Patient Flow Map

Patient presents to the ED with fever and/or concern for infection and ED sepsis score ≥ 3

Provider Assessment: Is the patient ill appearing?

Yes

ED Septic Shock Pathway

- Use ED Suspected Septic Shock Plan
- Antibiotics and blood cultures for specific populations included

Minute 60 Huddle: Does patient meet Inpatient admit criteria?

YES

Inpatient Admit Criteria

- Resolution of hypotension and no ongoing signs of sepsis after ≤ 40 ml/kg NS bolus
- First dose antibiotics administered
- RISK to follow

Previously healthy > 30 days

- Admit to General Medicine
- Follow Admit from ED Septic Shock Pathway
- Use Inpatient Septic Shock Plan

Previously healthy < 30 days

- Admit to General Medicine
- Follow Neonatal Fever Pathway
- Use Inpatient Septic Shock Neonatal Fever 0-30 days Plan

HemOnc/BMT Suspected Infection

- Admit to Cancer Care Unit
- Follow HemOnc/BMT Suspected Infection Pathway
- Use HemOnc Suspected Infection Admit Plan

Central Line Infection

- Admit to General Medicine/GI Transplant
- Follow Central Line Infection Pathway
- Use Admit orders + Central Line Infection Plan

NO

Well-appearing patients should be placed on the appropriate ED CSW pathway for their underlying condition (e.g. ED HemOnc BMT Suspected Infection, ED Suspected Central Line Infection, ED Neonatal Fever)

RISK RN to follow all patients admitted with concern for sepsis

Concern for evolving sepsis

- Call RRT or Code Blue
- Follow Inpatient New Septic Shock Pathway
- Use Inpatient New Septic Shock Plan

Does NOT meet Inpatient Admit criteria

- Admit to ICU
- Follow ICU Septic Shock Pathway
- Use PICU/CICU Septic Shock Admit Plan
- Antibiotics, blood cultures for specific populations included in sub plans

Concern for evolving sepsis

- Hypotension (MAP ≤ 5th percentile for age)
- Tachycardia
- Poor perfusion
- Reduced urine output
- Tachypnea/new oxygen requirement
- Mental status changes

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Last Updated: July 2020
Next Expected Revision: December 2021
Seventy Shock v8.0

PHASE I
Suspected Septic Shock (ED)

Urgent Care Transfer Recommendations
- Concern for septic shock
- Initiate ALS transfer
- Provider to Provider handoff
- Continue pathway while waiting for transfer

Inclusion Criteria
- Any patient with clinical concern for sepsis/septic shock OR ED Sepsis Score of 3 or greater AND ED attending/fellow assessment with concern for sepsis/septic shock

Exclusion Criteria
None

Activate Septic Shock Pathway
- Assess airway, breathing, circulation
- Provide supplemental oxygen
- Reassess vital signs every 5 minutes
- Order appropriate antibiotics

Access/Labs
- Place 2 large bore PIVs if no central line
- Consider PIV in patients with central line
- If 2 unsuccessful IV attempts; consider IO

EPOC: VBG, lactate, iCa
POCT glucose
Electrolytes, Magnesium, Phosphorus
BUN, Creatinine
Blood cultures
CBC + diff
CRP
Consider ABO/RhD and antibody

Administer Antimicrobials
- Previously healthy patients: ceftriaxone (+vancomycin if history of/concern for MRSA)

Appropriate antibiotics for specific populations:
- HemOnC/BMT Suspected Infection (HOBSI)
- Central Line Infection
- Neonatal Fever (0-30 days)
- Consider history of resistant organisms

Initiate vasoactive/inotropic drips for Fluid Refractory Shock
- Epinephrine for cold shock
- Norepinephrine for warm shock
- Titrate drips to resuscitation goals
- Consider broadening antibiotic coverage as indicated

Bedside Huddle (ED, ICU, +/- Hospitalist)

Respiratory Support
- Consider ET intubation for ongoing respiratory distress or altered mental status

ICU Transfer Criteria
- Recurrent hypotension despite > 40mL/kg fluid resuscitation in the last 12 hours
- Fluid resuscitation includes either crystalloid or colloid
- Hypotension (MAP ≤ 5th percentile for age)
- Clinical situation not appropriate for ongoing fluid resuscitation
- Defined as underlying cardiac disease, lung disease, existing fluid overload, impaired renal function
- Lactate ≥ 4 or base excess < - 4 mmol
- Sustained change in mentation or perfusion (>15 minutes)
- Patient requires continuous ICU monitoring or ICU level respiratory support

Inpatient Admit Criteria
- Resolution of hypotension AND no ongoing signs of sepsis after ≤ 40 ml / kg
- First dose antibiotics administered
- RISK to follow

Signs & Symptoms of Sepsis
- Hypotension (MAP ≤ 5th percentile for age)
- Tachycardia
- Poor perfusion
- Reduced urine output
- Tachypnea/ new oxygen requirement
- Mental status changes

Activate ED Sepsis Internal Response
- Administer 1st bolus of 20mL/kg normal saline rapidly over 20 minutes OR LESS

Consider 5-10mL/kg boluses if concern for fluid intolerance (cardiac/renal dysfunction)
- Give stress dose steroids if known adrenal insufficiency

Initial Fluid Resuscitation
- Administer 2nd and 3rd bolus of 20mL/kg normal saline rapidly over 20 minutes OR LESS until perfusion improves or unless rales or hepatomegaly develop
- Order vasoactive/inotropic drips
- Consider blood products as indicated

Ongoing Resuscitation
* BMT patients: consider vasoactive / inotropic drips after 2nd NS bolus

Last Updated: July 2020
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PHASE IIA
ICU

Inclusion Criteria
- Any patient admitted to the ICU with concern for septic shock

Exclusion Criteria
- None

ICU Admission

If the following have not already occurred:
- Oxygen by face mask
- Obtain 2 points of IV access
- Obtain laboratory studies per pathway
- Assure 1st antibiotic infused within 1 hour of shock identification

- IV fluid resuscitation: 40mL/kg or 2L in the first hour
- Order appropriate antibiotics for specific populations
- Correct hypoglycemia, hypocalcemia

Monitor response vital sign targets & clinical goals

Infection source control
Repeat fluid boluses

Fluid Refractory Shock
Consider central line, arterial line, Foley

Warm Shock
- Titrate norepinephrine
- Consider epinephrine, vasopressin
- PRBC if Hgb <10g/dL
- Consider intubation

Cold Shock; Low BP
- Titrate epinephrine
- Consider norepinephrine, dobutamine
- PRBC if Hgb <10g/dL
- Consider intubation, BNP, ECHO

Cold Shock; Normal BP
- Titrate epinephrine
- Consider milrinone, dobutamine if SCvO2 <70% or lactate elevated
- PRBC if Hgb <10g/dL
- Consider intubation, BNP, ECHO

Catecholamine Resistant Shock
- Consider stress-dose hydrocortisone
- Evaluate for:
  - Pericardial effusion
  - Pneumothorax
  - Intra-abdominal hypertension
  - Primary cardiac dysfunction

Consider ECLS

ICU to Inpatient Transfer Criteria
- Weaned off of inotropic support
- Not requiring ICU level of respiratory support
- Hemodynamically stable

Return to Flow
PHASE IIB
Admit from ED to Inpatient for Septic Shock

Inclusion Criteria
- Any patient who is admitted to a service other than the ICU on Septic Shock Pathway

Exclusion Criteria
- None

Patient placed on RISK dashboard
- Vital signs Q 2 hours x 8 hours

RISK Nurse Monitoring
- RISK dashboard monitoring
- RISK nurse Inpatient evaluation
- RISK nurse determines time on dashboard
- RRT activation for signs of clinical deterioration

Continued Sepsis Care
- Continue appropriate antibiotics for specific populations x 48 hours
- Follow cultures daily, switch to narrow-spectrum antibiotics as indicated
- Discontinue antibiotics after 48 hours if cultures negative and clinically improving
- Advance diet as tolerated
- Continue maintenance IV fluids if indicated

ICU Transfer Criteria
- Recurrent hypotension despite > 40mL/kg fluid resuscitation in the last 12 hours
- Fluid resuscitation includes either crystalloid or colloid
- Hypotension (MAP ≤ 5th percentile for age)
- Clinical situation not appropriate for ongoing fluid resuscitation
- Defined as underlying cardiac disease, lung disease, existing fluid overload, impaired renal function
- Lactate ≥ 4 or base excess < - 4 mmol
- Sustained change in mentation or perfusion (>15 minutes)
- Patient requires continuous ICU monitoring or ICU level respiratory support

Signs & Symptoms of Sepsis
- Hypotension (MAP ≤ 5th percentile for age)
- Tachycardia
- Poor perfusion
- Reduced urine output
- Tachypnea/new oxygen requirement
- Mental status changes

Notes:
- Call RRT for signs of sepsis that require ICU presence within 30 minutes
- Call code blue for imminent cardiac or pulmonary failure or neurologic emergency

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PHASE IIC
Inpatient New Septic Shock

Inclusion Criteria
- Any patient with clinical deterioration AND concern for new or evolving sepsis/septic shock

Exclusion Criteria
- None

Rapid Bedside Assessment

- Primary team huddle to activate Septic Shock pathway
- Call RRT
- Appropriate antibiotics for specific population

Does patient meet RRT criteria?

- Yes
- No

OFF PATHWAY
- Assess airway, breathing, circulation
- Provide supplemental oxygen
- Place on continuous monitor, reassess vital signs every 15 minutes
- Appropriate antibiotics for specific population

Access/Initial Fluid Resuscitation
- Consider PIV in patients with central line if additional access is needed
- Administer 1st bolus of 20 mL/kg normal saline rapidly over 20 minutes or less
- Consider 5-10 mL/kg boluses if concern for fluid intolerance (cardiac/renal dysfunction)

Administer Antimicrobials
- Previously healthy patients: ceftriaxone (+vancomycin if history of/concern for MRSA)
- Appropriate antibiotics for specific populations:
  - HemOnc/BMT Suspected Infection (HOBSI)
  - Central Line Infection
  - Neonatal Fever (0-30 days)
  - Consider history of resistant organisms

Labs
- EPOC: Electrolytes, VBG, lactate, iCa
- Bedside Glucose
- Blood cultures
- CBC + diff
- CRP
- Magnesium, Phosphorus
- BUN, Creatinine
- Consider ABO/RhD and antibody

Access
- Correct glucose and calcium

RISK Team Re-evaluation
- Well-appearing patients, who do not meet ICU transfer criteria, may stay on Inpatient unit and are placed on RISK dashboard for reassessment

RRT Debrief
- Does patient meet ICU transfer criteria?

- Yes
- No

Transfer to ICU
- Initiate vasoactive/inotropic drips for Fluid Refractory Shock
- Epinephrine for cold shock
- Norepinephrine for warm shock
- Titrate drips to resuscitation goals
- Consider broadening antibiotic coverage as indicated

ICU Transfer Criteria
- Recurrent hypotension, despite > 40mL/kg fluid resuscitation in the last 12 hours
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Signs & Symptoms of Sepsis
- Hypotension (MAP ≤ 5th percentile for age)
- Tachycardia
- Poor perfusion
- Reduced urine output
- Tachypnea/ new oxygen requirement
- Mental status changes

Call code blue for imminent cardiac or pulmonary failure or neurologic emergency

Summary of Version Changes

Last Updated: July 2020
Next Expected Revision: December 2021

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Sepsis Score

Pediatric Sepsis Score: Adapted from the Pediatric septic shock collaborative patient identification tool. Currently validated for ED use only.

One point is given for presence of each concerning symptom:
- High risk condition (immunocompromised/central line)
- Vital sign abnormalities based on age:
  - Temperature
  - Hypotension
  - Tachycardia
  - Tachypnea
- Abnormal capillary refill
- Abnormal mental status
- Abnormal pulse
- Abnormal skin exam
## Antibiotic Selection by Patient Population

<table>
<thead>
<tr>
<th>Patient Population</th>
<th>Antibiotic selection</th>
<th>Alternatives</th>
</tr>
</thead>
</table>
| Previously healthy < 28 days | Ampicillin and cefotaxime (or ceftazidime if cefotaxime unavailable)  
Consider ampicillin and gentamicin if CSF pleocytosis not > 20 WBC/mm per pathway recommendations | Acyclovir if HSV work up performed |
| Previously healthy > 28 days | Ceftriaxone | Consider vancomycin for patients with known history of MRSA |
| **Hematopoetic Cell Transplant (HCT/BMT) and HemOnc Suspected Infection patients.**  
Pre-transplant patient-specific **ID antibiotic plan** may override these standard recommendations | Ceftazidime (or meropenem if already on ceftazidime)  
**PLUS**  
Consider adding gentamicin and vancomycin if hypotension despite 40 cc/kg NS or sooner if ill appearing and/or signs of severe sepsis.  
**PLUS**  
Consider adding clindamycin or metronidazole if suspected perineal or intra-abdominal infection, respectively (unless receiving meropenem) | Cefepime OR meropenem per pathway recommendations  
If concern for severe skin or perineal infection, consider use of “ED Necrotizing Soft Tissue Infection Plan” |
| Central Line Infection (not for HOSI/BMT) | • Immunocompetent – cefepime  
**PLUS**  
vancomycin and gentamicin  
• Immunocompromised – meropenem  
**PLUS**  
vancomycin plus gentamicin if ill appearing  
**PLUS**  
Consider adding fluconazole per pathway recommendations | Ciprofloxacin AND linezolid per pathway recommendations |
“Individualized Antibiotic Plan” (IAP)

- Care Plan for BMT patients that specifies which antibiotics the patient should receive
- Accessed on Patient Summary Page, or in CIS Care Plan Folder
- If no IAP exists, meropenem is default empiric therapy for BMT patients.
“Individualized Antibiotic Plan” (IAP) can be accessed directly from Patient Summary page
“Individualized Antibiotic Plan” (IAP)

Or the IAP is found in the Care Plan Folder from “Documents and Notes”
### Definition of hypotension & resuscitation goals

<table>
<thead>
<tr>
<th>Age</th>
<th>Critical Hypotension</th>
<th>Hypotension</th>
<th>Resuscitation Goal (Minimum)</th>
<th>Normotension (Median for Age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP ≤ 1% for age</td>
<td>0-30 days</td>
<td>32</td>
<td>MAP ≥ 10% for age</td>
<td>MAP = 50% for age</td>
</tr>
<tr>
<td>30-90 days</td>
<td>37</td>
<td>≤ 39</td>
<td>≥ 42</td>
<td>57</td>
</tr>
<tr>
<td>91 days-1 year</td>
<td>41</td>
<td>≤ 44</td>
<td>≥ 47</td>
<td>62</td>
</tr>
<tr>
<td>&gt;1-2 years</td>
<td>41</td>
<td>≤ 48</td>
<td>≥ 52</td>
<td>68</td>
</tr>
<tr>
<td>&gt;2-4 years</td>
<td>41</td>
<td>≤ 50</td>
<td>≥ 53</td>
<td>70</td>
</tr>
<tr>
<td>&gt;4-6 years</td>
<td>43</td>
<td>≤ 51</td>
<td>≥ 55</td>
<td>70</td>
</tr>
<tr>
<td>&gt;6-10 years</td>
<td>46</td>
<td>≤ 54</td>
<td>≥ 56</td>
<td>70</td>
</tr>
<tr>
<td>&gt;10-13 years</td>
<td>47</td>
<td>≤ 55</td>
<td>≥ 60</td>
<td>72</td>
</tr>
<tr>
<td>&gt;13 years</td>
<td>48</td>
<td>≤ 57</td>
<td>≥ 61</td>
<td>76</td>
</tr>
</tbody>
</table>

Resolution of hypotension = Two blood pressure measurements obtained 15 minutes apart with MAP > 10th percentile

### Suggested Severe Sepsis/Septic Shock Resuscitation Goals

#### Clinical Goals for Initial Resuscitation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Target</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Arterial Pressure (MAP)</td>
<td>Age-related (see table above)</td>
<td>Arterial Monitoring preferred</td>
</tr>
<tr>
<td>Urine Output (UOP)</td>
<td>&lt; 30 kg: &gt; 1 ml/kg/hr</td>
<td>Inadequate urine output is one sign of poor end-organ perfusion</td>
</tr>
<tr>
<td>Central Venous Pressure (CVP)</td>
<td>8-12 cm H2O (natural airway)</td>
<td>Most accurately measured from CVL with tip at the SVC-RA junction; Femoral CVL, PICC and Broviac measurements less reliable, but trends may be useful</td>
</tr>
<tr>
<td>Lactate</td>
<td>&lt; 4 mmol/L or ≥ 10% decrease every 2 hours</td>
<td>Elevated lactate &gt; 4 mmol/L may be sign of shock with inadequate oxygen delivery (ref: Puskarich et al, Resuscitation, 2011)</td>
</tr>
<tr>
<td>Central Venous Oxygen Saturation (ScvO2)</td>
<td>≥ 70% Note: Elevated ScvO2 (&gt; 80%) may occur in sepsis due to &quot;cytopathic hypoxia&quot; despite ongoing shock</td>
<td>Most accurately measured from CVL with tip at the SVC-RA junction or long femoral line with tip near RA</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>Hgb ≥ 10 g/dl (for patients in shock - ScvO2 &lt; 70%, lactate &gt; 4 mmol/L)</td>
<td>Hemoglobin is a primary determinant of O2 delivery: thus, anemia should be treated in shock. Patients NOT in shock may tolerate a lower: Hgb level of 7</td>
</tr>
<tr>
<td>Mental Status</td>
<td>Alert and appropriate for age</td>
<td>Lethargy, confusion, agitation is one sign of poor end-organ perfusion</td>
</tr>
<tr>
<td>Capillary Refill</td>
<td>&lt; 2 seconds</td>
<td>Flash capillary refill can be seen in warm shock, delayed capillary refill can be seen in cold shock</td>
</tr>
</tbody>
</table>
# Warm Shock & Cold Shock

<table>
<thead>
<tr>
<th></th>
<th>WARM shock</th>
<th>COLD shock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral perfusion</td>
<td>Warm/flushed</td>
<td>Cold/clammy/cyanotic/mottled</td>
</tr>
<tr>
<td>Capillary refill</td>
<td>Brisk/flash; &lt;2 sec</td>
<td>Delayed; &gt;2 sec</td>
</tr>
<tr>
<td>Pulse</td>
<td>Bounding</td>
<td>Weak/thready</td>
</tr>
<tr>
<td>Heart rate</td>
<td>↑</td>
<td>↑ or ↓</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>May be normotensive</td>
<td>Usually hypotensive</td>
</tr>
<tr>
<td>Pulse pressure</td>
<td>Widened</td>
<td>Narrow</td>
</tr>
</tbody>
</table>
Bedside Huddle

- ED Providers, PICU +/- hospitalist or relevant subspecialty team should attend the huddle
- Assess patient, review response to first 60 minutes of ED care
- Determine disposition: Does patient meet inpatient criteria (Normotensive after ≤ 40mL/kg NS boluses, well appearing with reassuring labs, first dose antibiotics administered)
  - IF no ▶ admit to PICU and use PICU septic shock order set
  - IF yes ▶ admit to appropriate inpatient team (general medicine, hemonc, GI)
    - Patients admitted to inpatient teams will be placed on the RISK dashboard

Return to Flow
<table>
<thead>
<tr>
<th>#</th>
<th>Data Point</th>
<th>Circle one</th>
<th>Coaching Tip</th>
</tr>
</thead>
</table>
| 1  | Was the provider notified or aware of the RRT?                             | Yes / No   | ▪ Providers and residents are not automatically notified of an RRT  
▪ The patient’s primary team should be aware of an RRT                                            |
| 2  | Was a statement made to ask if the patient would benefit from increased monitoring in the ICU? | Yes / No   | ▪ Patients may not need immediate “ICU level intervention” but could benefit from being in the ICU where monitoring is heightened and resources are available more quickly than on acute care |
| 3  | If the patient was not transferred to the ICU, was there a decision plan of care that was documented on the whiteboard in the patient’s room? | Yes / No   | ▪ Specific timeline of when to re-escalate care  
▪ Time when RISK RN will come to reassess  
▪ Visible to all staff and patient/family on the whiteboard  
▪ Assure patient is on RISK dashboard and RRTs charted in iView |
| total | Compliant with all elements?                                               | Yes / No   | Must have a yes or N/A circled for all questions                                                                                             |

Patient Label:
Send to Julie Ho, Nursing Quality, FQ1114
BMT Patients

- Begin fluid resuscitation with 20 ml/kg crystalloid or colloid
  - Consider smaller bolus volume (5-10ml/kg) in patients with known or suspected cardiac dysfunction

- Order vasoactive medications early

- If not clinically improving after 40 ml/kg start vasoactive medications
Approved by the CSW Septic Shock Team for 12/14/16 go-live date

CSW Sepsis/Septic Shock Team:

- Emergency Department, Owner: Lori Rutman, MD
- ICU, Stakeholder: Reid Farris, MD, MS
- ICU, Stakeholder: Silvia Hartman, MD
- HemOnc, Stakeholder: Kasey Leger, MD
- HemOnc, Stakeholder: Jennifer Wilkes, MD
- HemOnc, Stakeholder: Leah Kroon, CNS
- Emergency Department, CNS: Sara Fenstermacher, CNS
- Emergency Department, CNS: Elaine Beardsley, CNS
- Clinical Pharmacy: Rochelle Legg, PharmD
- Pharmacy Informatics: Raphheus Villanueva, PharmD
- Medical Unit, CNS: Coral Ringer, MN, CNS
- Emergency Department, Stakeholder: Eileen Klein, MD, MPH
- Emergency Department, Stakeholder: Ron Kaplan, MD
- ICU, Stakeholder: Jerry Zimmerman, MD
- RISK team/ICU Stakeholder: Joan Roberts, MD
- Central Line Infection Pathway Owner: Mathew Kronman, MD
- Antimicrobial Stewardship Committee: Dan Pak, MD, Scott Weissman, MD
- Pediatric Chief Residents, Stakeholder: Allison LaRoche, MD

Clinical Effectiveness Team:

- Consultant: Darren Migita, MD
- Project Manager: Pauline Ohare, MBA
- CE Analyst: Holly Clifton, MPH
- CIS Informatician: Mike Leu, MD, MS, MHS
- CIS Informatician: Troy McGuire, MD
- CIS Analyst: Heather Marshall
- Librarian: Jackie Morton, MLIS
- Program Coordinator: Kristyn Simmons

Clinical Effectiveness Leadership:

- Medical Director: Darren Migita, MD
- Operations Director: Karen Rancich Demmert, BS, MA


Please cite as:
This pathway was developed through local consensus based on published evidence and expert opinion as part of Clinical Standard Work at Seattle Children’s. Pathway teams include representatives from Medical, Subspecialty, and/or Surgical Services, Nursing, Pharmacy, Clinical Effectiveness, and other services as appropriate.

When possible, we used the GRADE method of rating evidence quality. Evidence is first assessed as to whether it is from randomized trial or cohort studies. The rating is then adjusted in the following manner (from: Guyatt G et al. J Clin Epidemiol. 2011;4:383-94.):

Quality ratings are *downgraded* if studies:
- Have serious limitations
- Have inconsistent results
- If evidence does not directly address clinical questions
- If estimates are imprecise OR
- If it is felt that there is substantial publication bias

Quality ratings are *upgraded* if it is felt that:
- The effect size is large
- If studies are designed in a way that confounding would likely underreport the magnitude of the effect OR
- If a dose-response gradient is evident

Guideline – Recommendation is from a published guideline that used methodology deemed acceptable by the team.

Expert Opinion – Our expert opinion is based on available evidence that does not meet GRADE criteria (for example, case-control studies).

**Quality of Evidence:**
- 🌟🌟🌟🌟 High quality
- 🌟🌟🌟 Moderate quality
- 🌟🌟 Low quality
- 🌟🌟🌟🌟 Very low quality

Guideline
Expert Opinion
Summary of Version Changes

Version 1.0 (10/7/2015): Go live
Version 2.0 (2/12/16): Clarification of clinical findings indicative of warm vs. cold shock added; updates to hypotension and resuscitation goals to reflect hospital standards; clarification of indication for RRT vs. code blue
Version 3.0 (12/14/16): New Septic Shock Inpatient Plan update; Revision of Septic Shock Score Trigger; Inclusion of BMT in Hem/Onc Suspected Infection pathway (renamed Hem/Onc/BMT Suspected Infection - HOBSI)
Version 4.0 (5/22/17): Updated MAP to include Normotension Median for Age (50 % ile). Added verbiage “Resolution of hypotension = Two blood pressure measurements obtained 15 minutes apart with MAP >10 %ile”
Version 5.0 (5/18/18): Updated the recommendations for empiric therapy from pip/tazo to cefepime.
Version 6.0 (9/5/18): Updated PHASE IIA to separate PICU/CICU Sepsis/Septic Shock Plan, including peripheral pressors.
Version 7.0 (10/16/19): Cefotaxime is no longer available and has been replaced with ceftazidime. Sepsis Antibiotic Chart updated.
Version 8.0 (7/14/20): Age range updated from <>30 days to <> 28 days on Sepsis Antibiotic Chart.
Medical Disclaimer

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required.

The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication.

However, in view of the possibility of human error or changes in medical sciences, neither the authors nor SCHS nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such information.

Readers should confirm the information contained herein with other sources and are encouraged to consult with their health care provider before making any health care decision.
Search Methods, Sepsis, Clinical Standard Work

Studies were identified by searching electronic databases using search strategies developed and executed by a medical librarian, Jackie Morton. Searches were performed in April, 2015. The following databases were searched – on the Ovid platform: Medline (2012 to date), Cochrane Database of Systematic Reviews (2012 to date); elsewhere – Embase (2012 to date), Clinical Evidence, National Guideline Clearinghouse, TRIP (2012 to date) and Cincinnati Children’s Evidence-Based Care Guidelines.

Retrieval was limited to humans (any age) and English language. In Medline and Embase, appropriate Medical Subject Headings (MeSH) and Emtree headings were used respectively, along with text words, and the search strategy was adapted for other databases using their controlled vocabularies, where available, along with text words. Concepts searched were sepsis and specific laboratory diagnostic procedures or antibiotic therapeutics. Additional searches for concepts not specific to sepsis were Rapid Sequence Intubation (RSI) and sedation, anesthetic, paralytic or pain agents and lastly the use and number of peripheral intravenous lines. All retrieval was further limited to certain evidence categories, such as relevant publication types, Clinical Queries filters for diagnosis and therapy, index terms for study types and other similar limits.

An additional consensus document was identified by team members and added to results.

Identification

- 233 records identified through database searching
- 1 additional record identified through other sources

Screening

- 234 records after duplicates removed

- 234 records screened
- 167 records excluded

Eligibility

- 67 records assessed for eligibility

Included

- 11 studies included in pathway

Flow diagram adapted from Moher D et al. BMJ 2009;339:bmj.b2535


Texas Children's Hospital Evidence-Based Outcomes Center. Recognition and Initial Management Septic Shock Review Summary. . Updated 2015 JanuaryPDF.