

# Progress in Sepsis

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# Heart attack vs. Sepsis attack

## Acute MI

- Single presentation
- Single location (CCU)
- Single treatment
  
- Time delay important
- Chest pain > ambulance > CCU > therapy

## Sepsis

- Diverse presentation
- All areas / wards / theatres
- Multiple therapies
  
- Time delay important
- ?????

# Sepsis / Severe Sepsis Screening Tool

Are any two of the following SSI criteria present? Please circle all that apply

- Temperature  $<35.5$  or  $>38$  °C
- Heart Rate  $>110$  bpm
- WCC  $>12$  or  $<4 \times 10^9/l$
- Respiratory rate  $>25$  / min
- Acutely altered mental state
- Hyperglycaemia in the absence of diabetes

If yes, patient has SSI

Does your patient have a history or signs suggestive of a new infection? Please circle all that apply

For example:

- Cough / sputum / chest pain
- Abdo pain / distension / diarrhoea
- Dysuria
- Headache with neck stiffness
- Cellulitis / wound infection
- Septic arthritis
- Endocarditis
- Line infection
- Possible Neutropenia

If yes, patient has SEPSIS

Any signs of organ dysfunction? Please circle all that apply

- SBP  $<90$ mmHg or MAP  $<65$ mmHg
- Urine Output  $<0.5$ ml/kg/hr for 2hrs
- INR  $>1.5$  or aPTT  $>60$ s
- Bilirubin  $>34$ umol/l
- Lactate  $>2$ mmol/l
- New need for oxygen to keep SpO<sub>2</sub>  $>90\%$
- Platelets  $<100 \times 10^9/l$
- Creatinine  $>177$  mmol/l

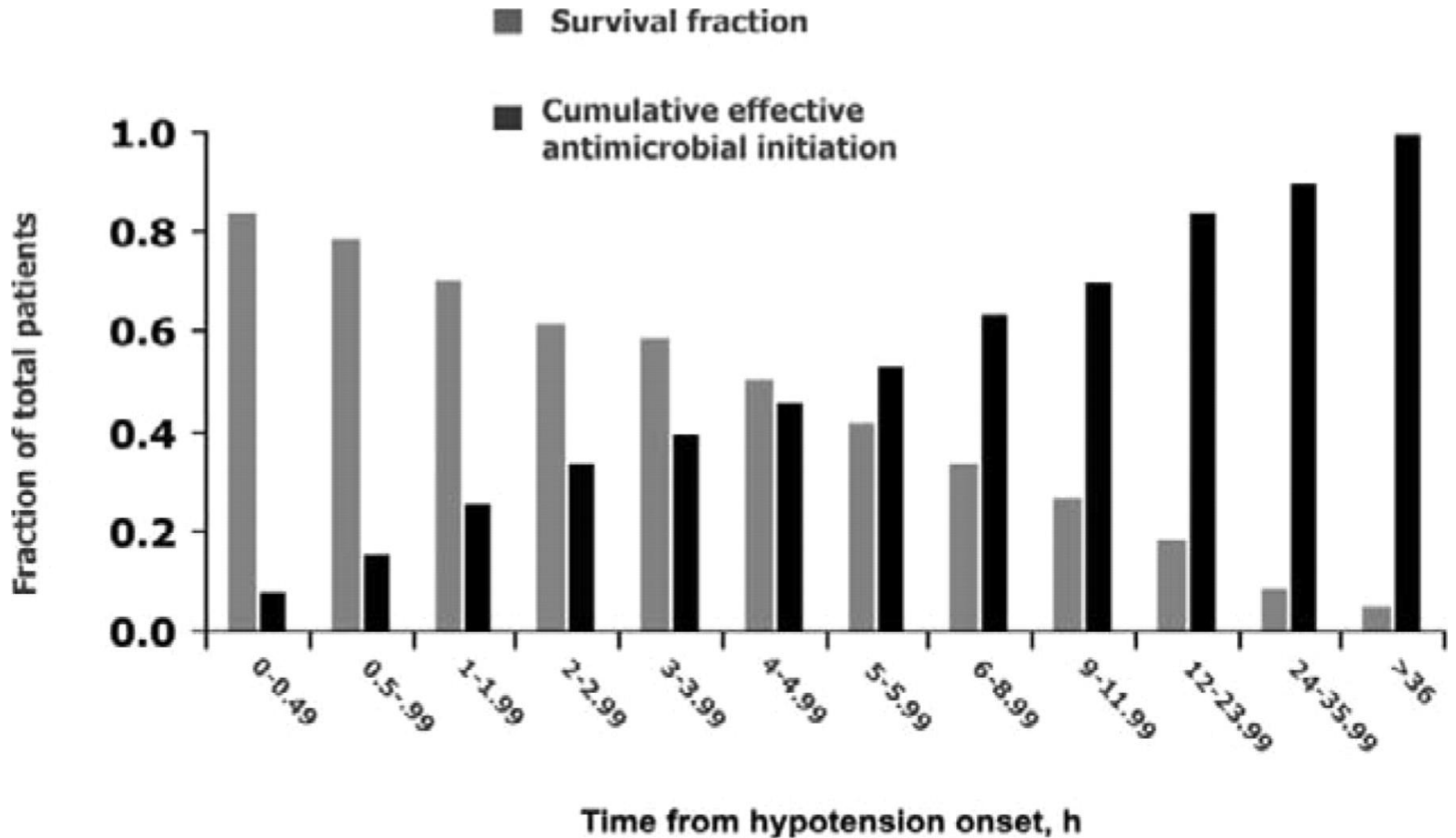
If no, treat for SEPSIS

- Oxygen (consider COPD)
- Blood Cultures
- IV antibiotics (standard trust guidelines)
- Fluid therapy
- Reassess for SEVERE SEPSIS with hourly observation

If yes, patient has SEVERE SEPSIS  
Start  
SEVERE SEPSIS CARE  
PATHWAY

1. Give high flow oxygen *via non-rebreathe bag*
2. Take blood cultures
3. Give IV antibiotics
4. Start IV fluid resuscitation *Hartmann's or equivalent*
5. Check haemoglobin and lactate
6. Monitor accurate hourly urine output  
*may require catheter*

# Survival vs. time to antibiotics



# Meningitis: a model for sepsis



# Consequences of delayed treatment

- Death
- Length of stay
- Length of ICU stay (£1700 / day)
- Cost of survivors and non-survivors

# Summary points

- Leading cause of inpatient deterioration
- Mortality 30-50% in severe cases
- Sepsis care bundle used by many
- Time to antibiotics is critical to survival
- Survival improvement 10-15% possible



# Evidence based medicine

- MEWS, NEWS ??
- CC Outreach
- MET team
- Dandenong experience
  - Massive reduction in cardiac arrest and deterioration, ICU length of stay

CCO CIC experience

Amount of sepsis 6 pathways triggered	<b>16</b> (14%)	<b>24</b> (22%)	<b>21</b> (22%)
Amount of pathways completed within 60 minutes	<b>9</b> (56%)	<b>17</b> (71%)	<b>12</b> (57%)
Amount of patients on a pathway reviewed by a doctor in 30 Minutes	<b>16</b> (100%)	<b>24</b> (100%)	<b>21</b> (100%)
Amount of patients on a pathway reviewed by a senior Dr in 60 minutes	<b>8</b> (50%)	<b>19</b> (79%)	<b>18</b> (86%)
Amount given antibiotics according to trust guidelines	<b>14</b> (87%)	<b>23</b> (96%)	<b>18</b> (86%)
Average time to antibiotics.	<b>&lt; 1 hour 11</b> (69%) <b>&gt; 1 hour 4</b> (25%) <b>No antibiotics 1</b> (6%)	<b>&lt; 1 hour 23</b> (96%) <b>&gt; 1 hour 1</b> (4%)	<b>&gt; 1 hour 16</b> (76%) <b>&lt; 1 hour 3</b> (14%) <b>No antibiotics 2</b> (10%)
How many developed severe sepsis.	<b>6</b> (37%)	<b>14</b> (58%)	<b>9</b> (43%)
Amount who needed CCORT involvement to complete the pathway	<b>11</b> (69%)	<b>14</b> (58%)	<b>7</b> (33%)
How many were made DNAR	<b>1</b> (1%)	<b>4</b> (16%)	<b>1</b> (5%)
How many patients survived after 30 days.	<b>10</b> (62%)	<b>15</b> (62%)	<b>15</b> (71%)

# Conclusions

- Specialist teams perform specialist tasks better
  - MI vs Sepsis
- We need to improve
  - Recognition
  - Escalation
  - Availability
  - Time to antibiotic and senior input

# Sepsis: a wish list

- Sepsis management at the front and back of house
- CCO:
  - 24/7 cover
  - Make it a clear part of divisional structure, budget, management
- NEWS, Publicity campaign, consultant input, electronic obs system in pipeline
- Look to develop a MET concept
  - Multidisciplinary team, consultant led