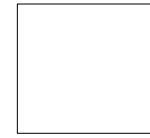


Recognising sepsis in Urgent Care Centres

Tim Baker

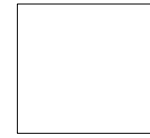
tim.baker@deakin.edu.au



Two cases in the urgent care centre

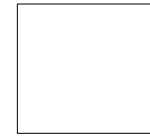
An unwell looking 4-year-old girl with appendicitis has been given 3 x 250ml boluses of iv saline while waiting for the ambulance. Now her temp is 38.8, pulse 145, resp rate 40 and BP 95/60. She has not urinated since last night.

A 70-year-old woman with AF and NIDDM is sent to the UCC with 3 days of pain from her known gall stones. Her observations are normal other than a resp rate of 24. Her skin is cool and her family say she is a little drowsy.

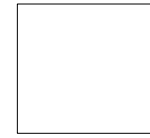


Learning objectives

- What is sepsis?
- How do we recognise it?
- How do we know when it is really bad?



STAGES OF SEPSIS

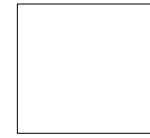


Pro-inflammatory response

- Local inflammation
- Can cause collateral damage

Anti-inflammatory response

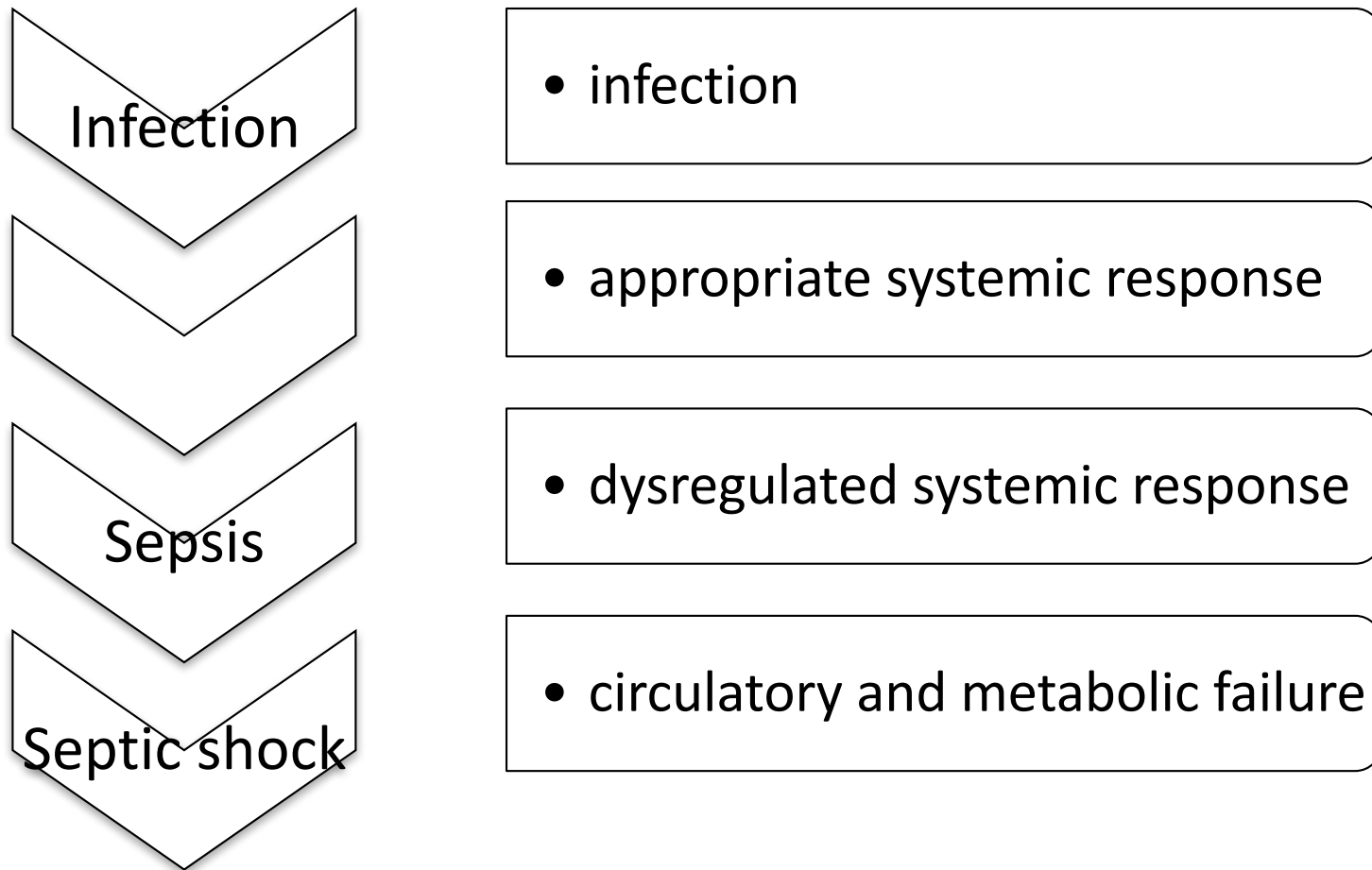
- Systemic immunosuppression
- Can weaken defenses

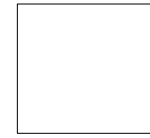


Systemic inflammatory Response

- Host response to inflammation (SIRS)
 - Temperature, tachycardia, tachypnoea, $\uparrow\downarrow$ wcc
- Infection is only one of many causes
- Not present in 1 of 8 cases of sepsis
- May be appropriate and adaptive

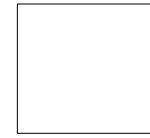
Stages of sepsis





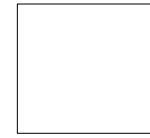
Sepsis

- Dysregulated systemic response to infection
- Causing life-threatening organ dysfunction
- Severe enough for 10% to die
- Needs immediate treatment
- *Sepsis until proven otherwise* if
 - Positive quick SOFA score (in UCC and ED)
 - Positive full SOFA score (in ICU)



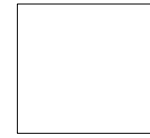
qSOFA

- Sepsis until proven otherwise if 2 of
 - Respiratory rate $\geq 22/\text{min}$
 - Altered thinking
 - Systolic blood pressure ≤ 100 mm Hg



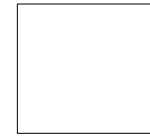
Respiratory rate

- **Must count for a full 60 seconds!**



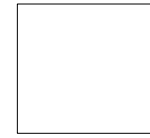
Septic shock

- A subset of sepsis
- Circulatory failure, and
- Cellular/metabolic failure
- Severe enough for 40% to die



Septic shock – clinical criteria

- Sepsis, and
- Vasopressor for mean BP > 65 mmHg, and
- Lactate > 2 mmol/L, despite
- Adequate fluid resuscitation

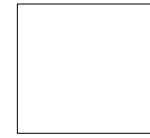


Mean blood pressure

- **SYSTOLIC / DIASTOLIC (MEAN)**

80/50 (60)

- **Mean = diastolic + $\frac{1}{3}$ (systolic – diastolic)**



Stages of sepsis

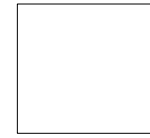
Infection



+ Dysregulated response (qSOFA) = **Sepsis**

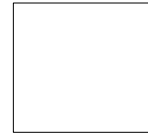


+ Failure (↓BP despite fluid) = **Septic shock**



Paediatric septic shock

- Sepsis with tachycardia and poor perfusion
- Never wait for low BP in children



SCENARIOS

Scenario one

A 20 year old police recruit has been unwell since leaving the pub 12 hours ago. He has severe headache, myalgia, and rigors. He is alert, with a temp of 40.2, pulse 130, resp rate 26, and BP 100/60. His skin is flushed and he is sweating profusely.

What is the most likely diagnosis?

- a) Septic shock
- b) Sepsis
- c) Infection with appropriate host response
- d) Something else

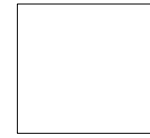
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What is the most likely diagnosis?

- a) Septic shock
- b) Sepsis**
- c) Infection with appropriate host response
- d) Something else

Because likely infection and the qSOFA ≥ 2



qSOFA

- Sepsis until proven otherwise if 2 of
 - Respiratory rate $\geq 22/\text{min}$
 - Altered thinking
 - Systolic blood pressure ≤ 100 mm Hg

Scenario two

A 24 year old asthmatic has been using salbutamol for three days of dry cough, fever, and shortness of breath. Her temp is 37.8, GCS 15, pulse 110, resp rate 26, and BP 100/60. Her skin is pink and warm. Her lungs are very wheezy and the chest x-ray is clear.

What is the most likely diagnosis?

- a) Septic shock
- b) Sepsis
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What is the most likely diagnosis?

- a) Septic shock
- b) Sepsis
- c) Infection with appropriate host response
- d) Something else**

Infection, but another cause of abnormal vital signs

Scenario three

A 70-year-old woman with a history of NIDDM and AF is sent to the UCC with 3 days of pain from her known gall stones. Her observations are normal other than a respiratory rate of 24. Her skin is cool and her family say she is a little drowsy.

What is the most likely diagnosis?

- a) Septic shock
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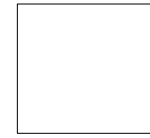
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What is the most likely diagnosis?

- a) Septic shock
- b) Sepsis**
- c) Infection with appropriate host response
- d) Something else

qSOFA ≥ 2 , despite few abnormal vital signs (B-blocked?)



qSOFA

- Sepsis until proven otherwise if 2 of
 - Respiratory rate $\geq 22/\text{min}$
 - Altered thinking
 - Systolic blood pressure ≤ 100 mm Hg

Scenario four

A 62-year-old 150 kg woman with pneumonia dropped her GCS and BP soon after arrival at the UCC. She was heroically intubated by the GP (in theatre). Despite 3 litres of saline her BP is 80/50 (mean BP 60 mmHg).

What is the most likely diagnosis?

- a) Septic shock
- b) Sepsis
- c) Infection with appropriate host response
- d) Something else

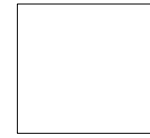
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What is the most likely diagnosis?

- a) **Septic shock**
- b) Sepsis
- c) Infection with appropriate host response
- d) Something else

Low BP despite lots of fluids



Septic shock – clinical criteria

- Sepsis, and
- Vasopressor for mean BP > 65 mmHg, and
- Lactate > 2 mmol/L, despite
- Adequate fluid resuscitation

Scenario five

An unwell looking 4-year-old girl with appendicitis has been given 3 x 250ml boluses of iv saline while waiting for the ambulance. Now her temp is 38.8, pulse 145, resp rate 40 and BP 95/60. She has not urinated since last night.

What is the most likely diagnosis?

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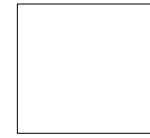
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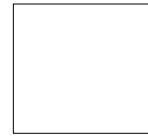
- a) **Septic shock**
- b) **Sepsis**
- c) Infection with appropriate host response
- d) Something else

Tachycardia and poor perfusion



Paediatric septic shock

- Sepsis with tachycardia and poor perfusion
- Never wait for low BP in children



Summary

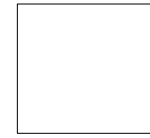
Infection



+ Dysregulated response (qSOFA) = **Sepsis**



+ Failure (\downarrow BP despite fluid) = **Septic shock**



Remember respiratory rate

- **Must count for a full 60 seconds!**