name of participants</td>
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