

**SEVERE SEPSIS SCREENING TOOL & INITIAL RESUSCITATION GUIDELINE (ADULTS)**

<p><b>ADDRESSOGRAPH</b> (Important for audit purposes)</p>	<p><b><u>Name &amp; grade of person completing form:</u></b></p>  <p><b>Date:</b> ___ / ___ / ___</p> <p><b>Time:</b> _____ (24 hour clock)</p>
--	---

**INSTRUCTIONS**

**All patients MUST have their Modified Early Warning Score (MEWS) calculated when observations are done (see P4).**

**Any patient with a MEWS of 5 or more MUST be screened for severe sepsis using this screening tool. A doctor should review the patient within 30 minutes.**

**If the patient has severe sepsis, the sepsis resuscitation bundle should commence IMMEDIATELY (see P2 overleaf).**

Sepsis is defined as clinical evidence of infection plus a systemic response indicated by two or more of the following:

- High temperature (>38°C) or low temperature (<36°C)
- Tachycardia (heart rate >90/minute)
- High respiratory rate (>20/minute)
- High white cell count (>12 x 10<sup>9</sup>) or low white cell count (<4 x 10<sup>9</sup>)

Severe sepsis is defined as sepsis plus organ dysfunction eg low blood pressure, poor urine output, hypoxaemia, metabolic (lactic) acidosis, clotting abnormalities, new confusion / reduced conscious level.

**Severe sepsis is a leading cause of death in the UK. Early and effective/aggressive intervention improves outcome.**

<b>1</b>	Does the patient have a MEWS of 5 or more? – circle yes or no	<b>YES / NO</b>
----------	---	-----------------

<b>2</b>	<p><b>Does the patient's history suggest an <u>INFECTION</u>?</b> NB – elderly patients may present only with 'general deterioration' – check their CRP.</p> <table style="width: 100%;"> <tr> <td style="width: 50%;"> <ul style="list-style-type: none"> <li>• Pneumonia / chest infection</li> <li>• Abdominal infection</li> <li>• Urinary tract infection</li> <li>• Meningitis or purpuric rash</li> <li>• Skin or wound infection</li> </ul> </td> <td style="width: 50%;"> <ul style="list-style-type: none"> <li>• Bone or joint infection</li> <li>• Catheter or device infection</li> <li>• Endocarditis</li> </ul> <p><b>(PLEASE CIRCLE WHICH IF POSSIBLE)</b></p> </td> </tr> </table>	<ul style="list-style-type: none"> <li>• Pneumonia / chest infection</li> <li>• Abdominal infection</li> <li>• Urinary tract infection</li> <li>• Meningitis or purpuric rash</li> <li>• Skin or wound infection</li> </ul>	<ul style="list-style-type: none"> <li>• Bone or joint infection</li> <li>• Catheter or device infection</li> <li>• Endocarditis</li> </ul> <p><b>(PLEASE CIRCLE WHICH IF POSSIBLE)</b></p>	<b>YES / NO</b>
<ul style="list-style-type: none"> <li>• Pneumonia / chest infection</li> <li>• Abdominal infection</li> <li>• Urinary tract infection</li> <li>• Meningitis or purpuric rash</li> <li>• Skin or wound infection</li> </ul>	<ul style="list-style-type: none"> <li>• Bone or joint infection</li> <li>• Catheter or device infection</li> <li>• Endocarditis</li> </ul> <p><b>(PLEASE CIRCLE WHICH IF POSSIBLE)</b></p>			

<b>3</b>	<p><b>Does the patient have <u>TWO OR MORE OF</u> the following signs of infection?</b></p> <table style="width: 100%;"> <tr> <td style="width: 50%;"> <ul style="list-style-type: none"> <li>• High temperature (&gt;38°C)</li> <li>• Low temperature (&lt;36°C)</li> <li>• Chills and rigors</li> <li>• Tachycardia (heart rate &gt;90/minute)</li> </ul> </td> <td style="width: 50%;"> <ul style="list-style-type: none"> <li>• High respiratory rate (&gt;20/minute)</li> <li>• Headache with photophobia or neck stiffness</li> <li>• Systolic BP &lt;90 mmHg (or MAP &lt;65)</li> </ul> <p><b>(PLEASE CIRCLE WHICH)</b></p> </td> </tr> </table>	<ul style="list-style-type: none"> <li>• High temperature (&gt;38°C)</li> <li>• Low temperature (&lt;36°C)</li> <li>• Chills and rigors</li> <li>• Tachycardia (heart rate &gt;90/minute)</li> </ul>	<ul style="list-style-type: none"> <li>• High respiratory rate (&gt;20/minute)</li> <li>• Headache with photophobia or neck stiffness</li> <li>• Systolic BP &lt;90 mmHg (or MAP &lt;65)</li> </ul> <p><b>(PLEASE CIRCLE WHICH)</b></p>	<b>YES / NO</b>
<ul style="list-style-type: none"> <li>• High temperature (&gt;38°C)</li> <li>• Low temperature (&lt;36°C)</li> <li>• Chills and rigors</li> <li>• Tachycardia (heart rate &gt;90/minute)</li> </ul>	<ul style="list-style-type: none"> <li>• High respiratory rate (&gt;20/minute)</li> <li>• Headache with photophobia or neck stiffness</li> <li>• Systolic BP &lt;90 mmHg (or MAP &lt;65)</li> </ul> <p><b>(PLEASE CIRCLE WHICH)</b></p>			

**If you have answered YES to EITHER 2 or 3 AND the patient has a MEWS of 5 or more, contact a doctor to review the patient within 30 minutes and start the 6 hour sepsis resuscitation bundle – TURN OVER!**

<p><b>IS THE PATIENT ENTERING INTO THE 6 HOUR RESUSCITATION BUNDLE?</b></p> <p>YES <input type="checkbox"/>                      IF NO, STATE WHY NOT:</p>
--

**FILE WITH MEDICAL NOTES**

# SEVERE SEPSIS RESUSCITATION BUNDLE (ADULTS)

(medical and nursing management within the first 6 hours of diagnosis of severe sepsis)

SEVERE SEPSIS is diagnosed (see overleaf)

**AIRWAY**

- Assessment and management
- Give oxygen to correct hypoxaemia

**BREATHING**

- Assessment and management\*

**CIRCULATION**

- Get iv access (at least one 16G cannula)
- Send blood for cultures x 2, FBC, clotting, U&E, glucose, CRP, LFT, lactate
- Give fluid challenges\*\* to treat hypotension or a metabolic (lactic) acidosis in sepsis

**DISABILITY**

- Assessment and management
- Check pupils, conscious level and capillary glucose

**EXAMINATION + ACTION**

- Examine patient to locate source of sepsis and organise relevant tests
- Culture urine, sputum and any other relevant sites (eg ascites, lines, CSF)
- Take arterial blood gases
- Administer broad spectrum antibiotics after blood cultures within the first hour of diagnosis (see P3)
- Organise urinary catheter and monitor hourly urine output
- Establish bedside monitoring with appropriate alarm settings

**CHECKLIST:**

Oxygen saturations >93%

Doctor to document other target if patient has chronic lung disease here:  
[                    ]

Continuous bedside monitoring set up (cardiac monitor, SpO<sub>2</sub>, BP, RR)

Blood cultures x 2 done (before antibiotics) regardless of temperature

Lactate measured

Fluid challenges given for hypotension OR a metabolic acidosis

Broad spectrum antibiotics administered within 1 hour of diagnosis

Team SpR and ICU outreach contacted if no significant improvement after 1 hour of treatment

**NOTES**

\*For respiratory failure, contact respiratory or ICU team.

\*\*A typical fluid challenge is 250-500ml colloid or 500 - 1000ml saline over 10 minutes. Hypotensive patients should be reviewed immediately afterwards to assess the response. Monitor respiratory rate, SpO<sub>2</sub> and urine output. Hypotension unresponsive to > 2 fluid challenges requires expert review.

Junior doctors (HO/SHO) must inform a senior (SpR/cons) about ANY patient with severe sepsis, as assessing volume status in this situation is often difficult.

Patient improving after oxygen and fluids etc at 1 hour

Hourly observations until recovered

Persisting hypotension or metabolic acidosis or poor urine output after 1 hour of treatment

- Contact the team SpR and ICU outreach to review the patient within 30 minutes
- If appropriate to escalate treatment, arrange transfer to HDU – but do not delay treatment\*\*\* whilst waiting for transfer
- Make tracheal intubation and CPR decisions now

On HDU  
Consider inserting a central line to monitor CVP  
Get expert help if the patient requires vasopressors / inotropes.

**\*\*\*GOALS OF TREATMENT**

- CVP >8 mmHg
- Systolic BP >90 mmHg (or MAP >65)
- UO >0.5 ml/kg/hr
- Resolution of metabolic acidosis

**DOCUMENT REASONS WHY ANY OF THE ABOVE NOT DONE IN THE MEDICAL NOTES**

## INITIAL ANTIBIOTIC GUIDELINES FOR ADULTS WITH SEVERE SEPSIS (all antibiotics given iv)

For neutropenic sepsis, see separate guidelines.

Suspected source	Regimen	<u>Severe allergic reaction to penicillin</u>
*Community acquired pneumonia	Co-amoxiclav 1.2g tds + clarithromycin 500 mg bd	Ciprofloxacin 400 mg bd + vancomycin 1g bd
Hospital acquired pneumonia (>72 hours after admission)	Piperacillin/tazobactam 4.5g tds	Ciprofloxacin 400 mg bd + vancomycin 1g bd
Urinary tract infection	Cefuroxime 1.5g tds (Piperacillin/tazobactam 4.5g tds on elderly care wards)	Ciprofloxacin 400 mg bd
Intra-abdominal infection	Cefuroxime 1.5g tds + metronidazole 500 mg tds (Piperacillin/tazobactam 4.5g tds on elderly care wards)	Ciprofloxacin 400 mg bd + metronidazole 500 mg tds
Meningitis	Cefotaxime 2g qds	Consult with microbiology or infectious diseases
Cellulitis	Flucloxacillin 2g qds	Vancomycin 1g bd
Other severe soft tissue infection	Consult with microbiology or infectious diseases	Consult with microbiology or infectious diseases
Unknown source	Cefuroxime 1.5g tds + metronidazole 500 mg tds (Piperacillin/tazobactam 4.5g tds on elderly care wards)	Ciprofloxacin 400 mg bd + vancomycin 1g bd + metronidazole 500 mg tds
Unusual infections eg endocarditis, grafts/prostheses or **potential for antibiotic resistance eg MRSA	Consult with microbiology or infectious diseases	Consult with microbiology or infectious diseases
* **recent multiple antibiotics, prolonged hospital stay, recent surgery, known colonisation		

\*Legionella antigen test (urine) should be sent on all patients with severe community acquired pneumonia.

After administration of antibiotics, discuss all cases of severe sepsis with microbiology or infectious diseases as soon as possible. Consider dose adjustment in patients with renal impairment.

### Contact numbers

- ICU outreach XXX
- ICU doctor on-call XXX
- Infectious diseases XXX
- Microbiology XXX

### Further information about severe sepsis and these guidelines

- The West Yorkshire Critical Care Network
- [www.survivingsepsis.org](http://www.survivingsepsis.org)
- Dellinger RP, Carlet J, Masur H *et al.* Surviving sepsis campaign guidelines for the management of severe sepsis and septic shock. *Critical Care Medicine* 2004; 32(3): 858–872

## THE WEST YORKSHIRE CRITICAL CARE NETWORK MODIFIED EARLY WARNING SCORE (MEWS)

Score	3	2	1	0	1	2	3
Heart rate (HR)		<40	41-50	51-100	101-110	111-130	>130
Systolic blood pressure (SBP)	<70	71-80	81-100	101-179	180-199	200-220	>220
Respiratory rate (RR)		<8	8-11	12-20	21-25	26-30	>30
Respiratory support / oxygen therapy	BiPAP or CPAP	High flow*	Oxygen therapy				
Oxygen saturations (SpO <sub>2</sub> )	<85%	86-89%	90-94%	≥95%			
Urine output (last 4 hours)	<80	80-120	120-200 Or dialysis		>800		
Conscious level (GCS)			New confusion (9-12)	Awake and responsive (13-15)	Responds to voice (6-8)	Responds to pain (4-5)	Unresponsive (3)

\*This refers to an oxygen delivery system only available on HDU

Each observation has a score.

If the total score is 5 or more, a doctor should be contacted to assess the patient within 30 minutes.

For example, a patient has the following observations:

Heart rate 120  
Systolic blood pressure 90/60 mmHg  
Respiratory rate 28  
On 10 litres oxygen via MC mask  
Oxygen saturations (SpO<sub>2</sub>) 90%  
Urine output 80 ml/hr over last 4 hours  
Alert and orientated

Therefore MEWS = 9

Even though the patient may be 'alert and comfortable in bed', these seriously abnormal vital signs indicate critical illness.

If the patient has severe sepsis, the healthcare team should ensure that the severe sepsis resuscitation bundle (outlined on P2) is started immediately and achieved within 6 hours.

For more information about MEWS, contact the ICU outreach team.

**PLEASE NOTE** - patients can still be seriously ill and require urgent intervention even with a MEWS of < 5. Clinical judgement is still important in such cases.