Emergency Department pathway for Suspected Sepsis

Patient at triage

Vital signs to be recorded
- Temperature
- Pulse rate
- Respiratory rate
- Blood pressure
- Oxygen saturations
- Mental status (GCS or AVPU)
- Glucose

Next

Obtain history
Record vital signs within 15 mins of arrival

Neutropenic Sepsis criteria met or ≥2 SIRS criteria met or ≥1 Red Flag Sepsis criteria met?

Yes

Suspected bacterial infection or at risk of bacterial infection (eg: bowel perforation)?

Yes = Suspected/risk of bacterial SEPSIS

SIRS criteria
- Score 1 if present
  1) Temperature <36 or >38°C
  2) Heart rate >90 beats/min
  3) Resps. >20/min or pCO2<4.2
  4) WCC <4 or >12 x 10^9
  5) Confusion (new)
  6) Blood glucose >7.7 mmol/l in the absence of diabetes

No

Triage as normal

Quick SOFA (qSOFA) score
- Score 1 if present
  1) Systolic BP <100 mmHg
  2) Altered mental state
  3) Respiratory rate >22

For qSOFA or MISSED score positive Sepsis
- See next page

MISSED score
- Score 1 if present
  1) Age ≥65 yrs
  2) Albumin ≤27 g/l
  3) INR* ≥1.3
* Do not score INR if patient on oral anticoagulants

Investigations Bundle
- Lactate (Venous blood gas)
- Blood cultures (before antibiotics)
- Full blood count
- Urea, Creatinine & Electrolytes
- Liver function tests
- C-reactive protein
- Clotting screen
- Urinalysis (and M,C&S if UTI present)
- Chest Xray if chest infection suspected
- Pneumonia- Urine for Pneumococcal & Legionella Ag
- Swabs / microbiology specimens from other source

Treatment Bundle A - For all Suspected Sepsis – Commence in 60 mins
- 1) Appropriate antibiotics as per hospital guidelines
- 2) Crystalloids 20ml/kg (minimum 1L, caution in CCF)
- 3) Maintain oxygen saturations of ≥95%
  (if contraindicated, please document in notes)
- 4) Urgent source control / referral for source control
- 5) Senior Review (ST4 and above)

After minimum 30ml/kg fluid bolus, MAP <65mmHg?

Yes

Treatment Bundle B
- See next page

Treat with ‘usual care’

Treatment Bundle C
- For Hyperlactaemic Sepsis
  - See next page

Treatment Bundle D
- For Hypotensive Sepsis & Septic shock
  - Commence* within 3 hrs and complete within 6 hrs
  - See next page

Patient Name: Hosp. no.: Scholar: Date:

Emergency Department pathway for Suspected Sepsis

Authors: N Sivayoham, P Holmes, L Newgrosh, Orla Flaherty

Review date: Sept 2018

ED Sepsis pathway Sept 2016
Approved by senior team: Sept 2016
**Glossary:**

**Suspected bacterial infection**: Presence of symptoms & signs consistent with a bacterial infection

**Suspected Sepsis**: Presence of suspected bacterial infection + 2 SIRS criteria or 1 Red flag sepsis criteria

**Sepsis**: An increase in SOFA score of ≥2 caused by sepsis (for SOFA score see chart below)

**Septic shock**: Requirement of vasopressors to maintain MAP≥65 mmHg AND lactate >2mmol/l

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**Treatment Bundle B** - for qSOFA or MISSED score positive Sepsis

1) Complete Treatment Bundle A
2) Record fluid balance

**Goals:**

i) MAP ≥565 mmHg
   ii) Urine output > 0.5ml/kg/hr

If lactate ≥4, complete Treatment Bundle C.
If MAP <65 mm Hg, complete Treatment Bundle D.

**Treatment Bundle C** - for Hyperlactaemic Sepsis

1) Complete Treatment Bundle A
2) Minimum 30ml/kg crystalloid
3) Re-measure lactate
4) Record fluid balance

**Goals:**

i) Lactate reduction: 10% in 2 hrs or 36% in 6 hrs
ii) MAP ≥65 mmHg
iii) Urine output >0.5ml/kg/hr
If above goals are not achieved, consider Care Bundle D and referral to ICU.

**Treatment Bundle D** - for Hypotensive Sepsis & Septic shock

Commence** within 3 hrs & complete within 6 hours

**Actions**

1) Commence high flow oxygen
2) Insert urinary catheter
3) Continue IV fluids (Crystalloids)
4) Record fluid balance
5) Insert central line (IJ or subclavian)
6) Measure ScvO2
7) Insert arterial line
8) Start Noradrenaline infusion @ 0.1mcg/kg/min and titrate to target MAP
9) If hypotension resistant to Norad., give hydrocortisone 50-100 mg bolus

**Goals to be achieved in 6 hours**

i) Peripheral oxygen saturation >95%
ii) Urine output >0.5ml/kg/min
iii) Lactate <2 mmol/l
iv) Hb ≥ 70g/l
v) CVP ≥ 8cm
vi) ScvO2 ≥70%
vii) MAP 65- 70 mm Hg

If any of the above goals are not achieved or continued vasopressor treatment or respiratory support required, refer to ICU.

**If commencing Care Bundle D is not appropriate, set ceiling / goals of care, and if appropriate, complete a DNAR form.**

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**Sequential Organ Failure Assessment (SOFA) Score**

<table>
<thead>
<tr>
<th>System / Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory</td>
<td>≥ 53.3</td>
<td>&lt;53.3</td>
<td>&lt;40</td>
<td>&lt;26.7 with resp. support</td>
<td>&lt;13.3 with resp. support</td>
</tr>
<tr>
<td>Coagulation</td>
<td>≥ 150</td>
<td>&lt;150</td>
<td>&lt;100</td>
<td>&lt;50</td>
<td>&lt;20</td>
</tr>
<tr>
<td>Liver</td>
<td>&lt;20</td>
<td>20-32</td>
<td>33-101</td>
<td>102-204</td>
<td>&gt;204</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>MAP ≥ 70 mmHg</td>
<td>MAP &lt;70 mmHg</td>
<td>Dopamine &lt;5 or Dobutamine any dose</td>
<td>Dopamine 5-15 or Adren. 0.1 * or Norad 0.1 *</td>
<td>Dopamine &gt;15 or Adren. &gt;0.1 * or Norad. &gt;0.1 *</td>
</tr>
<tr>
<td>CNS</td>
<td>15</td>
<td>13-14</td>
<td>10 - 12</td>
<td>6 - 9</td>
<td>&lt;6</td>
</tr>
<tr>
<td>Renal</td>
<td>&lt;110</td>
<td>110-170</td>
<td>171-299</td>
<td>300-440</td>
<td>&gt;440</td>
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<tr>
<td></td>
<td>Urine output (ml / day)</td>
<td>&lt;500</td>
<td>&lt;200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOFA score:**

**Usual SOFA score:**

**Change in SOFA score:**

**Presumed source:**

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