



Sepsis Management for Adults (including Maternity)

NCG No. 26 V2 (2025)

Training as per HSELanD Sepsis eLearning.

Guidance for Receiving Certificate of Completion of Face To Face Sepsis Training

- Consultants, NCHDs, Nursing, Midwifery and HSCPs must attend for the duration of the session.
- This education session will take approximately 45 minutes.
- All attendees should complete the sign in log with date, print name / signature, grade, discipline, clinical area and enter MRCN / NMBI / Coru registration number.
- You will receive a certificate of attendance from your local hospital at the end of the session (cert lasts for 3 years).
- Please update the NER portal (NCHDs) or local training database with your certificate as per local HR processes.



How long will this take?



Will I get a certificate?



Are CEU/CPD credits awarded?



An Roinn Sláinte
Department of Health

Sepsis Management for Adults (including maternity)

National Clinical Guideline No. 26 (Version 2)

2025

NATIONAL CLINICAL EFFECTIVENESS COMMITTEE

National Patient Safety Office
089 966 6666 | 01 676 9888 | 01 676 9889

Surviving Sepsis Campaign

NCG No. 26 V2 (2025)



ACUTE HOSPITALS ONLY (NON MATERNITY) ≥16 YRS

SEPSIS SCREENING TOOL FOR ADULTS
THIS FORM DOES NOT REPLACE CLINICAL JUDGEMENT

Any Healthcare Professional (HCP) should start this **INFECTION** present PLUS presence of ≥1

Patient looks sick
 Emergency Dept. Manchester Triage Category 2
 Elevated EMEWS or INEWS (INEWS ≥ 4 or ≥ 5 if on O₂)

YES *Time Zero: : Name
*When the patient 1st triggers for sepsis screen NMBV/MCRN

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PATHWAY

Is any **ONE RED FLAG** present?

Signs of Shock

Systolic Blood Pressure < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmol/L)

OR

Risk of Neutropenia

Recent chemotherapy/radiotherapy

OR

Evidence of New Organ Dysfunction (any one of the following)

New Acutely altered Mental Status
 Respiratory Rate > 30 bpm
 Heart rate > 130 bpm
 Non passed urine in 12 hours or urine output < 0.5mls/kg/hr
 Non blanching rash
 New or increased need for O₂ to achieve SpO₂ >90%
 Pallor/mottling with central CRT > 3 seconds
 Other organ dysfunction

YES → **PROBABLE SEPSIS**
IMMEDIATE ACTION IS REQUIRED

NO → **SITE OF INFECTION (IF KNOWN)**
START SEPSIS 6 NOW
INFORM SENIOR DECISION MAKER
See overleaf

Is there an End-of-Life Pathway in place? Yes No Is escalation if Sepsis 6 is not clinically appropriate, exit the sepsis pathway.
Doctor Signature _____

SEPSIS SCREENING TOOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM)
ACUTE HOSPITALS ONLY

Addressograph

MATERNITY PATIENTS **SEPSIS SCREENING TOOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM)** **ACUTE HOSPITALS ONLY**

This form does not replace clinical judgement

Women's Name: _____ Date of Birth: _____ Healthcare Record No: _____ Addressograph: _____

Obstetric History
Para: _____ Gestation: _____ Days post-natal: _____ Delivery type: _____ Recent p

Any Healthcare Professional (HCP) should start this tool if **CONFIRMED** or **INFECTION** present PLUS presence of ≥1 of the triggers listed below

Site of Infection (if known)

Patient looks sick
 Elevated EMEWS ≥ 2 yellow or ≥ 1 pink
 GP/Ambulance person
 In an Adult Emergency Department - Manchester Triage Category 2

YES *Time Zero: : Name
*When the patient 1st triggers for sepsis screen NMBV/MCRN

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PATHWAY TO RISK ASSESSMENT

Is any **ONE RED FLAG** present?

Signs of Shock

Systolic Blood Pressure < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmol/L), Rule Out PPH

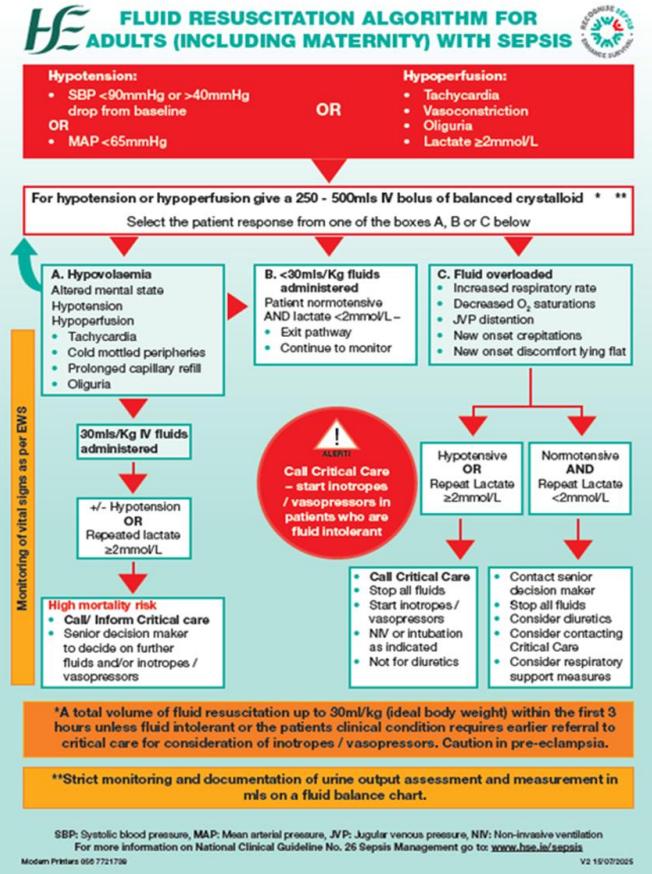
OR

Evidence of New Organ Dysfunction (any one of the following)

Acutely altered Mental Status
 Respiratory Rate > 30 bpm
 Heart rate > 130 bpm
 Non passed urine in 12 hours or urine output < 0.5mls/kg/hr
 Non blanching rash
 New or increased need for O₂ to achieve SpO₂ >90%
 Pallor/mottling with central CRT > 3 seconds
 Other organ dysfunction

YES → **PROBABLE SEPSIS**
IMMEDIATE ACTION IS REQUIRED

NO → **SITE OF INFECTION (IF KNOWN)**
START SEPSIS 6+1 NOW
INFORM SENIOR DECISION MAKER
See overleaf



Key recommendation updates from SSCG 2021

NCG No.26 (2021) Section	PREVIOUS RECOMMENDATIONS	NEW / CHANGED RECOMMENDATIONS
Section 1.1 Antimicrobial Therapy Recommendation 16 (Changed) Recommendation 16a (New)	Administering antimicrobials immediately, ideally within 1 hour of recognition for patients with possible / probable sepsis or septic shock	Administering antimicrobials immediately, ideally within 1 hour of recognition for patients with probable sepsis or septic shock. (SSCG 2021, Rec 12) A time-limited course of rapid investigation and if concern for infection persists, the administration of antimicrobials within 3 hrs from the time when sepsis was first recognised for patients with possible sepsis without shock (SSCG 2021, Rec 14)
Section 1.1 Initial resuscitation Recommendation 11 (Changed)	Normal saline for resuscitation of patients with sepsis or septic shock (SSCG 2021, Recommendation 33)	Balanced crystalloids instead of normal saline for resuscitation. (SSCG 2021, Rec 33)
Section 1.1 Vasoactive medication Recommendation 38a (New)		Starting vasopressors peripherally to restore mean arterial pressure rather than delaying initiation until central venous access is secured for patients with septic shock (SSCG 2021, Rec 44). Should be based on locally approved guidelines.
Section 1.1 Mechanical ventilation Recommendation 48a (New)		The use of high flow nasal oxygen over non-invasive ventilation for patients with sepsis-induced hypoxicemic respiratory failure (SSCG 2021, Rec 47)



Topic 1

What is Sepsis?

What is Sepsis (Sepsis 3 Definition)



- **Sepsis** – should be defined as life threatening organ dysfunction caused by a dysregulated host response to infection
- **Septic Shock** – should be defined as a subset of sepsis in which there are profound circulatory, cellular, and metabolic abnormalities which are associated with a greater risk of mortality than with sepsis alone. Patients with septic shock can be clinically identified by a vasopressor requirement to maintain a mean arterial pressure of 65 mmHg or greater and serum lactate level greater than 2 mmol/L in the absence of hypovolemia.(Singer et al. 2016)
- **Maternal sepsis** - should be defined as a life-threatening organ dysfunction resulting from infection during pregnancy, child-birth, post abortion or up to 42 days post-partum (WHO 2016)

N.B Sepsis is a time-critical medical emergency

What causes sepsis?

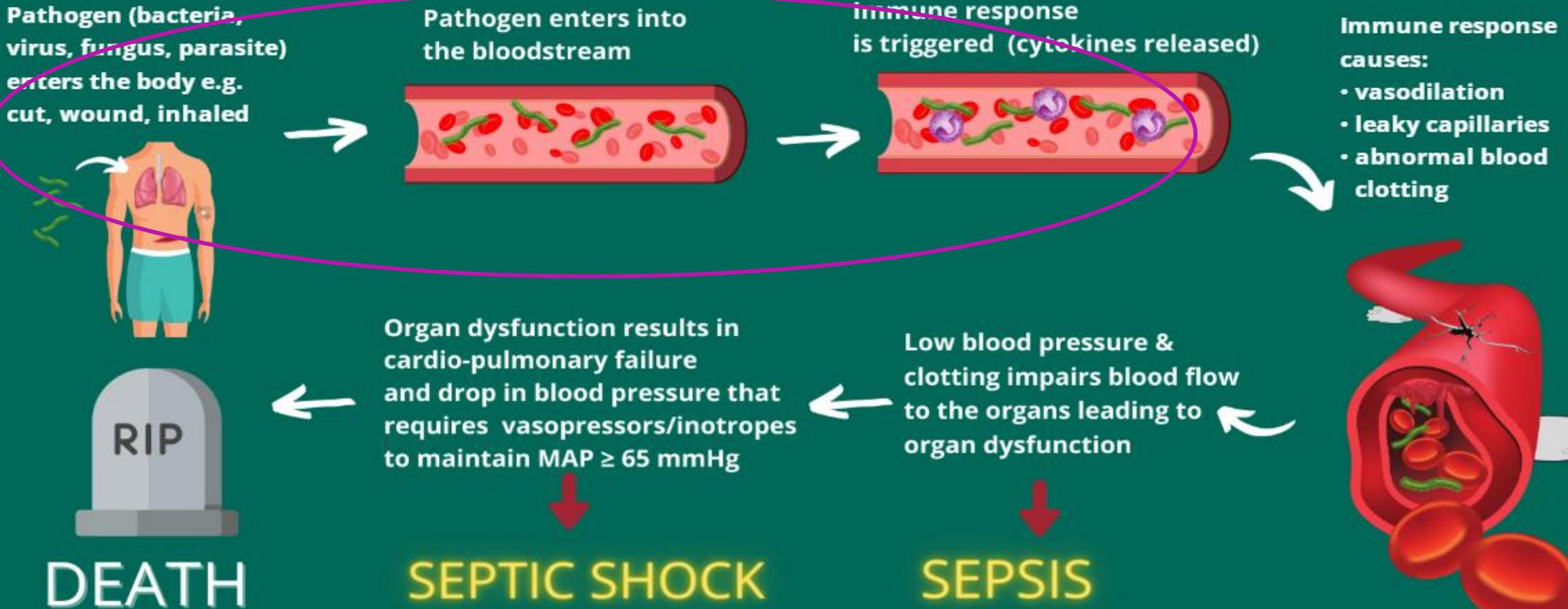
Any type of pathogen can cause sepsis:

- Bacteria
- Viruses
- Fungi
- Parasites

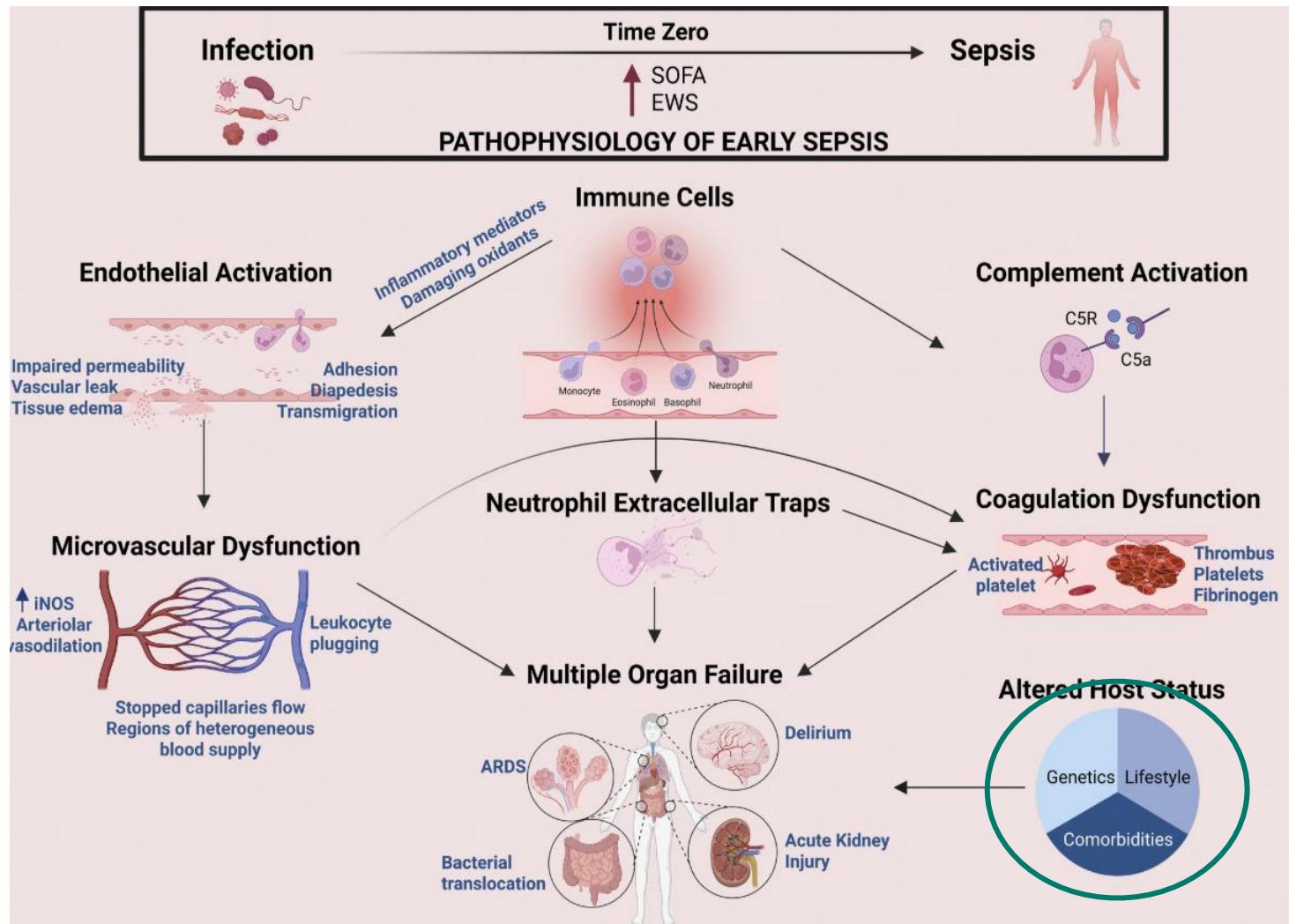
**Sepsis begins outside of
the hospital, in the
community, for nearly
80% of people.**

But not every infection will lead to sepsis.

Pathophysiology of Sepsis

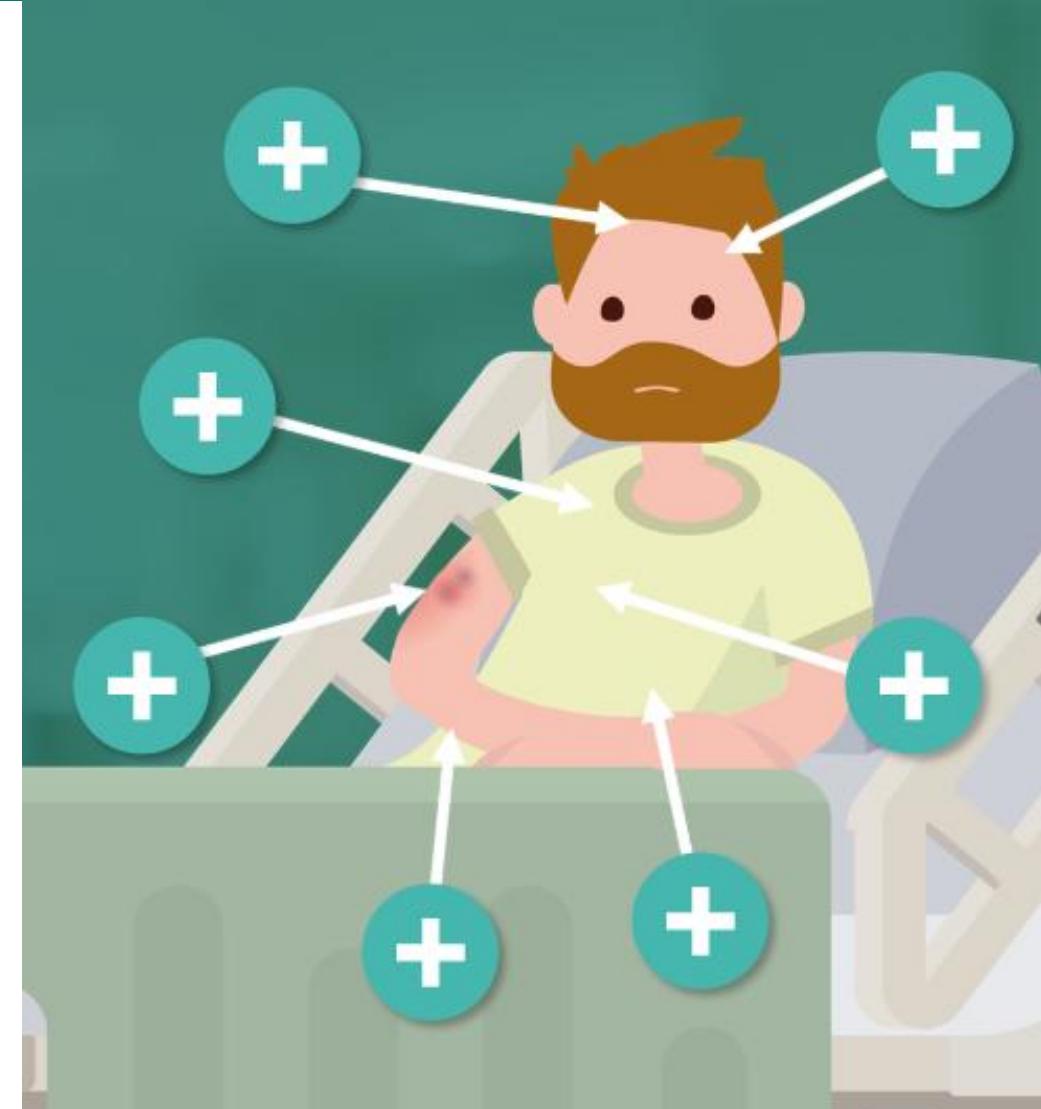


Pathophysiology of Sepsis



What physiological changes can you see in sepsis?

- ↑ Respiration rate
- ↑ Heart rate
- Brain – mental status
- Temperature
- Kidney – oligo/anuria
- Low platelets
- Pain





Topic 2

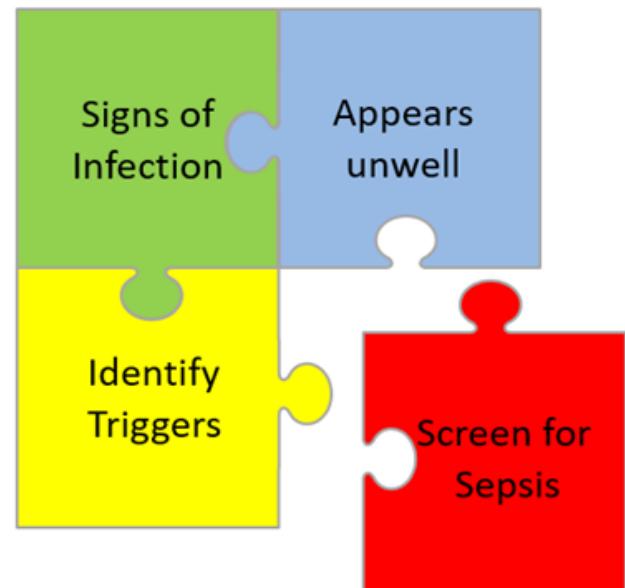
How to Recognise and Screen for Sepsis

Infection – Could this be Sepsis?

Assessing whether or not a patient is at risk of sepsis starts with a suspicion of infection.

Sepsis can be difficult to recognise since:

- **Presentation varies.**
- It is **not always obvious**; in the early stages some patients may have very few specific signs and symptoms.
- The signs and symptoms **can mimic other conditions**.
- It can **evolve over time**.
- There is **no single confirmatory test** that can be used to diagnose sepsis.
- **Information to diagnose is not always available** on presentation e.g. blood test results and other investigations



Adult Sepsis Screening Tool



ACUTE HOSPITALS ONLY (NON MATERNITY) ≥16 YRS

SEPSIS SCREENING TOOL FOR ADULTS

THIS FORM DOES NOT REPLACE CLINICAL JUDGEMENT

Any Healthcare Professional (HCP) should start this tool if **CONFIRMED** or **SUSPECTED INFECTION** present PLUS presence of ≥1 of the triggers listed below

<input type="checkbox"/> Patient looks sick	<input type="checkbox"/> Patient/Family/Carer/Clinician Concern
<input type="checkbox"/> Emergency Dept. Manchester Triage Category 2	<input type="checkbox"/> GP/ Ambulance personnel queries sepsis
<input type="checkbox"/> Elevated EMEWS or INNEWS (INNEWS ≥ 4 or ≥5 if on O ₂)	Score: <input type="text"/>

YES *Time Zero: : Name: _____ Grade: _____

*When the patient 1st triggers for sepsis screen NMBI/MCRN DATE: / /

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Is any ONE RED FLAG present?

Signs of Shock

Systolic Blood Pressure < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmols/L)

OR

Risk of Neutropenia

Recent chemotherapy/radiotherapy

OR

Evidence of New Organ Dysfunction (any one of the following)

New Acutely altered Mental Status

Respiratory Rate > 30 bpm

Heart rate > 130 bpm

Not passed urine in 12 hours or urine output < 0.5mls/kg/hr

Non blanching rash

New or increased need for O₂ to achieve SpO₂ >90%

Pallor/mottling with central CRT > 3 seconds

Other organ dysfunction

NO

NO RED FLAGS - CHECK FOR AMBER FLAGS

≥ 2 Systemic Inflammatory Responses (SIRS) that are sustained PLUS ≥ 1 Comorbidity.

SIRS (check for 2 or more listed below)

Respiratory rate ≥ 20 bpm

Heart rate 91-130 bpm

Temperature < 36 or > 38.3 °C

Blood glucose level > 7.7 mmol/l (in absence of diabetes mellitus)

WCC < 4 or > 12 × 10⁹ /L

AND

≥ 1 Comorbidity (listed below)

Aged ≥ 75 years

Frailty

Diabetes Mellitus

COPD

Cancer

Chronic Renal Disease

Chronic Liver Disease

Recent Surgery /Trauma (past 6 weeks)

Immunosuppression (due to medication or disease)

YES

PROBABLE SEPSIS
IMMEDIATE ACTION IS REQUIRED

YES

SITE OF INFECTION (IF KNOWN) _____

START SEPSIS 6 NOW

INFORM SENIOR DECISION MAKER

See overleaf

Is there an End-of-Life Pathway in place? Yes No Is escalation clinically appropriate? Yes No

If Sepsis 6 is not clinically appropriate, exit the sepsis pathway.

Doctor Signature _____ MCRN _____

Addressograph _____

SEPSIS TREATMENT PROTOCOL FOR ADULTS (NON MATERNITY) ≥16 YRS

SEPSIS 6 BUNDLE - COMPLETE WITHIN 1 HOUR

Addressograph _____

TAKE 3	1 TAKE BLOOD CULTURES 2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay >45mins. If patient has CVAD, take line cultures at the same time. Other cultures as indicated by history and examination.	Time Taken: <input type="text"/> : <input type="text"/>
	2 TAKE BLOOD TESTS FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated > 2mmols/L, repeat lactate after sepsis 6 bundle to assess response.	Time Taken: <input type="text"/> : <input type="text"/>
	3 URINARY OUTPUT ASSESSMENT Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.	Time: <input type="text"/> : <input type="text"/> Fluid balance chart commenced <input type="checkbox"/>
GIVE 3	4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL. Consider Microbiology review	
	Red Flags (PROBABLE SEPSIS) IV Antimicrobials within <u>1 HOUR</u>	Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within <u>3 HOURS</u> . Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactatemia etc.) administer antimicrobials immediately.
	TIME GIVEN <input type="text"/> : <input type="text"/> <input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time	TIME GIVEN <input type="text"/> : <input type="text"/>
5	GIVE IV FLUID BOLUS IF REQUIRED For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/vasopressors. Reassess response to fluid resuscitation frequently. Refer to fluid resuscitation algorithm.	Time Given: <input type="text"/> : <input type="text"/> or N/A <input type="checkbox"/>
	6 GIVE OXYGEN IF REQUIRED Titrate supplementary oxygen to maintain oxygen saturations 94-96% (88-92% for patients with chronic lung disease).	Time Given: <input type="text"/> : <input type="text"/> or N/A <input type="checkbox"/>
	Reassess vital signs at least every 30 minutes. IF CONDITION WORSENING / NOT IMPROVING, ESCALATE TO CONSULTANT. Consider SEPTIC SHOCK if MAP less than 65mmHg DESPITE FLUID RESUSCITATION and escalate to critical care.	
<input type="checkbox"/> Sepsis UNLIKELY at this time, treat as per working diagnosis, continue to monitor. Rescreen if deteriorates <input type="checkbox"/> This is likely to be SEPSIS at this time <input type="checkbox"/> Senior Clinician informed		
Signature _____ MCRN / NMBI (ANP) _____		
Print _____ Date: / / Time <input type="text"/> : <input type="text"/>		

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V1 04/2025

Maternal Sepsis Screening Tool



MATERNITY PATIENTS  This form does not replace clinical judgement

SEPSIS SCREENING TOOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM) ACUTE HOSPITALS ONLY

Obstetric History
Para: _____ Gestation: _____ Days post-natal: _____ Delivery type: _____ Recent pregnancy loss? _____

Any Healthcare Professional (HCP) should start this tool if CONFIRMED or SUSPECTED INFECTION present PLUS presence of ≥ 1 of the triggers listed below

Site of Infection (If known)

Patient looks sick Patient/Family/Carer/Clinician Concern
 Elevated IMEWS ≥ 2 yellows or ≥ 1 pink GP/Ambulance personnel queries sepsis
 In an Adult Emergency Department - Manchester Triage Category 2

YES *Time Zero: : Name: _____ Grade: _____
 *When the patient 1st triggers for sepsis screen NMB/MCRN _____ DATE: _____ / _____ / _____

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Is any ONE RED FLAG present? 

Signs of Shock

Systolic Blood Pressure < 90 mmHg (or drop of > 40 mmHg below normal \pm Point of care lactate > 2 mmols/L). Rule Out PPH

OR

Evidence of New Organ Dysfunction (any one of the following)

Acutely altered Mental Status
 Respiratory Rate > 30 bpm
 Heart rate > 130 bpm
 Not passed urine in 12 hours or urine output < 0.5 mls/kg/hr
 Non blanching rash
 New or increased need for O₂ to achieve SpO₂ $> 90\%$
 Pallor/mottling with central CRT > 3 seconds
 Other organ dysfunction

OR

Risk of Neutropenia

Recent chemotherapy/radiotherapy/autoimmune disorder

NO

YES

PROBABLE SEPSIS IMMEDIATE ACTION IS REQUIRED

YES

SITE OF INFECTION (IF KNOWN)

START SEPSIS 6+1 NOW
INFORM SENIOR DECISION MAKER
See overleaf

POSSIBLE SEPSIS

NO

YES

NEGATIVE SCREEN SEPSIS UNLIKELY AT THIS TIME

EXIT PATHWAY

Sign: _____
MCRN / NMBI (AN/MP)

Treat as per diagnosis and continue to monitor. Rescreen if deteriorates

MATERNITY PATIENTS  RECOGNISE SEPSIS ENHANCE SURVIVAL

SEPSIS TREATMENT PROTOCOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM)

SEPSIS 6+1 BUNDLE - COMPLETE WITHIN 1 HOUR

Addressograph

TAKE 3

1 TAKE BLOOD CULTURES
2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay > 45 mins, and other cultures as per examination.

2 TAKE BLOOD TESTS
FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated > 2 mmols/L, repeat lactate after sepsis 6 bundle to assess response.

3 URINARY OUTPUT ASSESSMENT
Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.

+1 IF PREGNANT ASSESS FETAL WELLBEING

4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL.
Consider Microbiology review

Red Flags (PROBABLE SEPSIS)  **Amber Flags (POSSIBLE SEPSIS)** 

IV Antimicrobials within **1 HOUR**

Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within **3 HOURS**.

Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactataemia etc.) administer antimicrobials immediately.

TIME GIVEN : : **TIME GIVEN** : :

Patient already on appropriate antimicrobials
 This patient does not require antimicrobials at this time

5 GIVE IV FLUID BOLUS IF REQUIRED

For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/vasopressors. Reassess response to fluid resuscitation frequently. Refer to fluid resuscitation algorithm. Caution in pre-eclampsia.

6 GIVE OXYGEN IF REQUIRED

Titrate supplementary oxygen to maintain oxygen saturations 94-98% (88-92% for patients with chronic lung disease).

Time Given: : : **or** **N/A**

Time Given: : : **or** **N/A**

Reassess vital signs at least every 30 minutes.

IF CONDITION WORSENING / NOT IMPROVING, ESCALATE TO CONSULTANT.

Consider SEPTIC SHOCK if MAP less than 65mmHg DESPITE FLUID RESUSCITATION and escalate to critical care.

THIS IS LIKELY TO BE SEPSIS OR SEPTIC SHOCK AT THIS TIME

Senior Clinician informed Time: : :
 Sepsis UNLIKELY at this time

Signature: _____ MCRN / NMBI (AN/MP) _____ Date: _____ Time: _____

Print Name: _____

When to screen for sepsis?

Any healthcare professional can start the sepsis screening tool (form) if infection is suspected or confirmed **PLUS**
≥ 1 of the triggers listed below (red box).

Adult

<input type="checkbox"/> Patient looks sick	<input type="checkbox"/> Patient/Family/Carer/Clinician Concern
<input type="checkbox"/> Emergency Dept. Manchester Triage Category 2	<input type="checkbox"/> GP/ Ambulance personnel queries sepsis
<input type="checkbox"/> Elevated EMEWS or INews (INews ≥ 4 or ≥ 5 if on O ₂)	Score: <input type="text"/>

YES

*Time Zero: :

*When the patient 1st triggers for sepsis screen

Name _____ Grade _____

NMBI/MCRN _____ DATE: ____ / ____ / ____

Maternity

Site of Infection (If known) <input type="text"/>	
<input type="checkbox"/> Patient looks sick	<input type="checkbox"/> Patient/Family/Carer/Clinician Concern
<input type="checkbox"/> Elevated IMEWS ≥ 2 yellows or ≥ 1 pink	<input type="checkbox"/> GP/Ambulance personnel queries sepsis
<input type="checkbox"/> In an Adult Emergency Department - Manchester Triage Category 2	

YES

*Time Zero: :

*When the patient 1st triggers for sepsis screen

Name _____ Grade _____

NMBI/MCRN _____ DATE: ____ / ____ / ____

THINK SEPSIS - Complete Sepsis form if an infection is suspected or confirmed AND

<input checked="" type="checkbox"/> Risk of neutropenia due to bone marrow failure, autoimmune disorder or treatment e.g. chemotherapy, radiotherapy	<input checked="" type="checkbox"/> Any signs of new organ dysfunction including: <ul style="list-style-type: none"> Altered mental state RR > 30 bpm SBP < 90 mmHg HR ≥ 130 bpm SpO₂ < 90%
OR	OR
<input checked="" type="checkbox"/> Two or more Systematic Inflammatory Response Syndrome (SIRS) including <ul style="list-style-type: none"> Temp. < 36°C or > 38.3°C RR ≥ 20 bpm HR ≥ 90 bpm Altered mental status 	<input checked="" type="checkbox"/> One or more Co-Morbidities <ul style="list-style-type: none"> Aged ≥ 75 years or Frailty Cancer Chronic kidney or liver disease COPD Diabetes Immunosuppression (medications/disease) Recent surgery/major trauma

EMEWS

INews

***THINK SEPSIS**
 (Use clinical judgement)

INews ≥ 4 (or ≥ 5 on Oxygen) and suspicion of infection

Older people or those immunocompromised may present with sepsis with an INews < 4 (< 5 if on Oxygen)

IMEWS



Time Zero

TIME ZERO is the time at which a healthcare professional first recognises that a patient with suspected or confirmed infection has ≥ 1 trigger in the trigger box to indicate sepsis screening should commence for **PROBABLE SEPSIS / SEPTIC SHOCK or POSSIBLE SEPSIS**.



***Time Zero:**

 :

*When the patient 1st triggers for sepsis screen

Name _____ Grade _____

NMBI/MCRN _____ DATE: ___ / ___ / ___

Immediate Medical / ANP /AMP review should be requested as per local escalation protocol.

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Examples of Time Zero

Emergency Department: Patient presents to ED at 10.00hrs with suspected respiratory tract infection. Triage nurse **completes triage at 10.45hrs** and assigns discriminator “Possible Sepsis” MTS Cat 2 based on the clinical history and risk factors (MTS Cat 2 is trigger for sepsis screen).

Time Zero is recorded as 10.45hrs on sepsis screening tool.

Medical ward: Patient admitted on 01.01.2025 for I.V antibiotic treatment for UTI. On 02.01.2025 at 10.00hrs the ward nurse completes an assessment of vital signs. INEWS is increased to total score of 6 and the nurse and family are concerned (trigger is INEWS ≥ 4 and clinical concern).

Time Zero is recorded as 10.00hrs on the sepsis screening tool.

Maternity ward: Patient day 1 post natal. New shortness of breath with cough. Midwife records IMEWS at 14.00hrs – 2 pinks. Patient and midwife concerned.

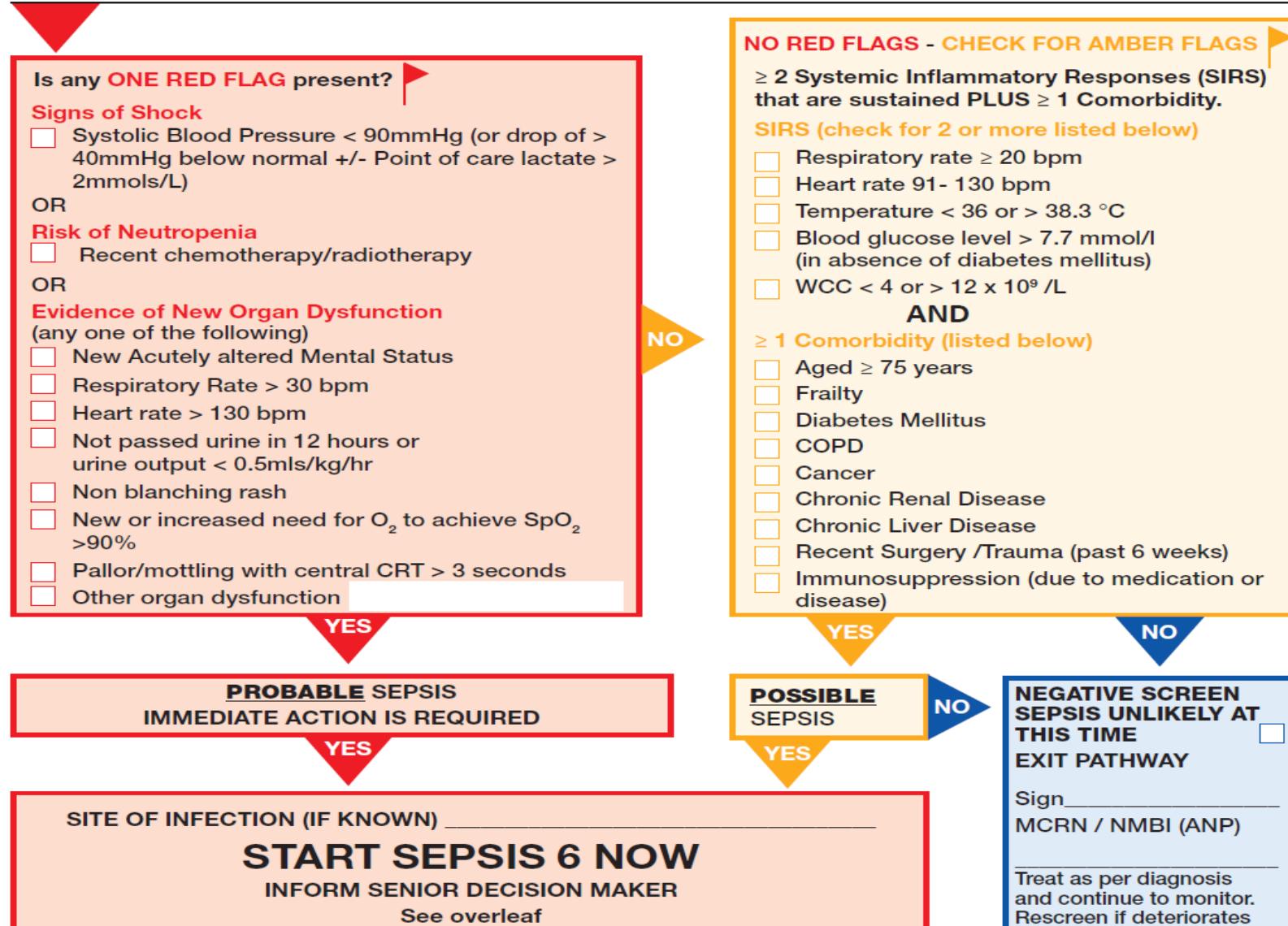
Time Zero is recorded as 14.00hrs on the sepsis screening tool.



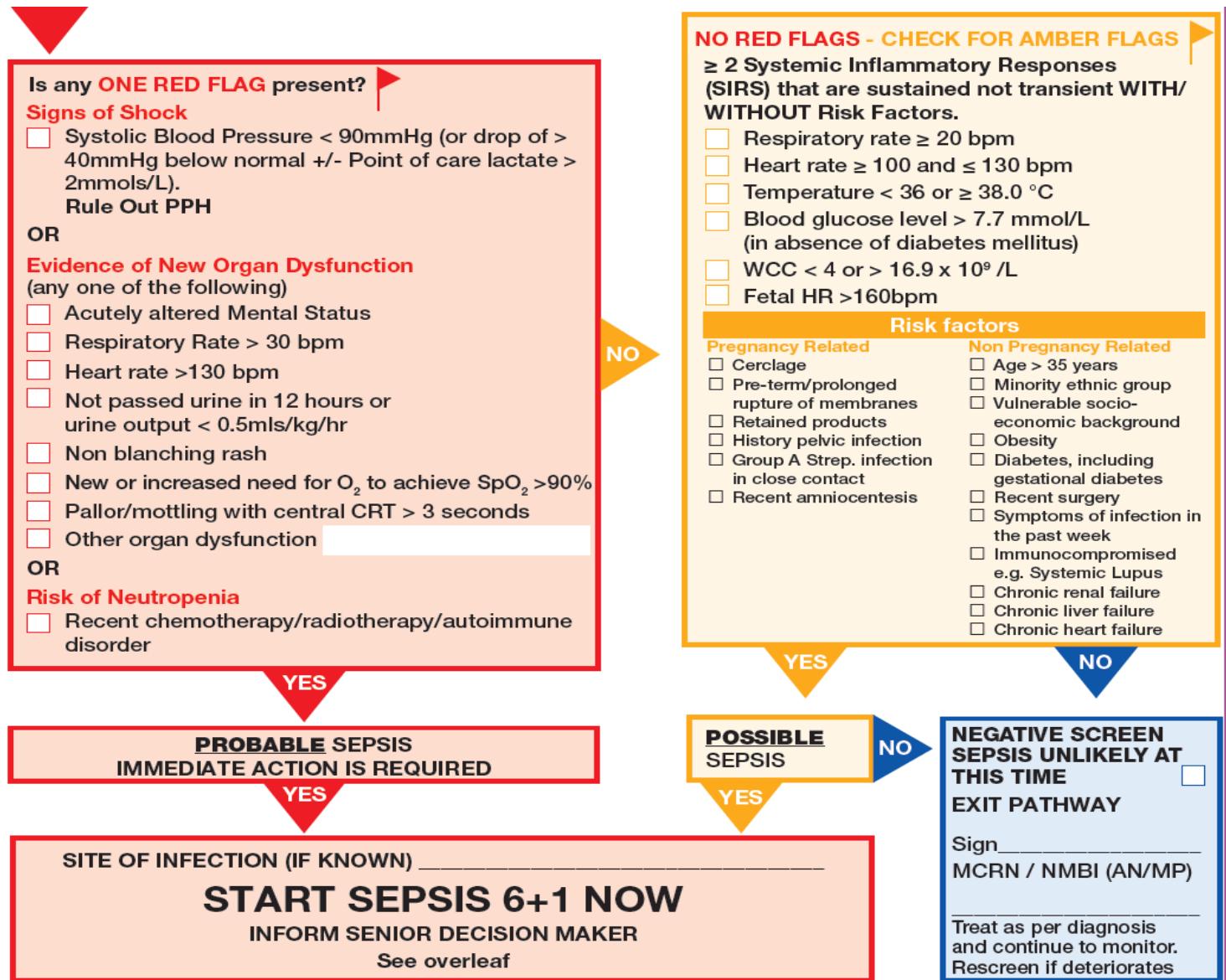
Topic 3

Sepsis screening and management.

Sepsis screening and High Risk Adult Groups



Sepsis screening and High Risk *Maternity* Groups



Amber flag:
≥ 2 SIRS
with or without
risk factors.

End Of Life Care Pathway

- If a patient has suspected infection with red or amber flags, it **may not** be clinically appropriate for the patient to have the **Sepsis 6 (or 6 + 1)** administered if an **End of Life Care Pathway** is in place. However this requires medical review and any agreed *ceilings of treatment* should be applied before the sepsis pathway is exited.

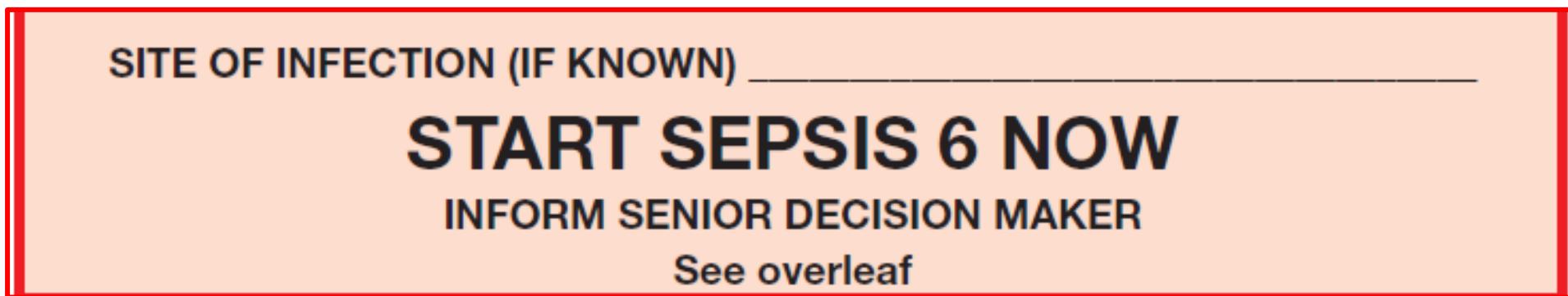
Is there an End-of-Life Pathway in place? Yes No Is escalation clinically appropriate? Yes No

If Sepsis 6 is not clinically appropriate, exit the sepsis pathway.

Doctor Signature _____ MCRN _____

Treatment: Escalation of Patient Care

- Effective teamwork and communications is critical to the clinical management of the patient with sepsis.
- If the patient has a suspected or confirmed infection with **Red Flags (probable sepsis)** or **Amber Flags (possible sepsis)** identified at sepsis screening, the **Sepsis 6 (or 6+ 1)** should be started immediately following medical review.



- A senior decision maker (registrar or consultant) should be informed of the patient's clinical status to update and agree the treatment plan.

Take 3 +1

TAKE 3	1 TAKE BLOOD CULTURES 2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay >45mins. If patient has CVAD, take line cultures at the same time. Other cultures as indicated by history and examination.	Time Taken: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/>
	2 TAKE BLOOD TESTS FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated > 2mmols/L, repeat lactate after sepsis 6 bundle to assess response.	Time Taken: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/>
	3 URINARY OUTPUT ASSESSMENT Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.	Time: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> Fluid balance chart commenced <input type="checkbox"/>
	+1 IF PREGNANT ASSESS FETAL WELLBEING	Time Completed: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> N/A <input type="checkbox"/>

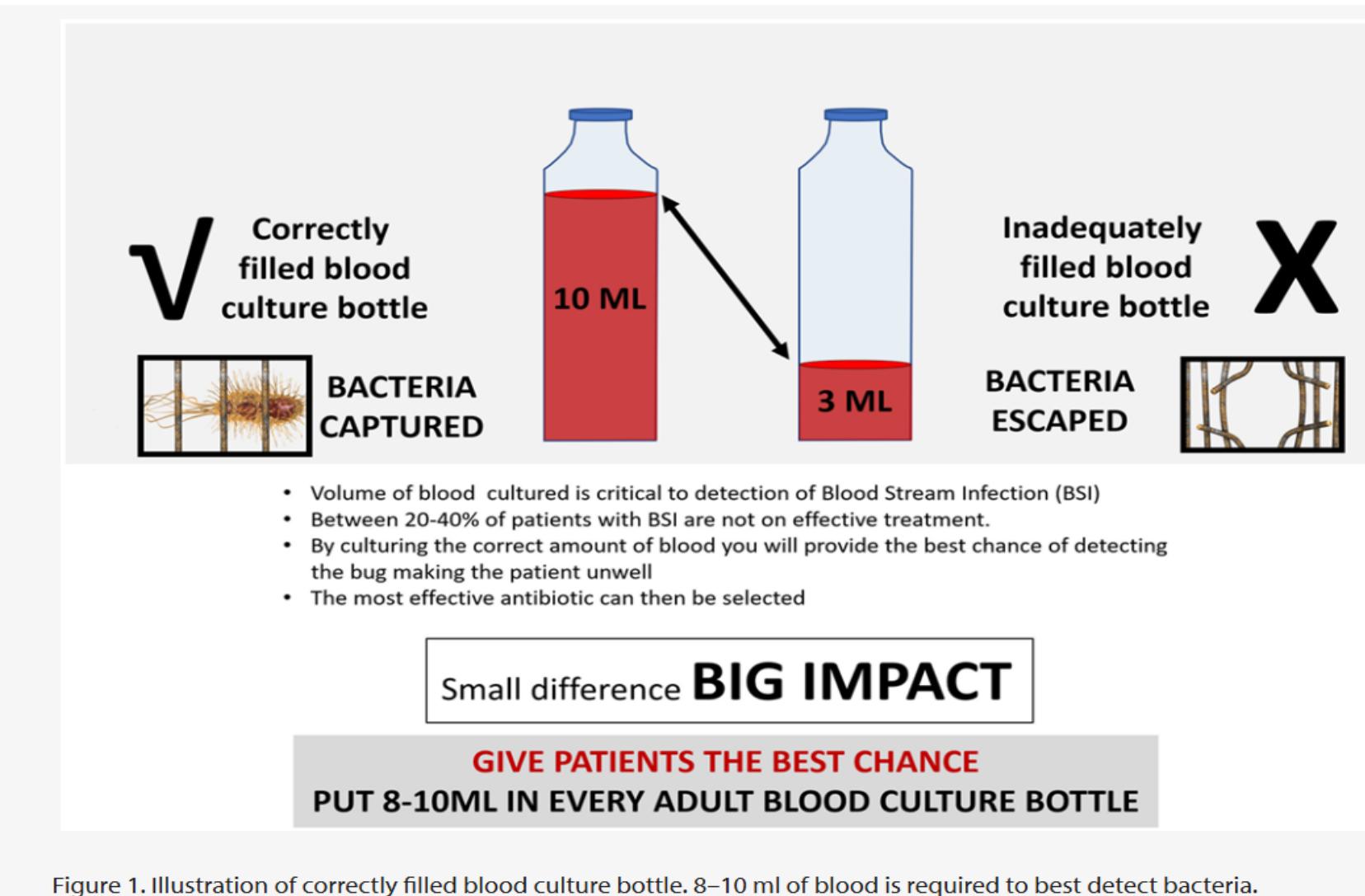
Fetal assessment:

Monitoring fetal wellbeing should not delay administering all other elements of the sepsis 6 bundle.

Resuscitation of the woman will resuscitate the unborn fetus.

N.B Source control should be carried out within 12 hours after diagnosis or clinical deterioration as required e.g. Removal of U/C, CVAD, PIVC, drainage of an abscess, removal of retained products if suspected source of infection

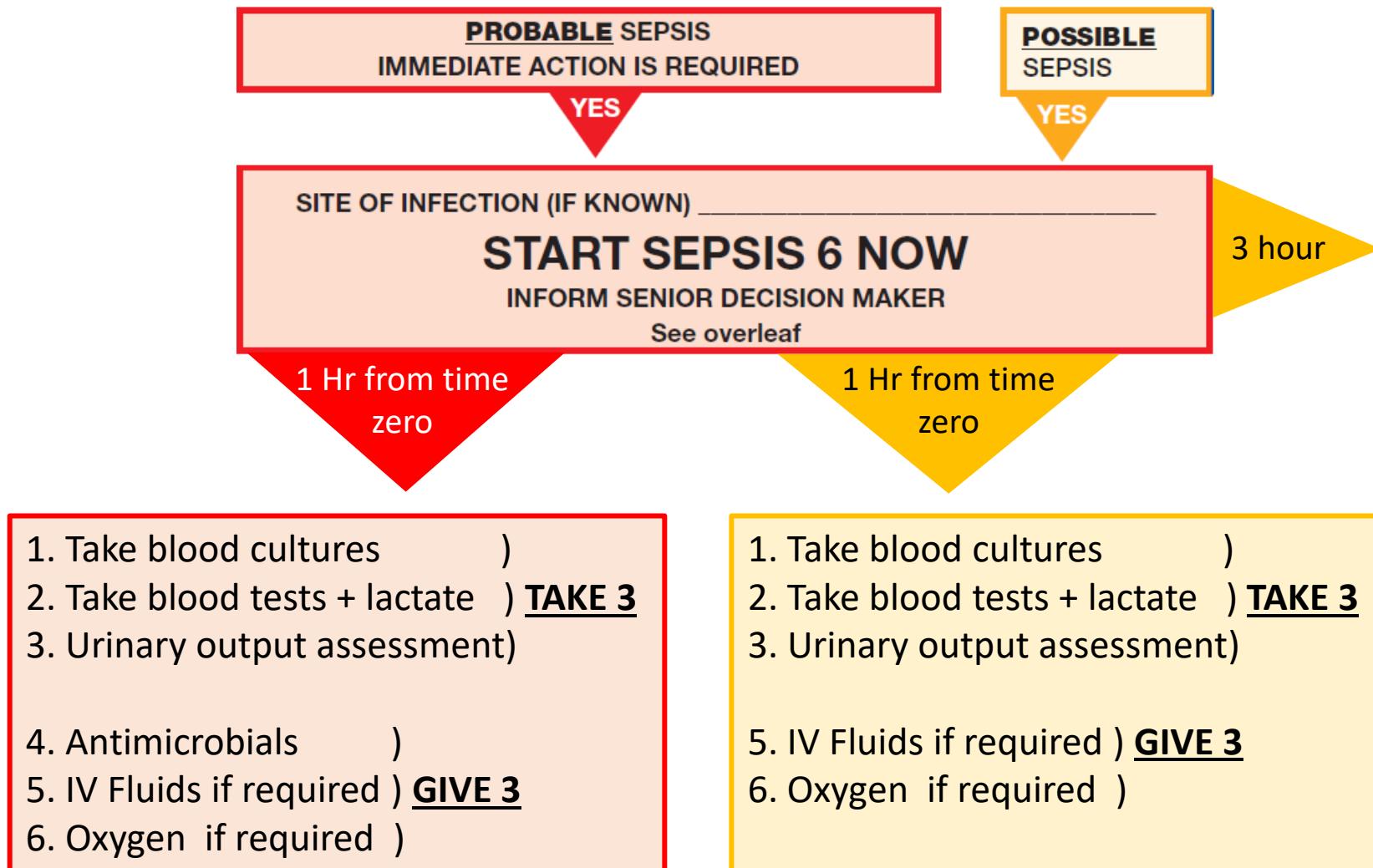
Blood cultures



Give 3

GIVE 3	<p>4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL. Consider Microbiology review</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Red Flags (PROBABLE SEPSIS)</p>  </td><td style="width: 50%; vertical-align: top;"> <p>Amber Flags (POSSIBLE SEPSIS)</p>  </td></tr> <tr> <td style="vertical-align: top;"> <p>IV Antimicrobials within 1 HOUR</p> </td><td style="vertical-align: top;"> <p>Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within 3 HOURS.</p> <p>Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactatemia etc.) administer antimicrobials immediately.</p> </td></tr> <tr> <td style="vertical-align: bottom;"> TIME GIVEN <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> </td><td style="vertical-align: bottom;"> TIME GIVEN <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> </td></tr> <tr> <td colspan="2" style="text-align: left; padding-top: 5px;"> <input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time </td></tr> </table>	<p>Red Flags (PROBABLE SEPSIS)</p> 	<p>Amber Flags (POSSIBLE SEPSIS)</p> 	<p>IV Antimicrobials within 1 HOUR</p>	<p>Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within 3 HOURS.</p> <p>Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactatemia etc.) administer antimicrobials immediately.</p>	TIME GIVEN <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/>	TIME GIVEN <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/>	<input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time	
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<p>5 GIVE IV FLUID BOLUS IF REQUIRED</p> <p>For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/ vasopressors, Reassess response to fluid resuscitation frequently. Refer to fluid resuscitation algorithm. Caution in pre-eclampsia.</p>									
<p>Time Given: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> or N/A <input type="checkbox"/></p>									
<p>6 GIVE OXYGEN IF REQUIRED</p> <p>Titrate supplementary oxygen to maintain oxygen saturations 94-96% (88-92% for patients with chronic lung disease).</p>									
<p>Time Given: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> or N/A <input type="checkbox"/></p>									

Sepsis 6 bundle timeframe



4. Antimicrobials:

3-hour window to determine infectious vs non-infectious in origin.

No evidence of infection –
anti-microbials are not required at this time.

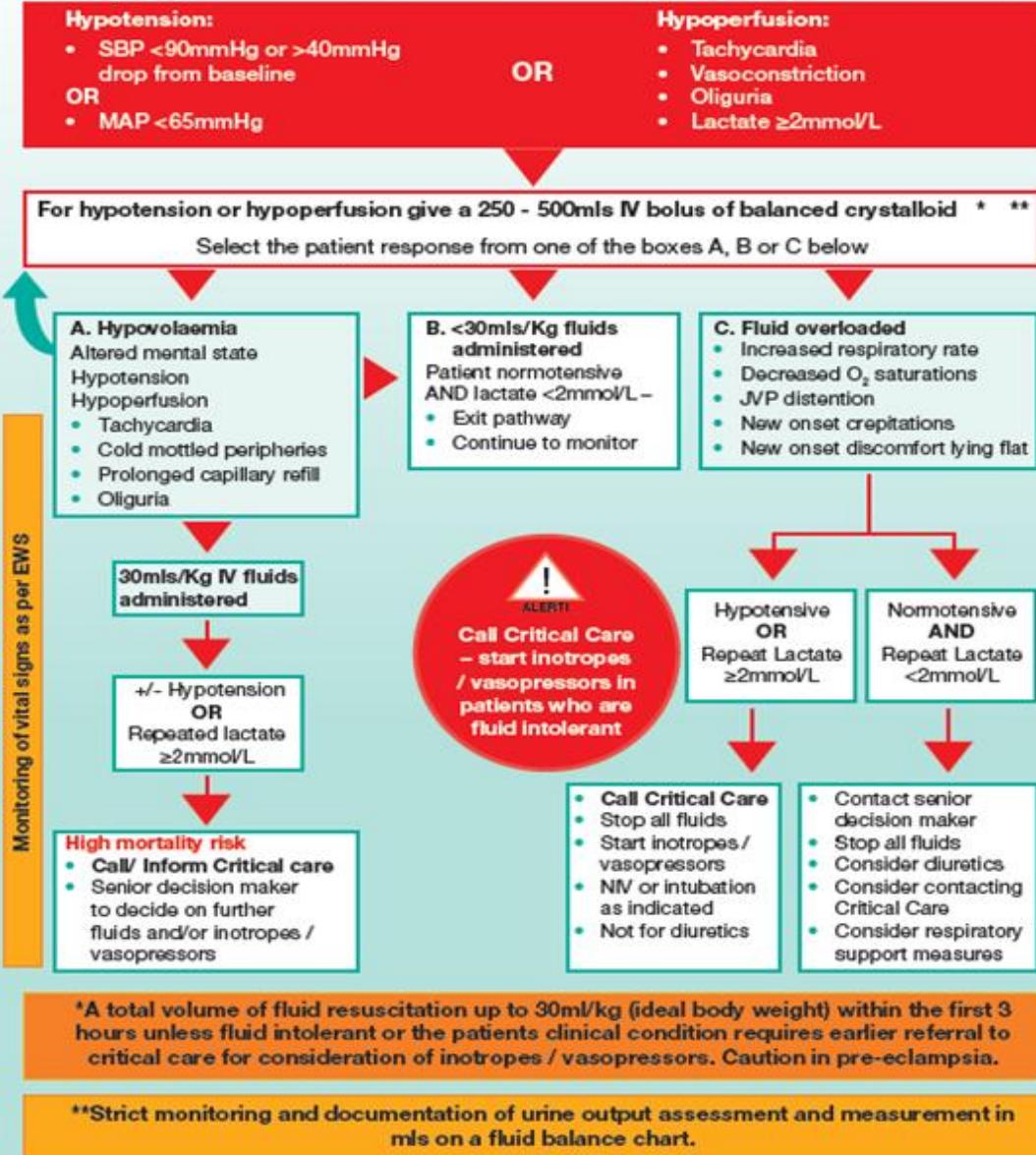
Evidence of infection only –
antimicrobials are given within 3 hours of time zero.

Evidence of infection AND organ dysfunction, antimicrobials ASAP.

N.B

Sepsis is a time-critical medical emergency

FLUID RESUSCITATION ALGORITHM FOR ADULTS (INCLUDING MATERNITY) WITH SEPSIS



Randomized Controlled Trial ➤ Am J Respir Crit Care Med. 2019 Dec 15;200(12):1487-1495.
doi: 10.1164/rccm.201903-0557OC.

Balanced Crystalloids versus Saline in Sepsis. A Secondary Analysis of the SMART Clinical Trial

Ryan M Brown ¹, Li Wang ², Taylor D Coston ³, Nathan I Krishnan ³, Jonathan D Casey ¹, Jonathan P Wanderer ^{4 5}, Jesse M Ehrenfeld ^{4 5 6 7}, Daniel W Byrne ², Joanna L Stollings ⁸, Edward D Siew ⁹, Gordon R Bernard ¹, Wesley H Self ¹⁰, Todd W Rice ¹, Matthew W Semler ¹

Randomized Controlled Trial ➤ N Engl J Med. 2018 Mar 1;378(9):829-839.
doi: 10.1056/NEJMoa1711584. Epub 2018 Feb 27.

Balanced Crystalloids versus Saline in Critically Ill Adults

Matthew W Semler ¹, Wesley H Self ¹, Jonathan P Wanderer ¹, Jesse M Ehrenfeld ¹, Li Wang ¹, Daniel W Byrne ¹, Joanna L Stollings ¹, Avinash B Kumar ¹, Christopher G Hughes ¹, Antonio Hernandez ¹, Oscar D Guillamondegui ¹, Addison K May ¹, Liza Weavind ¹, Jonathan D Casey ¹, Edward D Siew ¹, Andrew D Shaw ¹, Gordon R Bernard ¹, Todd W Rice ¹; SMART Investigators and the Pragmatic Critical Care Research Group

Ongoing Review

Reassess vital signs at least every 30 minutes.

IF CONDITION WORSENING / NOT IMPROVING, ESCALATE TO CONSULTANT.
Consider SEPTIC SHOCK if MAP less than 65mmHg DESPITE FLUID RESUSCITATION
and escalate to critical care.

Sepsis UNLIKELY at this time, treat as per working diagnosis, continue to monitor. Rescreen if deteriorates
 This is likely to be SEPSIS at this time
 Senior Clinician informed

Signature _____ **MCRN / NMBI (ANP)** _____

Print _____ **Date:** ____ / ____ / ____ **Time** ____ : ____ : ____

Consider transfer to higher level of care (internal or external)

Other specialist involvement may also be needed, such as consultant microbiology, intensivist, anaesthetiologist or interventional radiologist

Clinical diagnosis of sepsis and septic shock

Sepsis diagnosis is confirmed when there is evidence of new onset organ dysfunction as a result of infection i.e ≥ 1 listed below.

Lactate ≥ 2 mmol/L after 30mls/kg intravenous fluids
Cardiovascular – Systolic BP <90 mmHg or mean arterial pressure (MAP) <65 mmHg or systolic BP more than 40mmHg below patients normal despite adequate fluid resuscitation
Respiratory – New or increased need for oxygen to achieve saturation $>90\%$ (note this is a definition not the target)
Renal - Creatinine >170 micro mol/L or Urine output <0.5 ml/kg for 2 hours – despite adequate fluid resuscitation
Renal – Creatinine >170 micromol/L or Urine output <500 mls/24hrs – despite adequate fluid resuscitation
Liver – Bilirubin >32 micro mol/L
Haematological – Platelets $<100 \times 10^9$ /L
Central Nervous System – Acutely altered mental status

Septic shock diagnosis is confirmed when the patient requires vasopressors to maintain a mean arterial pressure (MAP) ≥ 65 mmHg and a serum lactate > 2 mmol/Ls despite adequate fluid resuscitation.

Alternatively, as per the Third International Consensus Definitions for Sepsis and Septic Shock (Singer et al. 2016), an increase in the Sequential Organ Failure Assessment (SOFA) score of 2 points or more above baseline represents organ dysfunction when in response to infection.

Documentation of Sepsis in the Clinical Notes

Documenting the diagnosis of sepsis

- Use of the sepsis screening form will signpost HIPE coders to look for a diagnosis of sepsis in the medical notes. ***Completion of a sepsis form does not infer a sepsis diagnosis.***
- Document the diagnosis of sepsis in the clinical notes when blood tests, investigations and clinical data are reviewed.

Example:

	UTI and sepsis / septic shock		Urosepsis
	Respiratory infection and sepsis / septic shock		Respiratory / Resp sepsis
	Biliary infection / cholecystitis and sepsis / septic shock		Biliary / Bil sepsis
	Endometritis with sepsis		Uterine sepsis

Clinical documentation impact on HIPE coding & Activity Based Funding (ABF)

Example: Patient admitted with acute LRTI and respiratory sepsis

Where clinical notes do not support any further specificity, code assignment is:

Principal Dx:

J22 Unspecified acute lower respiratory infection

DRG: E75B *Other respiratory system diseases, minor complexity*
ABF Price: €3,515

Where clinical notes support a clear diagnosis of sepsis due to acute LRTI, code assignment is:

Principal Dx:

J22 Unspecified acute lower respiratory infection

Additional Diagnosis:

A41.9 Sepsis, unspecified

DRG: E75A *Other respiratory system diseases, major complexity*
ABF Price: €8,242

Example: Adult patient admitted with cellulitis of lower leg, sepsis is not clearly documented and the sepsis form is not completed.

Where clinical notes do not support any further specificity, code assignment is:

Principal Dx:

L03.13 Cellulitis of lower limb

DRG: J64B *Cellulitis, minor complexity*
ABF Price: €3,762

Where clinical notes support a clear diagnosis of sepsis with cellulitis of lower limb, code assignment is:

Principal Dx:

L03.13 Cellulitis of lower limb

Additional Diagnosis:

A41.9 Sepsis, unspecified

DRG: J46A *Cellulitis, major complexity*
ABF Price: €8,242



Topic 4

Ongoing Review and
Management.



Daily Review

Daily review should include:

- ✓ Checking patient's response to treatment
- ✓ Inform the patient of their diagnosis
- ✓ Antimicrobial therapy review within 24-48 hours – Start SMART stay FOCUSED
- ✓ All results of tests and investigations reviewed
- ✓ Consult Microbiology and Antimicrobial Pharmacist
 - Stop / Change antimicrobials
 - Narrower spectrum antibiotic if possible
 - Switch IV to oral
- ✓ Source control should be carried out within 12 hours after diagnosis or clinical deterioration as required

Discharge Advice

It is very important that there is good communication with the patient and family to keep them informed of their sepsis diagnosis throughout the entire episode of care.

On discharge include

- Sepsis diagnosis on the GP discharge letter
- Ensure the patient is aware of the signs and symptoms of infection and advise them to attend their GP or return to the ED if they become unwell.





Topic 5

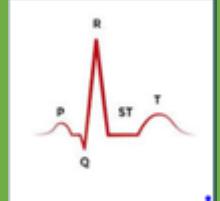
Sepsis in Practice.

Scenario 1



Scenario 1 – Emergency Department

- Niamh is a 40 year old female who self presented to the ED with a 24 hours history of a right swollen and painful lower leg and has a visible wound on her right ankle.
- Niamh has a medical history of Type 2 diabetes and has a high BMI.
- She reports pain which is radiating from her foot to her calf.
- Niamh was triaged as a MTS Cat 3 at 12.30 and awaits review by ED SHO

			ACVPU		Emergency Medicine Early Warning System (EMEWS)	Other	Triage
 Resp 20rpm O2 Sats 96%on RA	 HR 88 bpm	 BP 123/65mmHg CRT 2 seconds	Alert	 37.5°C	2 Yellows	Pain Score 6 BSL- 10.2 mmol/L	Cat 3 Triage Completed at 12.30.

Rosa (SN) is caring for Niamh and receives her into a cubicle near the nurses' station.

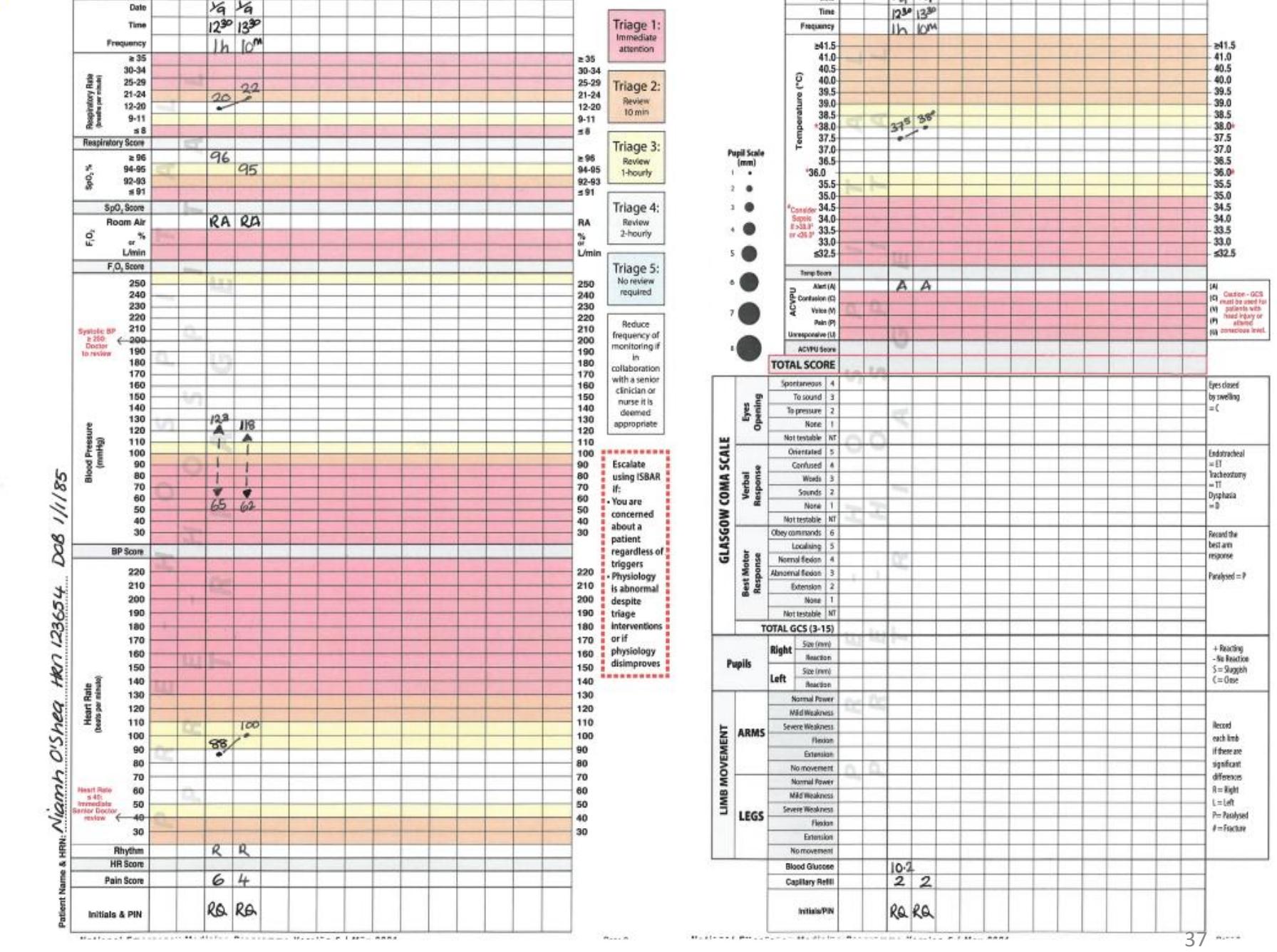
At 13.30, Rosa notices that Niamh is pale, lethargic and looks sick. She is clinically concerned. She records vital signs on the EMEWS chart (see trends)

RR - 22 breaths per min
 SpO₂ - 95% in room air
 BP – 118/62
 HR – 100 beats per min
 Temp - 38°C
 ACVPU - A

EMEWS score = 2 yellow and 1 orange

Q 1: Does Niamh have triggers for sepsis?

Q: What are the next steps Rosa should take?



Recognition and Escalation

**ACUTE HOSPITALS ONLY
(NON MATERNITY) ≥16 YRS**

SEPSIS SCREENING TOOL FOR ADULTS
THIS FORM DOES NOT REPLACE CLINICAL JUDGEMENT

Any Healthcare Professional (HCP) should start this tool if **CONFIRMED** or **SUSPECTED INFECTION** present PLUS presence of ≥ 1 of the triggers listed below

Patient looks sick Patient/Family/Carer/Clinician Concern
 Emergency Dept. Manchester Triage Category 2 GP/ Ambulance personnel queries sepsis
 Elevated EMEWS or INEWS (INEWS ≥ 4 or ≥ 5 if on O₂) **Score: 2 yellows, 1 orange**

YES *Time Zero: **13:30** Name **Rosa Quinn** Grade **S/N**
 *When the patient 1st triggers for sepsis screen NMBI/MCRN **12345** DATE: **1/9/25**

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Is any ONE RED FLAG present? 

Signs of Shock

Systolic Blood Pressure < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmols/L)

OR

Risk of Neutropenia

Recent chemotherapy/radiotherapy

OR

Evidence of New Organ Dysfunction (any one of the following)

New Acutely altered Mental Status

Respiratory Rate > 30 bpm

Heart rate > 130 bpm

Not passed urine in 12 hours or urine output < 0.5mls/kg/hr

Non blanching rash

New or Increased need for O₂ to achieve SpO₂ >90%

Pallor/mottling with central CRT > 3 seconds

Other organ dysfunction

NO

**PROBABLE SEPSIS
IMMEDIATE ACTION IS REQUIRED**

YES

POSSIBLE SEPSIS

NO

**NEGATIVE SCREEN
SEPSIS UNLIKELY AT
THIS TIME**

EXIT PATHWAY

SITE OF INFECTION (IF KNOWN)

START SEPSIS 6 NOW
INFORM SENIOR DECISION MAKER
See overleaf

Is there an End-of-Life Pathway in place? Yes No Is escalation clinically appropriate? Yes No
 If Sepsis 6 is not clinically appropriate, exit the sepsis pathway.

Doctor Signature _____ MCRN _____

Niamh O'Shea
HEN 123654
Addressograph
DOB 1/1/85

Medical Review

Q3: On Medical Review, what are the recommended next steps that should be taken by Dr Smyth?

ACUTE HOSPITALS ONLY (NON MATERNITY) ≥16 YRS

Niamh O'Shea
Hn 123654
Dob 11/1/85 Addressograph

SEPSIS SCREENING TOOL FOR ADULTS
THIS FORM DOES NOT REPLACE CLINICAL JUDGEMENT

Any Healthcare Professional (HCP) should start this tool if CONFIRMED or SUSPECTED INFECTION present PLUS presence of ≥1 of the triggers listed below

Patient looks sick Patient/Family/Carer/Clinician Concern
 Emergency Dept. Manchester Triage Category 2 GP/ Ambulance personnel queries sepsis
 Elevated EMEWS or INEWS (INEWS ≥ 4 or ≥ 5 if on O₂) Score: 2 yellow, 1 orange

Time Zero: 13:30 Name: Rosa Quinn Grade: SIN
When the patient 1st triggers for sepsis screen NMBI/MCRN: 12345 DATE: 1/9/85

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Is any ONE RED FLAG present? Signs of Shock
 Systolic Blood Pressure < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmols/L)
OR
 Risk of Neutropenia
 Recent chemotherapy/radiotherapy
OR
 Evidence of New Organ Dysfunction (any one of the following)
 New Acutely altered Mental Status
 Respiratory Rate > 30 bpm
 Heart rate > 130 bpm
 Not passed urine in 12 hours or urine output < 0.5mls/kg/hr
 Non blanching rash
 New or increased need for O₂ to achieve SpO₂ >90%
 Pallor/mottling with central CRT > 3 seconds
 Other organ dysfunction

NO RED FLAGS - CHECK FOR AMBER FLAGS
≥ 2 Systemic Inflammatory Responses (SIRS) that are sustained PLUS ≥ 1 Comorbidity.
SIRS (check for 2 or more listed below)
 Respiratory rate ≥ 20 bpm
 Heart rate 91–130 bpm
 Temperature < 36 or > 38.3 °C
 Blood glucose level > 7.7 mmol/l (in absence of diabetes mellitus)
 WCC < 4 or > 12 × 10⁹ /L
AND
≥ 1 Comorbidity (listed below)
 Aged ≥ 75 years
 Frailty
 Diabetes Mellitus
 COPD
 Cancer
 Chronic Renal Disease
 Chronic Liver Disease
 Recent Surgery /Trauma (past 6 weeks)
 Immunosuppression (due to medication or disease)

PROBABLE SEPSIS
IMMEDIATE ACTION IS REQUIRED
YES
Site of Infection (if known) Leg wound
START SEPSIS 6 NOW
INFORM SENIOR DECISION MAKER
See overleaf

POSSIBLE SEPSIS
YES
NEGATIVE SCREEN SEPSIS UNLIKELY AT THIS TIME
NO
EXIT PATHWAY
Sign _____
MCRN / NMBI (ANP)
Treat as per diagnosis and continue to monitor. Rescreen if deteriorates

Is there an End-of-Life Pathway in place? Yes No Is escalation clinically appropriate? Yes No
If Sepsis 6 is not clinically appropriate, exit the sepsis pathway.
Doctor Signature: Dr. Melissa Smyth MCRN 55555

What differential diagnosis could be considered?

Suspected infection (right lower leg wound, swollen and red) and amber flag on sepsis screening (2 SIRS and a comorbidity).

Possible cellulitis and sepsis.

Differential DX:

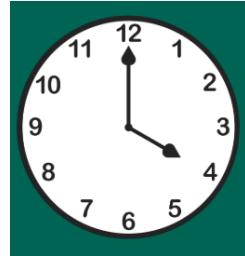
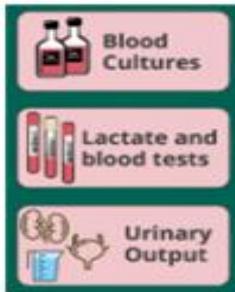
- Deep Vein Thrombosis (DVT)
- DVT assessment: d dimer bloods, measure calves
- Arrange a Doppler ultrasound

Treatment and Diagnosis

What elements of the Sepsis 6 should be administered immediately?

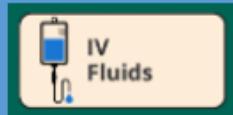


Take 3



Dr Smyth reviews the Point of Care (POC) lactate 2.3 mmol/L
Dr Smyth prescribes a fluid bolus
and S/N Rosa administers 1st
500mL bolus of balanced
crystalloid **-14.10pm**

Give 3



Blood test results including repeat lactate

Blood Tests & Investigations (2 hours from Time zero)

WBC	$17 \times 10^9/L$
Neutrophils	$7.8 \times 10^9/L$
Platelets	$68 \times 10^9/L$
Creatinine	$78 \mu\text{mol/L}$
Bilirubin	$6 \mu\text{mol/L}$
INR	1.2 APPT 14secs
D Dimer	<500ng/mL – fibrinogen
Urine output	85mls
Lactate (repeat)	2.1

Vital signs

Patient Name & HN: **Niamh O'Shea** HN: 123454 DOB: 1/1/85.

Date	1g						
Time	12 ⁰⁰	13 ⁰⁰	14 ⁰⁰	14 ³⁰	15 ⁰⁰	15 ³⁰	16 ⁰⁰
Frequency	1hr	10m	30m	30m	30m	30m	1hr
Respiratory Rate (breaths per minute)	≥ 35	30-34	25-29	21-24	12-20	9-11	≤ 8
Respiratory Score	96	95	95	95	96	96	
SpO ₂ %	≥ 96	94-95	92-93	92-93	91		
SpO ₂ Score	RA						
F _{O₂}	Room Air	RA	RA	RA	RA	RA	RA
F _{O₂} Score	250	240	230	220	210	200	190
Systolic BP (mmHg)	123	116	100	102	110	111	114
Blood Pressure (mmHg)	65	62	57	55	56	57	62
BP Score	220	210	200	190	180	170	160
Heart Rate (beats per minute)	85	100	105	103	100	94	92
Heart Rate in 45s: Immediate Senior Doctor review	85	100	105	103	100	94	92
Rhythm	R	R	R	R	R	R	R
HR Score	6	4	4	4	3	3	3
Pain Score	RQ						
Initials & PIN							

Triage 1: Immediate attention

Triage 2: Review 10 min

Triage 3: Review 1-hourly

Triage 4: Review 2-hourly

Triage 5: No review required

Reduce frequency of monitoring if in collaboration with a senior clinician or nurse it is deemed appropriate

Escalate using ISBAR if:

- You are concerned about a patient regardless of triggers
- Physiology is abnormal despite triage interventions or if physiology deteriorates

Pupil Scale (mm)

- 1 •
- 2 ••
- 3 •••
- 4 ••••
- 5 •••••
- 6 ••••••
- 7 •••••••
- 8 ••••••••

***Consider Slopas 1-3.0° or 30.0°**

Temperature (°C)

Temp Score

AVPU

- Alert (A)
- Comatose (C)
- Voice (V)
- Pain (P)
- Unresponsive (U)

AVPU Score

TOTAL SCORE

	Eyes Opening	Verbal Response	Best Motor Response
Spontaneous	4	4	6
To sound	3	3	5
To pressure	2	2	4
None	1	1	3
Not testable	NT	NT	NT
Orientated	5	5	6
Confused	4	4	5
Words	3	3	4
Sounds	2	2	3
None	1	1	2
Not testable	NT	NT	NT
Obey commands	6	6	7
Localising	5	5	6
Normal flexion	4	4	5
Abnormal flexion	3	3	4
Extension	2	2	3
None	1	1	2
Not testable	NT	NT	NT

GLASGOW COMA SCALE

TOTAL GCS (3-15)

Pupils

Right	Size (mm)	Reaction
Left	Size (mm)	Reaction
Normal	Normal	Normal
Mild Weakness	Mild	Weakness
Severe Weakness	Severe	Weakness
Flexion	Flexion	Flexion
Extension	Extension	Extension
No movement	No	movement

ARMS

LEGS

Blood Glucose

Capillary Refill

Initials/PIN

Temperature (°C)

Frequency

Time

1g **1g** **1g** **1g** **1g** **1g** **1g**

12⁰⁰ **13⁰⁰** **14⁰⁰** **14³⁰** **15⁰⁰** **15³⁰** **16⁰⁰**

1hr **10m** **30m** **30m** **30m** **30m** **1hr**

41.5 **41.0** **40.5** **40.0** **39.5** **39.0** **38.5** **38.0** **37.5** **37.0** **36.5** **36.0** **35.5** **35.0** **34.5** **34.0** **33.5** **33.0** **32.5**

(A) Caution - GCS score of 13-15 in patients with head injury or altered consciousness level.

Eyes closed by swelling = C

Endotracheal = ET

Tracheostomy = TT

Dysphasia = D

Record the best arm response

Paralysed = P

+ Reacting - No Reaction S = Sluggish C = Close

Record each limb if there are significant differences R = Right L = Left P = Paralysed # = Fracture

01/09/2025

FLUID BALANCE CHART

Ward: ED

Weight: 92kg

Name: Niamh O'Shea
HCRN: 42512
DOB: 1/01/1985

FLUID BALANCE CHART										
Intake				Output						
Time	Oral Fluid	Parental Feed	Ph Aspirate	IV/SC Therapy		Urine	Vomit Aspirate	Drains	Diarrhoea ileostomy colostomy	Cumulative Total
08:00										
09:00										
10:00										
11:00										
12:00										
13:00										
14:00		Hartmanns				0				
15:00		500				120				
16:00	IV Abx with 100mls NaCl									
17:00										
18:00										
19:00										

**SEPSIS TREATMENT PROTOCOL FOR ADULTS
(NON MATERNITY) ≥16 YRS
SEPSIS 6 BUNDLE
- COMPLETE WITHIN 1 HOUR**

1 TAKE BLOOD CULTURES
2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay >45mins. If patient has CVAD, take line cultures at the same time. Other cultures as indicated by history and examination.

2 TAKE BLOOD TESTS
FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated > 2mmol/L, repeat lactate after sepsis 6 bundle to assess response.

3 URINARY OUTPUT ASSESSMENT
Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.

**4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL.
Consider Microbiology review**

Red Flags (PROBABLE SEPSIS)  **Amber Flags (POSSIBLE SEPSIS)** 

IV Antimicrobials within **1 HOUR**
Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within **3 HOURS**.
Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactatemia etc.) administer antimicrobials immediately.

TIME GIVEN **TIME GIVEN** **16:00**

Patient already on appropriate antimicrobials
 This patient does not require antimicrobials at this time

5 GIVE IV FLUID BOLUS IF REQUIRED
For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/vasopressors. Reassess response to fluid resuscitation frequently.
Refer to fluid resuscitation algorithm.

6 GIVE OXYGEN IF REQUIRED
Titrate supplementary oxygen to maintain oxygen saturations 94-96% (88-92% for patients with chronic lung disease).

Time Given: **Time Given:**
or
N/A

Reassess vital signs at least every 30 minutes.
IF CONDITION WORSENING / NOT IMPROVING, ESCALATE TO CONSULTANT.
Consider **SEPTIC SHOCK** if MAP less than 65mmHg DESPITE FLUID RESUSCITATION and escalate to critical care.

Sepsis UNLIKELY at this time, treat as per working diagnosis, continue to monitor. Rescreen if deteriorates
 This is likely to be SEPSIS at this time
 Senior Clinician informed

Signature Dr M. Smyth **MCRN / NMBI (ANP)** 555 55
Print Dr Melissa Smyth **Date:** 01/09/25 **Time:** 16:00

Modern Printers 056 7721739 **V1 04/2025**

Sepsis diagnosis

Lactate ≥ 2 mmol/L after 30mls/kg intravenous fluids

Cardiovascular – Systolic BP <90 mmHg or mean arterial pressure (MAP) <65 mmHg or systolic BP more than 40mmHg below patients normal despite adequate fluid resuscitation

Respiratory – New or increased need for oxygen to achieve saturation $>90\%$ (note this is a definition not the target)

Renal - Creatinine >170 micro mol/L or Urine output <0.5 ml/kg for 2 hours – despite adequate fluid resuscitation

Renal – Creatinine >170 micromol/L or Urine output <500 mls/24hrs – despite adequate fluid resuscitation

Liver – Bilirubin >32 micro mol/l

Haematological – Platelets $<100 \times 10^9$ /L

Central Nervous System – Acutely altered mental status

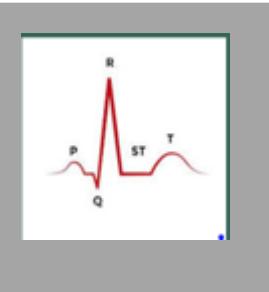


Sepsis in Practice.

Scenario 2

Scenario 2

- Tom is 65 years old and has a history of chronic lymphocytic leukaemia. He last received chemotherapy 10 days ago.
- 24 hours ago he was admitted to the orthopaedic ward following a fall at home where he fractured the neck of his left femur.
- He is awaiting surgery for repair. Tom has an implanted port in situ. He has no other medical conditions or co-morbidities. Tom's last recorded weight was 70 kg.

						
			ACVPU		INNEWS Total score	Other
Resp 16 rpm O2 Sats 98 %on RA	HR 80 bpm	BP 125/55 mmHg CRT 2 seconds	Alert	36.5°C	0	Pain Score 2

Sepsis Case 2 - Recognition

15:00



- Tom's wife reports that she is concerned for Tom as he has developed a new cough and is breathing faster than previously.
- SN Aoife assesses Tom, she is also clinically concerned that he looks unwell and documents her findings. **Repeat INEWS = 2**
- RR – 24 (2)
- SpO₂ - 96% in room air
- HR -89 beats per min
- BP – 111/52
- ACVPU – A
- Temp – 36.7°C
- Pain score increased to 4

Scoring Key:

Score	1	2	3	4	5	6	7	8
Respiratory Rate (breaths per minute)	< 11	11-15	16-20	21-25	26-30	31-35	36-40	> 40
Peripheral Oxygen Saturation (SpO ₂ %)	≥ 96	94-95	92-93	90-91	88-89	86-87	84-85	< 84
Room Air or Supplementary O ₂ (SpO ₂ %)	0	0	0	0	0	0	0	0
BP (mmHg)	180	170	150	130	120	110	100	90
Heart Rate (bpm)	180	170	150	130	120	110	100	90
SpO ₂ (Score)	0	0	0	0	0	0	0	0
BP (Score)	0	0	0	0	0	0	0	0
HR (Score)	0	0	0	0	0	0	0	0
ACVPU (Score)	0	0	0	0	0	0	0	0
Temperature (Score)	0	0	0	0	0	0	0	0
Consider Sepsis? (Score)	0	1	2	3	4	5	6	7

Scoring Sheet:

Patient Name: Tom O'Dowd
Date of Birth: 21/9/1960
Healthcare Record No: 42512
Addressograph:

Consultant: Mr. Bone

Year: 2025 **Ward:** Ortho 1

AB (Airway & Breathing): Respiratory Rate (breaths per minute) = 24, Assess for 60 seconds. Respiratory Score = 2 (1 point for each 2 breaths above 20).

C (Circulation): Heart Rate (bpm) = 89, Check pulse manually to ascertain rate, rhythm, quality. Heart Rate Score = 0 (0 points for a rate between 60-100 bpm).

D (Disability): Alert (A), New onset confusion, Impaired status (C), Voice (V), Pain (P), Unresponsive (U). ACVPU Score = 0 (0 points for all categories).

E (Exposure): Temperature (°C) = 36.7, Record as oral, rectal and axillary. Temperature Score = 0 (0 points for a temperature between 36.0-37.5°C).

Consider Sepsis? INEWS Score = 2 (or ≥ 5 on 0).

Notify Doctor If urine output is < 0.5 mL/kg/hr.

Resuscite within (Max. 1hr): Blood Glucose = 95, Pain Score = 2, Level of Consciousness = 4. **INEWS Score = 2**

Student/HCA Initials: AP AC

Q1. Does Tom warrant screening for sepsis?

Q2. What sepsis triggers (if any) are present based on Aoife's assessment?

Q3. What should Aoife do next?

Escalation



HE 

ACUTE HOSPITALS ONLY
(NON MATERNITY) ≥16 YRS

*Tom O'Dowd
Hn 42512
Dob 21/9/1960*
Addressograph

SEPSIS SCREENING TOOL FOR ADULTS
THIS FORM DOES NOT REPLACE CLINICAL JUDGEMENT

Any Healthcare Professional (HCP) should start this tool if **CONFIRMED** or **SUSPECTED** INFECTION present PLUS presence of ≥1 of the triggers listed below

Patient looks sick Patient/Family/Carer/Clinician Concern GP/ Ambulance personnel queries sepsis

Emergency Dept. Manchester Triage Category 2 Elevated EMEWS or INNEWS (INNEWS ≥ 4 or ≥5 if on O₂) Score:

YES *Time Zero: **15:00** Name *Aoife Fitzgerald* Grade *SIN*
*When the patient 1st triggers for sepsis screen NMBI/MCRN *22244* DATE *01/09/25*

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Is any ONE RED FLAG present? Signs of Shock: Systolic Blood Pressure < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmol/L) OR Risk of Neutropenia: Recent chemotherapy/radiotherapy OR Evidence of New Organ Dysfunction: (any one of the following): New Acutely altered Mental Status, Respiratory Rate > 30 bpm, Heart rate > 130 bpm, Not passed urine in 12 hours or urine output < 0.5mls/kg/hr, Non brachial rash, New or increased need for O₂ to achieve SpO₂ >90%, Pallor/mottling with central CRT > 3 seconds Other organ dysfunction

NO RED FLAGS - CHECK FOR AMBER FLAGS ≥ 2 Systemic Inflammatory Responses (SIRS) that are sustained PLUS ≥ 1 Comorbidity. SIRS (check for 2 or more listed below): Respiratory rate ≥ 20 bpm, Heart rate 91- 130 bpm, Temperature < 36 or > 38.3 °C, Blood glucose level > 7.7 mmol/L (in absence of diabetes mellitus), WCC < 4 or > 12 × 10⁹/L AND ≥ 1 Comorbidity (listed below): Aged ≥ 75 years, Frailty, Diabetes Mellitus, COPD, Cancer, Chronic Renal Disease, Chronic Liver Disease, Recent Surgery /Trauma (past 6 weeks), Immunosuppression (due to medication or disease)

PROBABLE SEPSIS IMMEDIATE ACTION IS REQUIRED
YES → SITE OF INFECTION (IF KNOWN) _____
START SEPSIS 6 NOW
INFORM SENIOR DECISION MAKER
See overleaf

POSSIBLE SEPSIS YES → NO → **NEGATIVE SCREEN** SEPSIS UNLIKELY AT THIS TIME
EXIT PATHWAY
Sign _____
MCRN / NMBI (ANP) _____
Treat as per diagnosis and continue to monitor. Rescreen if deteriorates

Is there an End-of-Life Pathway in place? Yes No Is escalation clinically appropriate? Yes No
If Sepsis 6 is not clinically appropriate, exit the sepsis pathway.
Doctor Signature _____ MCRN _____

ISBAR Communication Tool

I	"Hello, this is Nurse Fitzgerald on the Orthopaedic Ward. Is that Dr Molloy, the Orthopaedic SHO? I'm calling you about Tom O'Dowd in Bed 4." I'm concerned
S	"His INNEWS score is 2. Respirations are 24/min. SpO ₂ is 96% on room air, BP 111/55, heart rate 89, temperature 36.7°C. He is very pale and lethargic and has developed a cough with green sputum. "
B	"He has a history of leukaemia and is 10 days post chemotherapy. He was admitted yesterday with a fractured neck of femur and is awaiting surgery."
A	"His respiratory rate has increased to 24/min from 16/min 4hrs ago. He has developed a cough with greenish sputum and is feeling very lethargic. I think there is a possibility that he may have sepsis. I have started the sepsis form." 1 red flag
R	"Can you please review him immediately to assess for sepsis?" Time zero is 15.00 hrs

Medical Review and Treatment



**ACUTE HOSPITALS ONLY
(NON MATERNITY) ≥16 YRS**

SEPSIS SCREENING TOOL FOR ADULTS
THIS FORM DOES NOT REPLACE CLINICAL JUDGEMENT

Any Healthcare Professional (HCP) should start this tool if **CONFIRMED** or **SUSPECTED** INFECTION present PLUS presence of ≥1 of the triggers listed below

<input checked="" type="checkbox"/> Patient looks sick	<input type="checkbox"/> Patient/Family/Carer/Clinician Concern
<input checked="" type="checkbox"/> Emergency Dept, Manchester Triage Category 2	<input type="checkbox"/> GP/ Ambulance personnel queries sepsis
<input checked="" type="checkbox"/> Elevated EMEWS or INews (INews ≥ 4 or ≥ 5 if on O ₂)	Score:

YES *Time Zero: **15:00** Name **Aoife Fitzgerald** Grade **SIN**
*When the patient 1st triggers for sepsis screen NMBI/MCRN **222444** DATE: **01/09/25**

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Is any ONE RED FLAG present?

Signs of Shock

- Systolic Blood Pressure < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmols/L)

OR

Risk of Neutropenia

- Recent chemotherapy/radiotherapy

OR

Evidence of New Organ Dysfunction (any one of the following)

- New Acutely altered Mental Status
- Respiratory Rate > 30 bpm
- Heart rate > 130 bpm
- Not passed urine in 12 hours or urine output < 0.5mls/kg/hr
- Non blanching rash
- New or increased need for O₂ to achieve SpO₂ >90%
- Pallor/mottling with central CRT > 3 seconds
- Other organ dysfunction

YES → **PROBABLE SEPSIS**
IMMEDIATE ACTION IS REQUIRED

NO → **POSSIBLE SEPSIS**

NEGATIVE SCREEN
SEPSIS UNLIKELY AT THIS TIME
EXIT PATHWAY

Sign _____
MCRN / NMBI (ANP)

Treat as per diagnosis and continue to monitor. Rescreen if deteriorates

SITE OF INFECTION (IF KNOWN) **chest.**

START SEPSIS 6 NOW
INFORM SENIOR DECISION MAKER
See overleaf

Is there an End-of-Life Pathway in place? Yes No Is escalation clinically appropriate? Yes No

If Sepsis 6 is not clinically appropriate, exit the sepsis pathway.

Doctor Signature **Dr Dara Mawley** MCRN **25250**

IRISH NATIONAL EARLY WARNING SYSTEM (INews) Scoring Key

Patient Name: **Tom O'Dowd**
Date of Birth: **21/9/1960**
Healthcare Record No: **42512**
Addressograph

Year 2025 Ward: Ortho 1.	Consultant: Mr. Bone
Healthcare worker (HCW)/Patient(P)/Family(F) concern	Respiratory Rate (breaths per minute) Assess for 60 seconds
AB (Airway & Breathing)	Peripheral Oxygen Saturation (SpO ₂ %)
Record as rate, rate and trend line	SpO ₂ Score
Mode of O ₂ delivery Room air (RA) Face mask (FM) Non-rebreather (NRB) CPAP (C) / BiPAP (B)	Room Air or Supplementary O ₂
Record as rate, rate and trend line	O ₂ Score
C (Circulation)	Heart Rate (beats per minute) Check pulse manually to assess rate, rhythm, quality
Record as rate, rate and trend line	Heart Rate Score
Heart Rate with immediate medical review	Specific BP (systolic BP) and time of recording and direction to review
Record as closest arrows connected with dotted line	Blood Pressure Score applies to Systolic BP
D (Disability)	A 10% drop in systolic Blood Pressure (SBP) for which the patient requires a medical review
ACVPU Alert (A) Confused (C) Unresponsive (U) Voice M. Pain (P) Unresponsive (U)	ACVPU Score
E(Exposure)	Temperature (°C)
Record as rate, rate and trend line	Temp Score
Consider Sepsis if INews Score ≥ 2 (or ≥ 5 on O ₂)	INews Score
Reasons within (INews, NMBI) Blood Glucose Pain Score	Score
Notify Doctor if urine output is < 0.5 mL/kg/hr	Notify Doctor
Student/HCA Initials	Initials

Medical Review and Treatment



01/09/2025

FLUID BALANCE CHART

Ward: Ortho 1

Weight: 70kg

Name: Tom O'Dowd
HCRN: 42512
DOB: 21/09/1960

Time	Intake				Output					
	Oral Fluid	Parental Feed	Ph Aspirate	IV/SC Therapy	Cumulative Total	Urine	Vomit Aspirate	Drains	Diarrhoea ileostomy colostomy	Cumulative Total
08:00										
09:00										
10:00										
11:00										
12:00										
13:00										
14:00										
15:00				Hartmanns			0			
16:00				500						
17:00										
18:00										
19:00										
20:00										
21:00										

**SEPSIS TREATMENT PROTOCOL FOR ADULTS
(NON MATERNITY) ≥16 YRS**

SEPSIS 6 BUNDLE
- COMPLETE WITHIN 1 HOUR

1 TAKE BLOOD CULTURES
2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay >45mins. If patient has CVAD, take line cultures at the same time. Other cultures as indicated by history and examination.

2 TAKE BLOOD TESTS
FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated > 2mmols/L, repeat lactate after sepsis 6 bundle to assess response.

3 URINARY OUTPUT ASSESSMENT
Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.

4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL.
Consider Microbiology review

Red Flags (PROBABLE SEPSIS) **Amber Flags (POSSIBLE SEPSIS)**

IV Antimicrobials within **1 HOUR**
Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within **3 HOURS**.
Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactataemia etc.) administer antimicrobials immediately.

TIME GIVEN **15:50** **TIME GIVEN** **:**

Patient already on appropriate antimicrobials
 This patient does not require antimicrobials at this time

5 GIVE IV FLUID BOLUS IF REQUIRED
For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/vasopressors. Reassess response to fluid resuscitation frequently.
Refer to fluid resuscitation algorithm.

6 GIVE OXYGEN IF REQUIRED
Titrate supplementary oxygen to maintain oxygen saturations 94-96% (88-92% for patients with chronic lung disease).

Time Given: **:** **Time Given:** **:**
or
N/A

Time Given: **:** **Time Given:** **:**
or
N/A

Tom O'Dowd
006 21/09/1960
Addressograph
HCRN: 42512



SEPSIS TREATMENT PROTOCOL FOR ADULTS
(NON MATERNITY) ≥16 YRS
SEPSIS 6 BUNDLE
- COMPLETE WITHIN 1 HOUR

Tom O'Dowd
DOB: 21/10/1960
Addressograph
HRN: 42512

TAKE 3	1 TAKE BLOOD CULTURES 2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay >45mins. If patient has CVAD, take line cultures at the same time. Other cultures as indicated by history and examination.	Time Taken: 15:15
	2 TAKE BLOOD TESTS FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated > 2mmols/L, repeat lactate after sepsis 6 bundle to assess response.	Time Taken: 15:15
	3 URINARY OUTPUT ASSESSMENT Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.	Time: 15:15 Fluid balance chart commenced <input checked="" type="checkbox"/>
GIVE 3	4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL. Consider Microbiology review Red Flags (PROBABLE SEPSIS) Amber Flags (POSSIBLE SEPSIS)	IV Antimicrobials within 1 HOUR Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within 3 HOURS . Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactatemia etc.) administer antimicrobials immediately.
	TIME GIVEN 15:50	TIME GIVEN :
	<input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time	
5 GIVE IV FLUID BOLUS IF REQUIRED For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/vasopressors. Reassess response to fluid resuscitation frequently. Refer to fluid resuscitation algorithm.	Time Given: 15:45 or N/A <input type="checkbox"/>	
6 GIVE OXYGEN IF REQUIRED Titrate supplementary oxygen to maintain oxygen saturations 94-96% (88-92% for patients with chronic lung disease).	Time Given: : or N/A <input checked="" type="checkbox"/>	

Reassess vital signs at least every 30 minutes.

IF CONDITION WORSENING / NOT IMPROVING, ESCALATE TO CONSULTANT.
Consider SEPTIC SHOCK if MAP less than 65mmHg DESPITE FLUID RESUSCITATION
and escalate to critical care.

Sepsis UNLIKELY at this time, treat as per working diagnosis, continue to monitor. Rescreen if deteriorates
 This is likely to be SEPSIS at this time
 Senior Clinician informed

Signature Dr Dara Molloy

MCRN / NMBI (ANP) 25250

Date: 11/9/25 Time 16:05

Medical Review and Treatment

Bloods / test results including repeat lactate

Blood Tests & Investigations

WCC	$3.0 \times 10^9/L$
Neutrophils	$1.02 \times 10^9/L$
Platelets	$100 \times 10^9/L$
Creatinine	$195 \mu\text{mol}/L$
Bilirubin	$6 \mu\text{mol}/L$
CRT	<2 secs
INR	1.2 APPT 14secs
Portable CXR	Taken
Source control	Sputum sample taken
Fluids	1500mls in fluid boluses given
Urine output	200mls
Repeat lactate	1.8 mmols / L

Irish National Early Warning System (NEWS) Scoring Key

Score	2	2	1	6	1	3	2
Respiratory Rate Score	≥ 25	24	23	22	21-24	20	≤ 20
Heart Rate (bpm)	≥ 91	80-90	60-80	50-60	40-50	30-40	≤ 30
Mean Arterial Pressure (MAP) (mmHg)	≥ 90	80-90	70-80	60-70	50-60	40-50	≤ 40
ACVPU Score	0	1	2	3	4	5	6
Temperature (°C)	≥ 30.0	28.0-30.0	26.0-28.0	24.0-26.0	22.0-24.0	20.0-22.0	≤ 20.0

Patient Name: Tom O'Dowd
Date of Birth: 21/09/1960
Healthcare Record No: 42512
Addressograph

Year 2025 Ward: Ortho 1. Consultant: Mr. Bone

Healthcare worker (HCW)/Patient(P)/Family(F) concern

AB (Airway & Breathing)

Respiratory Rate (breaths per minute): 24. Assess for 60 seconds.

SpO₂ Score: 95. Peripheral Oxygen Saturation (SpO₂ %): 95. Room Air or Supplementary O₂: 0. P_{O₂} Score: 0. Modes of O₂ delivery: Room air (R). Record as room air and breaths/min.

C (Circulation)

Heart Rate (beats per minute): 80. Record as heart and breaths/min. to ascertain rate, rhythm, quality. Insert Rate with standard review: 80. Heart Rate Score: 0. Blood Pressure (mmHg): 120/80. Record BP x200, check BP x200, and review. Blood Pressure Score: 0. A 30% error in Systolic Blood Pressure (SBP) or a systolic blood pressure of 100 mmHg or less is a medical review.

D (Disability)

ACVPU Alert (A): Alert (A). New Confusion/Agitated (A): Alert (A). Confusion/Agitated (A). Voice (V), Pulse (P): Alert (A). Unresponsive (U): Alert (A). ACVPU Score: 0. GCS Alert, confused (G), Comatose (C): Alert (A).

E (Exposure)

Temperature (°C): 36.5. Record as number and breaths/min. Temperature Score: 0. Consider Sepsis if NEWS Score ≥ 4 (or ≥ 5 on O₂). Notify Doctor if urine output is < 0.5 mL/kg/hr. Student/HCA Initials: AE AP AD NG AF.

FLUID BALANCE CHART

01/09/2025 Ward: Ortho 1 Weight: 70kg

FLUID BALANCE CHART

Time	Intake			Output						
	Oral Fluid	Parental Feed	Ph Aspirate	IV/SC Therapy	Cumulative Total	Urine	Vomit Aspirate	Drains	Diarrhoea ileostomy colostomy	Cumulative Total
08:00										
09:00										
10:00										
11:00										
12:00										
13:00										
14:00										
15:00				Hartmanns 500	Tazocin 4.5gm	600	0			
16:00				Hartmanns 1000		1600	200			
17:00										
18:00										
19:00										
20:00										
21:00										
22:00										
23:00										

Sepsis diagnosis

Lactate ≥ 2 mmol/L after 30mls/kg intravenous fluids
Cardiovascular – Systolic BP <90 mmHg or mean arterial pressure (MAP) <65 mmHg or systolic BP more than 40mmHg below patients normal despite adequate fluid resuscitation
Respiratory – New or increased need for oxygen to achieve saturation $>90\%$ (note this is a definition not the target)
Renal - Creatinine >170 micro mol/L or Urine output <0.5 ml/kg for 2 hours – despite adequate fluid resuscitation
Renal – Creatinine >170 micromol/L or Urine output <500 mls/24hrs – despite adequate fluid resuscitation
Liver – Bilirubin >32 micro mol/L
Haematological – Platelets $<100 \times 10^9$ /L
Central Nervous System – Acutely altered mental status



Sepsis in Practice.

Scenario 3

Scenario 3: Maternity



- Kaitlyn is a 39 year-old woman, 2/7 post vaginal delivery, with a history of prolonged rupture of membranes for which she received prophylactic antibiotics in labour as per local guideline.
- She has no previous medical history of note.
- Kaitlyn's weight is 68kg.

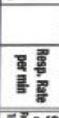
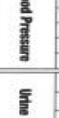
			ACVPU		IMEWS	Other
Resp 22 rpm O2 Sats 98 % on RA	HR 112 bpm	BP 110/60 mmHg	Alert	37.2°C	2 Yellows	Pain Score 7
1 Yellow (IMEWS)	1 Yellow (IMEWS)					

Postnatal assessment of note

Feeling unwell with generalised body aches. Breasts slightly engorged. Pain score 7. Postnatal blood loss - moderate, red and foul smelling. SM Grace is clinically concerned about Kaitlyn.

Recognition and Escalation



	Woman's Name: <i>Kaitlyn Bridges</i>	Document Number (eg. 1, 2): 1	Booking BMI: 22.4	
	Date of Birth: 01/01/1984	Booking BP: 125/68	Date of Admission: 01/10/25	
Healthcare Record No: 1000010		Gestation at Booking (weeks): 13	Large BP Cuff (Y/N): N	
<i>Addressograph</i>				
Contact appropriate doctor for early intervention if the woman triggers one PINK or two YELLOW zones at any one time				
Respiratory Rate 	Date : 1/10/210	Time : 14° 10°		
	≥25	20-24	11-19	≤10
SpO₂ 	96-100% 98	91-95% 98		≥95%
	≤95%			96-100%
Temp 	≥38.0	37.5-37.9	36.0-37.4	35.1-35.9
	35.0	37.5-37.9	36.0-37.4	35.1-35.9
Maternal Heart Rate 	120	110	100	90
	110	100	90	80
Systolic Blood Pressure 	120	110	100	90
	110	100	90	80
Diastolic Blood Pressure 	110	100	90	80
	100	90	80	70
Urine 	Protein			Protein
	Glucose			Glucose
AWPU Scores 	Other			Other
	Alert (A)	Vital (V)	Pain (P)	Unresponsive (U)
Total Yellow Zones	0	2		Total yellow zones
Total Pink Zones	0	0		Total pink zones
Initials	TP	GO		Initials

 MATERNITY PATIENTS	 This form does not replace clinical judgement	Kaitlyn Bridges Women's Name Date of Birth: 01/01/84 Healthcare Record No: 100010 Addressograph
SEPSIS SCREENING TOOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM) ACUTE HOSPITALS ONLY		
Obstetric History Para: 2 Gestation: 3 Days post-natal: 2 Delivery type: SVD Recent pregnancy loss? _____		
Any Healthcare Professional (HCP) should start this tool if CONFIRMED or SUSPECTED INFECTION present PLUS presence of ≥ 1 of the triggers listed below		
Site of Infection (If known) <input checked="" type="checkbox"/> Patient looks sick <input checked="" type="checkbox"/> Elevated IMEWS ≥ 2 yellows or ≥ 1 pink <input checked="" type="checkbox"/> In an Adult Emergency Department - Manchester Triage Category 2		
Patient/Family/Carer/Clinician Concern <input checked="" type="checkbox"/> GP/Ambulance personnel queries sepsis		
YES *Time Zero: 10:00 Name: Grace O'Koro Grade: 5NA *When the patient 1st triggers for sepsis screen NMBI/MCRN: 12345 DATE: 21/10/25		
REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR		
Is any ONE RED FLAG present?		
Signs of Shock <input type="checkbox"/> Systolic Blood Pressure < 90 mmHg (or drop of > 40 mmHg below normal +/- Point of care lactate > 2 mmol/L). Rule Out PPH		
OR		
Evidence of New Organ Dysfunction (any one of the following) <input type="checkbox"/> Acutely altered Mental Status <input type="checkbox"/> Respiratory Rate > 30 bpm <input type="checkbox"/> Heart rate > 130 bpm <input type="checkbox"/> Not passed urine in 12 hours or urine output < 0.5 mls/kg/hr <input type="checkbox"/> Non blanching rash <input type="checkbox"/> New or increased need for O ₂ to achieve SpO ₂ $> 90\%$ <input type="checkbox"/> Pallor/mottling with central CRT > 3 seconds <input type="checkbox"/> Other organ dysfunction		
Risk of Neutropenia <input type="checkbox"/> Recent chemotherapy/radiotherapy/autoimmune disorder		
NO		
PROBABLE SEPSIS IMMEDIATE ACTION IS REQUIRED		
YES		
SITE OF INFECTION (IF KNOWN)		
START SEPSIS 6+1 NOW INFORM SENIOR DECISION MAKER See overleaf		
NO RED FLAGS - CHECK FOR AMBER FLAGS z 2 Systemic Inflammatory Responses (SIRS) that are sustained not transient WITH/ WITHOUT Risk Factors.		
<input checked="" type="checkbox"/> Respiratory rate ≥ 20 bpm <input checked="" type="checkbox"/> Heart rate ≥ 100 and ≤ 130 bpm <input type="checkbox"/> Temperature < 36 or ≥ 38.0 °C <input type="checkbox"/> Blood glucose level > 7.7 mmol/L (in absence of diabetes mellitus) <input type="checkbox"/> WCC < 4 or $> 16.9 \times 10^9$ /L <input type="checkbox"/> Fetal HR > 160 bpm		
Risk factors		
Pregnancy Related <input type="checkbox"/> Seizage <input checked="" type="checkbox"/> Pre-term/prolonged rupture of membranes <input type="checkbox"/> Retained products <input type="checkbox"/> History pelvic infection <input type="checkbox"/> Group A Strep. Infection in close contact <input type="checkbox"/> Recent amniocentesis		
Age > 35 years <input type="checkbox"/> Minority ethnic group <input type="checkbox"/> Vulnerable socio-economic background <input type="checkbox"/> Obesity <input type="checkbox"/> Diabetes, including gestational diabetes <input type="checkbox"/> Recent surgery <input type="checkbox"/> Symptoms of infection in the past week <input type="checkbox"/> Immunocompromised e.g. Systemic Lupus <input type="checkbox"/> Chronic renal failure <input type="checkbox"/> Chronic liver failure <input type="checkbox"/> Chronic heart failure		
YES		
POSSIBLE SEPSIS		
YES		
NEGATIVE SCREEN SEPSIS UNLIKELY AT THIS TIME EXIT PATHWAY		
Sign MCRN / NMBI (AN/MP)		
Treat as per diagnosis and continue to monitor. Rescreen if deteriorates		

Medical Review and Treatment

MATERNITY PATIENTS  **This form does not replace clinical judgement**

SEPSIS SCREENING TOOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM) ACUTE HOSPITALS ONLY

Obstetric History
Para: 2 Gestation: 3 Days post-natal: 2 Delivery type: SVD Recent pregnancy loss? _____

Any Healthcare Professional (HCP) should start this tool if CONFIRMED or SUSPECTED INFECTION present PLUS presence of ≥ 1 of the triggers listed below

Site of Infection (If known) _____

Patient looks sick Patient/Family/Carer/Clinician Concern
 Elevated IMEWS ≥ 2 yellows or ≥ 1 pink GP/Ambulance personnel queries sepsis
 In an Adult Emergency Department - Manchester Triage Category 2

YES *Time Zero: 10:00 Name Grace O'Koro Grade SM
 *When the patient 1st triggers for sepsis screen NMBI/MCRN 12345 DATE: 2/10/25

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSESS PATIENT USING ISBAR

Is any ONE RED FLAG present? 

Signs of Shock
 Systolic Blood Pressure < 90 mmHg (or drop of > 40 mmHg below normal \pm Point of care lactate > 2 mmol/L). Rule Out PPH

OR
Evidence of New Organ Dysfunction (any one of the following)
 Acutely altered Mental Status
 Respiratory Rate > 30 bpm
 Heart rate > 130 bpm
 Not passed urine in 12 hours or urine output < 0.5 mls/kg/hr
 Non blanching rash
 New or increased need for O_2 to achieve $SpO_2 > 90\%$
 Pallor/mottling with central CRT > 3 seconds
 Other organ dysfunction

OR
Risk of Neutropenia
 Recent chemotherapy/radiotherapy/autoimmune disorder

YES **PROBABLE SEPSIS** **IMMEDIATE ACTION IS REQUIRED**
YES

NO **POSSIBLE SEPSIS** **YES** **NO**

NEGATIVE SCREEN **SEPSIS UNLIKELY AT THIS TIME** **EXIT PATHWAY**

Sign _____
 MCRN / NMBI (AN/MP) _____

Treat as per diagnosis and continue to monitor. Rescreen if deteriorates

SITE OF INFECTION (IF KNOWN) genital tract

START SEPSIS 6+1 NOW
 INFORM SENIOR DECISION MAKER
 See overleaf

Woman's Name: Kaitlyn Bridges **Date of Birth:** 01/01/1984 **Healthcare Record No:** 100010 **Addressograph**

Document Number (eg. 1, 2): 1 **Booking BMI:** 22.4
Booking BP: 125/68 **Date of Admission:** 01/10/25
Gestation at Booking (weeks): 13 **Large BP Cuff (Y/N):** N

Contact appropriate doctor for early intervention if the woman triggers one **PINK or two **YELLOW** zones at any one time**

Temp (°C)	96-100% ≤ 95%	98 ≤ 98%	98 ≤ 98%	98 ≤ 98%
≤ 30.0				
37.5-37.9				
36.0-37.4	37.5	37.5	37.5	37.5
35.1-35.9				
≤ 35.0				

Maternal Heart Rate	120	112	82	120	110	100	90	80	70	60	50	40
170												
160												
150												
140												
130												
120												
110												
100												
90												
80												
70												
60												
50												

Maternal Blood Pressure	170	160	150	140	130	120	110	100	90	80	70	60	50
170													
160													
150													
140													
130													
120													
110													
100													
90													
80													
70													

Urine	Protein	Glucose	Other
Protein			
Glucose			
Other			

Pain Score 0-10	4	7	7
Alert (A)	A	A	A
Voice (V)	V		
Pain (P)	P		
Unresponsive (U)	U		

Total Yellow Zones	0	2	2
Total Pink Zones	0	0	2

Initials TP GO GO Initials TP GO GO Initials TP GO GO

Print Date: 2025 Total pink zones: 2



02/10/2025

FLUID BALANCE CHART

Ward: Post natal ward 1

Weight: 68kg

Name: Kaitlyn Bridge
HCRN: 100010
DOB: 01/01/1984

FLUID BALANCE CHART

Time	Intake				Output						
	Oral Fluid	Parental Feed	Ph	Aspirate	IV/SC Therapy		Urine	Vomit Aspirate	Drains	Diarrhoea ileostomy colostomy	Cumulative Total
08:00											
09:00											
10:00		Hartmanns					0				
11:00			500								
12:00											
13:00											
14:00											
15:00											
16:00											
17:00											

MATERNITY PATIENTS

**RECOGNISE SEPSIS
PROMOTE SURVIVAL**

SEPSIS TREATMENT PROTOCOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM)

SEPSIS 6+1 BUNDLE
- COMPLETE WITHIN 1 HOUR

Kaitlyn Bridge
DOB 01/01/1984
Addressograph
HCRN 100010

TAKE 3	1 TAKE BLOOD CULTURES 2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay >45mins, and other cultures as per examination.	Time Taken: 10:30
	2 TAKE BLOOD TESTS FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated >2mmols/L, repeat lactate after sepsis 6 bundle to assess response.	Time Taken: 10:30
	3 URINARY OUTPUT ASSESSMENT Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.	Time: 10:15 Fluid balance chart commenced <input checked="" type="checkbox"/>
+1	IF PREGNANT ASSESS FETAL WELLBEING	Time Completed: 10:15 N/A <input checked="" type="checkbox"/>
GIVE 3	4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL. Consider Microbiology review	Red Flags (PROBABLE SEPSIS) Amber Flags (POSSIBLE SEPSIS)
	IV Antimicrobials within 1 HOUR	Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within 3 HOURS . Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactataemia etc.) administer antimicrobials immediately.
	TIME GIVEN 10:50	TIME GIVEN 10:50
	<input type="checkbox"/> Patient already on appropriate antimicrobials	<input type="checkbox"/> This patient does not require antimicrobials at this time
5	GIVE IV FLUID BOLUS IF REQUIRED For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/vasopressors. Reassess response to fluid resuscitation frequently. Refer to fluid resuscitation algorithm. Caution in pre-eclampsia.	Time Given: 10:40 or N/A <input type="checkbox"/>
6	GIVE OXYGEN IF REQUIRED Titrate supplementary oxygen to maintain oxygen saturations 94-98% (88-92% for patients with chronic lung disease).	Time Given: 10:40 or N/A <input checked="" type="checkbox"/>

Blood test results including repeat lactate

Blood Tests & Investigations (2 hours from Time zero)

WBC	20 x 10 ⁹ /L
Platelets	100 x 10 ⁹ /L
Creatinine	160 µmol/L
Bilirubin	6 µmol/L
INR	1.2 APPT 14secs
POC Glucose	7.8 mmol/L
Urine output	100mls - post 2000mls of balanced crystalloids
Lactate (repeat)	2.2mmol/L

Form completion and Sepsis diagnosis

MATERNITY PATIENTS  **SEPSIS TREATMENT PROTOCOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM)**

SEPSIS 6+1 BUNDLE
- COMPLETE WITHIN 1 HOUR

TAKE 3

1 TAKE BLOOD CULTURES 2 sets of peripheral blood cultures (aseptic technique) prior to giving antimicrobials unless this leads to a delay >45mins, and other cultures as per examination.	Time Taken: 10:30
2 TAKE BLOOD TESTS FBC, Renal and Liver profile, point of care lactate, CRP +/- coagulation screen. If initial lactate elevated > 2mmols/L, repeat lactate after sepsis 6 bundle to assess response.	Time Taken: 10:30
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4 IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL.
Consider Microbiology review

Red Flags (PROBABLE SEPSIS)  Amber Flags (POSSIBLE SEPSIS) 

IV Antimicrobials within **1 HOUR**
Review test results to identify infectious vs non-infectious causes of acute illness. If infection confirmed, administer IV antimicrobials within **3 HOURS**.
Note: If infection with new onset organ dysfunction present (e.g. AKI, thrombocytopenia or hyperlactatemia etc.) administer antimicrobials immediately.

TIME GIVEN 10:50 TIME GIVEN :

Patient already on appropriate antimicrobials
 This patient does not require antimicrobials at this time

5 GIVE IV FLUID BOLUS IF REQUIRED
For patients with hypotension or hypoperfusion give a 250 - 500mls IV fluid bolus of balanced crystalloid. Administer a total volume of fluid resuscitation up to 30ml/kg within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes/vasopressors. Reassess response to fluid resuscitation frequently. Refer to fluid resuscitation algorithm. Caution in pre-eclampsia.

6 GIVE OXYGEN IF REQUIRED
Titrate supplementary oxygen to maintain oxygen saturations 94-98% (88-92% for patients with chronic lung disease).

Reassess vital signs at least every 30 minutes.
IF CONDITION WORSENING / NOT IMPROVING, ESCALATE TO CONSULTANT.
Consider SEPTIC SHOCK if MAP less than 65mmHg DESPITE FLUID RESUSCITATION and escalate to critical care.

THIS IS LIKELY TO BE SEPSIS OR SEPTIC SHOCK AT THIS TIME

Senior Clinician informed Time: 11:00
 Sepsis UNLIKELY at this time

Signature: Dr Helen Roberts MCRN / NMBI (AN/MP) 55555
Print Name: Dr Helen Roberts Date: 2/10/25 Time: 11:10

Lactate \geq2 mmol/L after 30mls/kg intravenous fluids
Cardiovascular – Systolic BP $<$ 90mmHg or mean arterial pressure (MAP) $<$ 65mmHg or systolic BP more than 40mmHg below patients normal despite adequate fluid resuscitation
Respiratory – New or increased need for oxygen to achieve saturation $>$ 90% (note this is a definition not the target)
Renal - Creatinine $>$ 170 micro mol/L or Urine output $<$ 0.5ml/kg for 2 hours – despite adequate fluid resuscitation
Renal – Creatinine $>$ 170micromol/L or Urine output $<$ 500mls/24hrs – despite adequate fluid resuscitation
Liver – Bilirubin $>$ 32 micro mol/L
Haematological – Platelets $<$ 100 \times 10 ⁹ /L
Central Nervous System – Acutely altered mental status

Q 2. Who would Dr Roberts inform of Kaitlyn's condition?



Clinical and Public Information

- **Leaflets** are available from Healthpromotion.ie
- “I have an infection – Could this be sepsis?” leaflets are available in **10** languages on health promotion.ie and can be printed to give to patients.
- For further information on the Sepsis NCG go to: <http://www.hse.ie/sepsis>



