



Sepsis Management for Adults (including Maternity)

NCG No. 26 V2 (2025)

Training as per HSELandD 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?



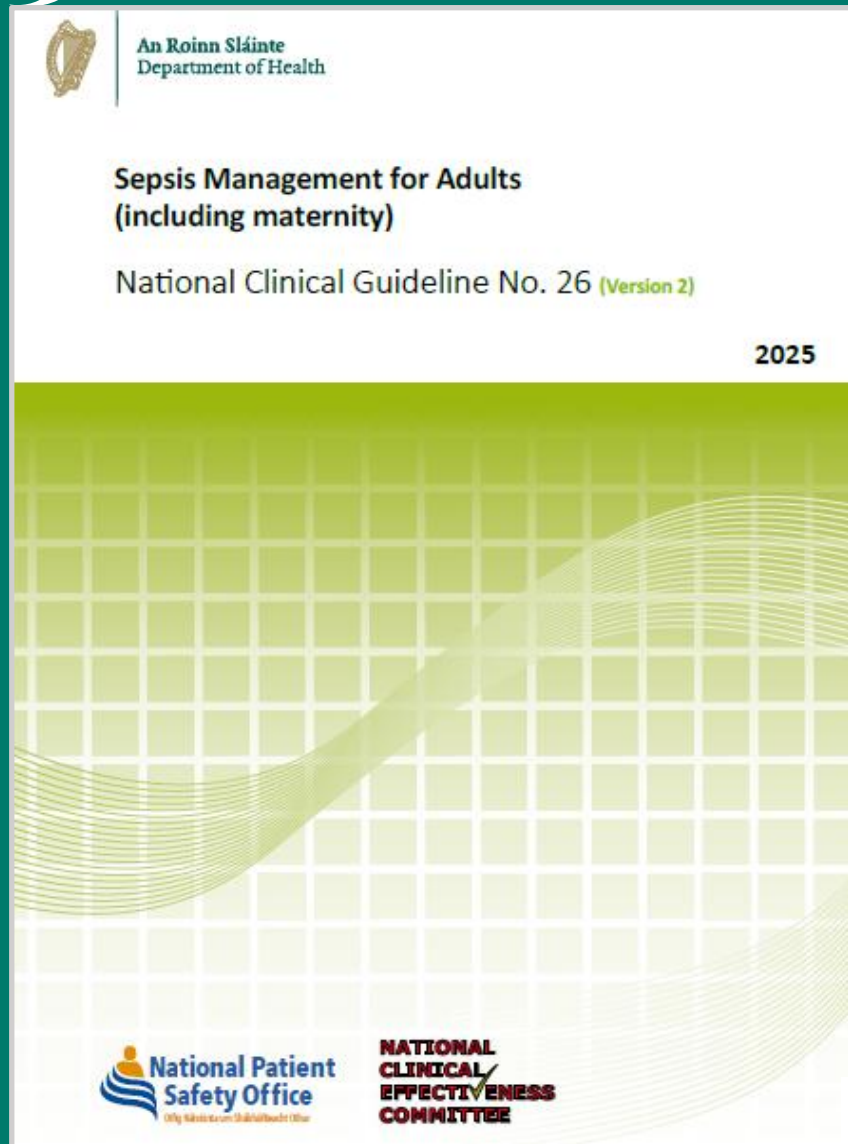
Will I get a certificate?



Are CEU/CPD credits
awarded?



NCG No. 26 V2 (2025)



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 NMB/MCRN

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE P

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

YES

START SEPSIS 6 NOW
INFORM SENIOR DECISION MAKER
See overleaf

Is there an End-of-Life Pathway in place? Yes ☐ No ☐ Is escalated
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

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 IMEWS ≥2 yellows or ≥1 pink
☐ In an Adult Emergency Department - Manchester Triage Category 2

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

REQUEST MEDICAL REVIEW AS PER ESCALATION AND RESPONSE PROTOCOLS TO RISK ASSES

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)
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 < 0.5mls/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

YES

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

Site of Infection (If known) _____

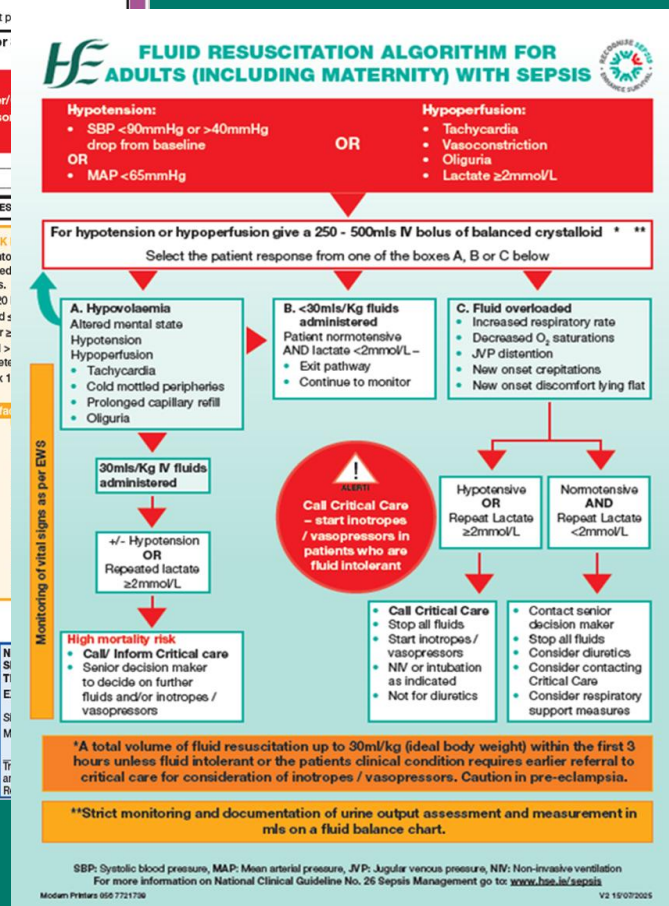
NO RED FLAGS - CHECK
≥ 2 Systemic Inflammatory (SIRS) that are sustained WITHOUT Risk Factors.
☐ Respiratory rate ≥ 20
☐ Heart rate ≥ 100 and
☐ Temperature < 36 or ≥
☐ Blood glucose level > (in absence of diabetes)
☐ WCC < 4 or > 16.9 x 1
☐ Fetal HR > 160bpm

Risk Factors
☐ Pregnancy Related
☐ Caesarean
☐ Pre-term/prolonged rupture of membranes
☐ Retained products
☐ History pelvic infection
☐ Group A Strep. infection in close contact
☐ Recent amniocentesis

YES

POSSIBLE SEPSIS

NO



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 hypoxemic 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?

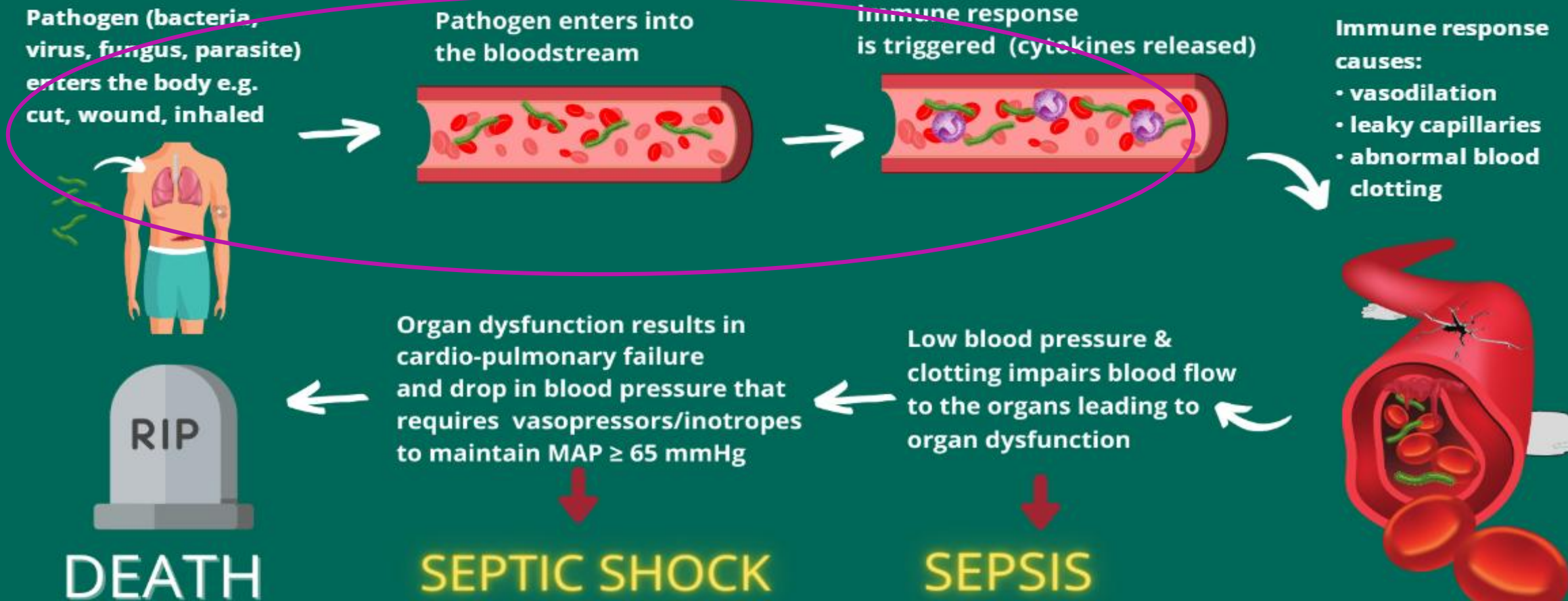
Any type of pathogen can cause sepsis:

- Bacteria
- Viruses
- Fungi
- Parasites

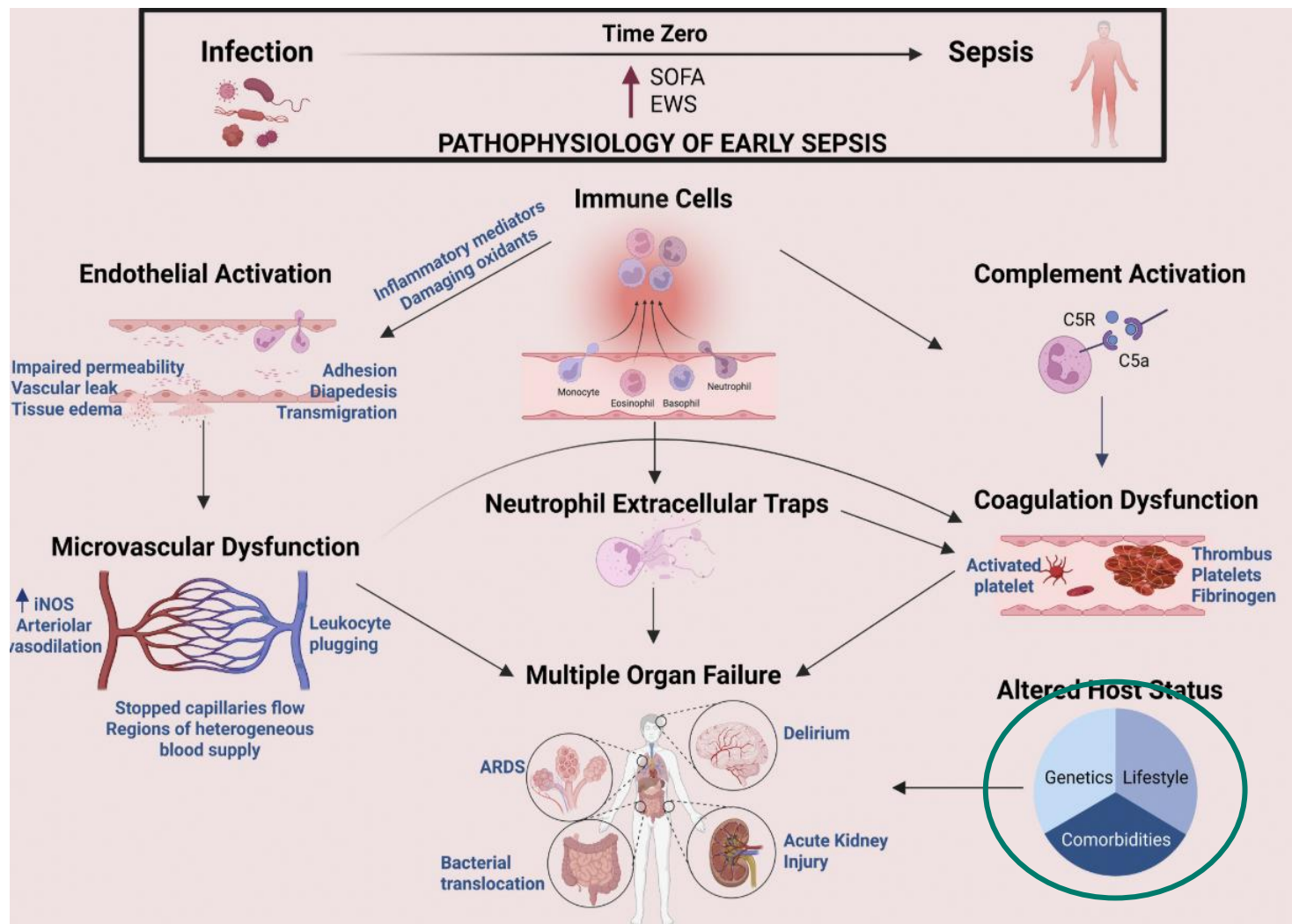
Sepsis begins outside of the hospital, in the community, for nearly 80% of people.

But not every infection will lead to sepsis.

Pathophysiology of Sepsis

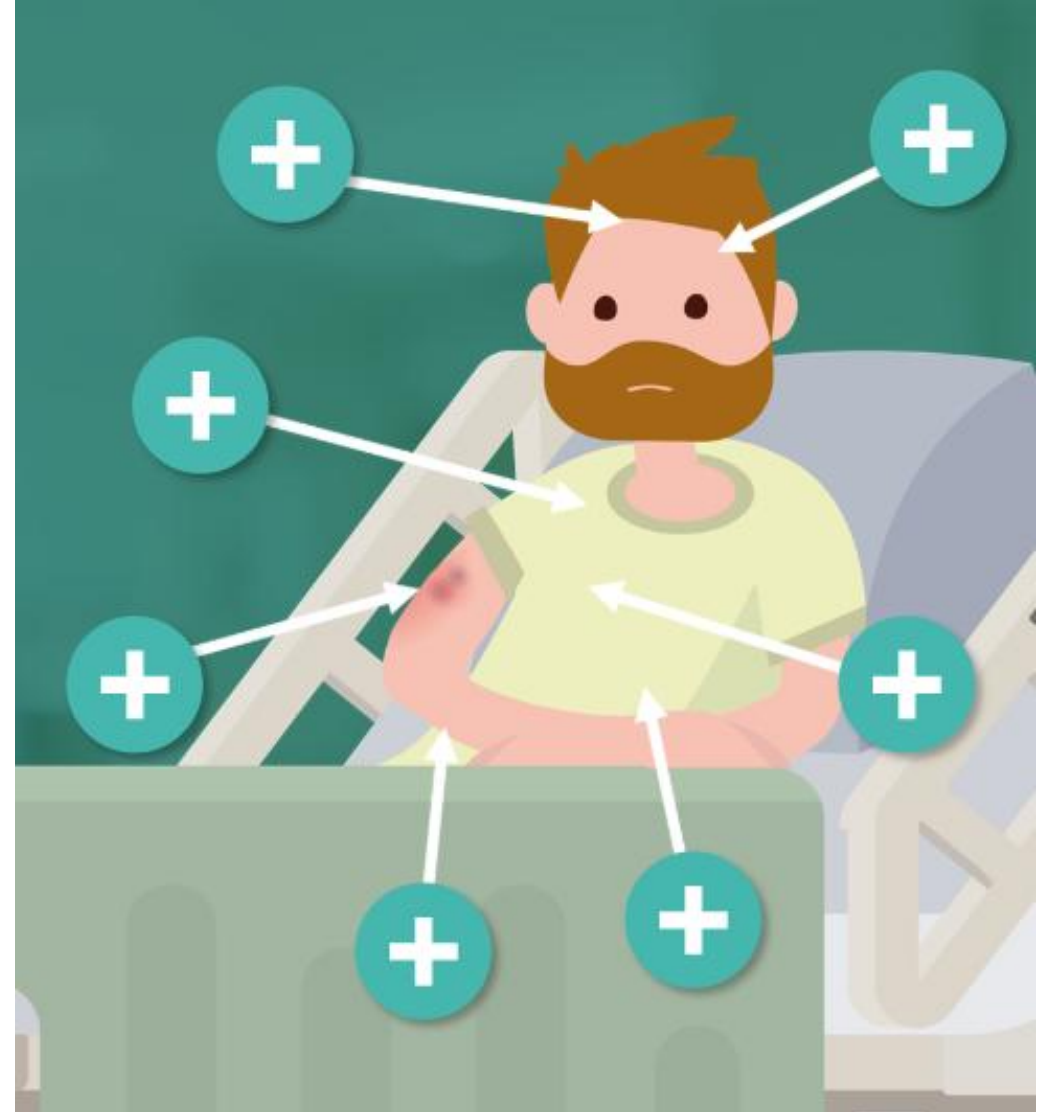


Pathophysiology of Sepsis



What physiological changes can you see in sepsis?

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





Topic 2

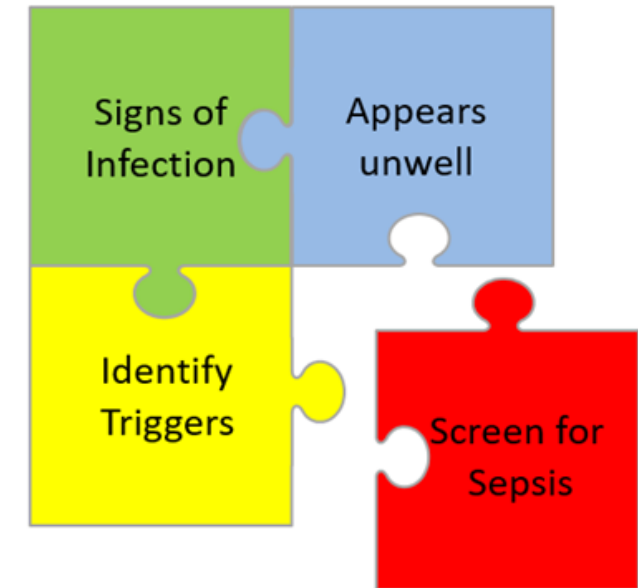
How to Recognise and Screen for Sepsis

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

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

Score:

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

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

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 x 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

NO

POSSIBLE SEPSIS
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



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"/> : <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"/>
	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"/> 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 1 HOUR TIME GIVEN <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	Amber Flags (POSSIBLE SEPSIS) 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 <input type="text"/> : <input type="text"/> : <input type="text"/>
GIVE 3	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"/> : <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"/> : <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.

- ☐ 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 : :

Maternal Sepsis Screening Tool



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 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
☐ Elevated IMEWS ≥2 yellows or ≥1 pink
☐ In an Adult Emergency Department - Manchester Triage Category 2

☐ Patient/Family/Carer/Clinician Concern
☐ GP/Ambulance personnel queries sepsis

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 < 90mmHg (or drop of > 40mmHg below normal +/- Point of care lactate > 2mmols/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 < 0.5mls/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

OR

Risk of Neutropenia

☐ Recent chemotherapy/radiotherapy/autoimmune disorder

NO

NO RED FLAGS - CHECK FOR AMBER FLAGS

≥ 2 Systemic Inflammatory Responses (SIRS) that are sustained not transient WITH/ WITHOUT Risk Factors.

☐ Respiratory rate ≥ 20 bpm
☐ Heart rate ≥ 100 and ≤ 130 bpm
☐ Temperature < 36 or ≥ 38.0 °C
☐ Blood glucose level > 7.7 mmol/L (In absence of diabetes mellitus)
☐ WCC < 4 or > 16.9 x 10⁹ /L
☐ Fetal HR >160bpm

Risk factors

Pregnancy Related

☐ Cerclage
☐ Pre-term/prolonged rupture of membranes
☐ Retained products
☐ History pelvic infection
☐ Group A Strep. infection in close contact
☐ Recent amniocentesis

Non Pregnancy Related

☐ Age > 35 years
☐ Minority ethnic group
☐ Vulnerable socio-economic background
☐ Obesity
☐ Diabetes, including gestational diabetes
☐ Recent surgery
☐ Symptoms of infection in the past week
☐ Immunocompromised e.g. Systemic Lupus
☐ Chronic renal failure
☐ Chronic liver failure
☐ Chronic heart failure

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

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

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 >45mins, and other cultures as per examination.

Time Taken: : :

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: : :

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: : :
Fluid balance chart commenced ☐

+1 IF PREGNANT ASSESS FETAL WELLBEING

Time Completed: : :
N/A ☐

GIVE 3

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

Red Flags (PROBABLE SEPSIS)

IV Antimicrobials within **1 HOUR**

TIME GIVEN : :

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

Amber Flags (POSSIBLE SEPSIS)

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 : :

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: : :
or
N/A ☐

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 ☐

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) _____
Print Name _____ Date: _____ Time: : :

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: : Name _____ Grade _____

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

EMEWS

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

<input type="checkbox"/> Risk of neutropenia due to bone marrow failure, autoimmune disorder or treatment e.g. chemotherapy, radiotherapy	OR	<input type="checkbox"/> Any signs of new organ dysfunction including: • Altered mental state • SBP < 90 mmHg • HR ≥ 130 bpm • SpO ₂ < 90%	OR	<input type="checkbox"/> Two or more Systemic Inflammatory Response Syndrome (SIRS) including: • Temp. < 36°C or > 38.3°C • RR ≥ 20 bpm • HR ≥ 90 bpm • Altered mental status	+	<input type="checkbox"/> One or more Co-Morbidities: • Aged ≥ 75 years or Frailty • Cancer • Chronic kidney or liver disease • COPD • Diabetes • Immunosuppression (medications/disease) • Recent surgery/major trauma
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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)

Maternity

Site of Infection (If known)

<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: : Name _____ Grade _____

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



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**.

YES

*Time Zero:

:

Name

Grade

*When the patient 1st triggers for sepsis screen

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 \geq 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.

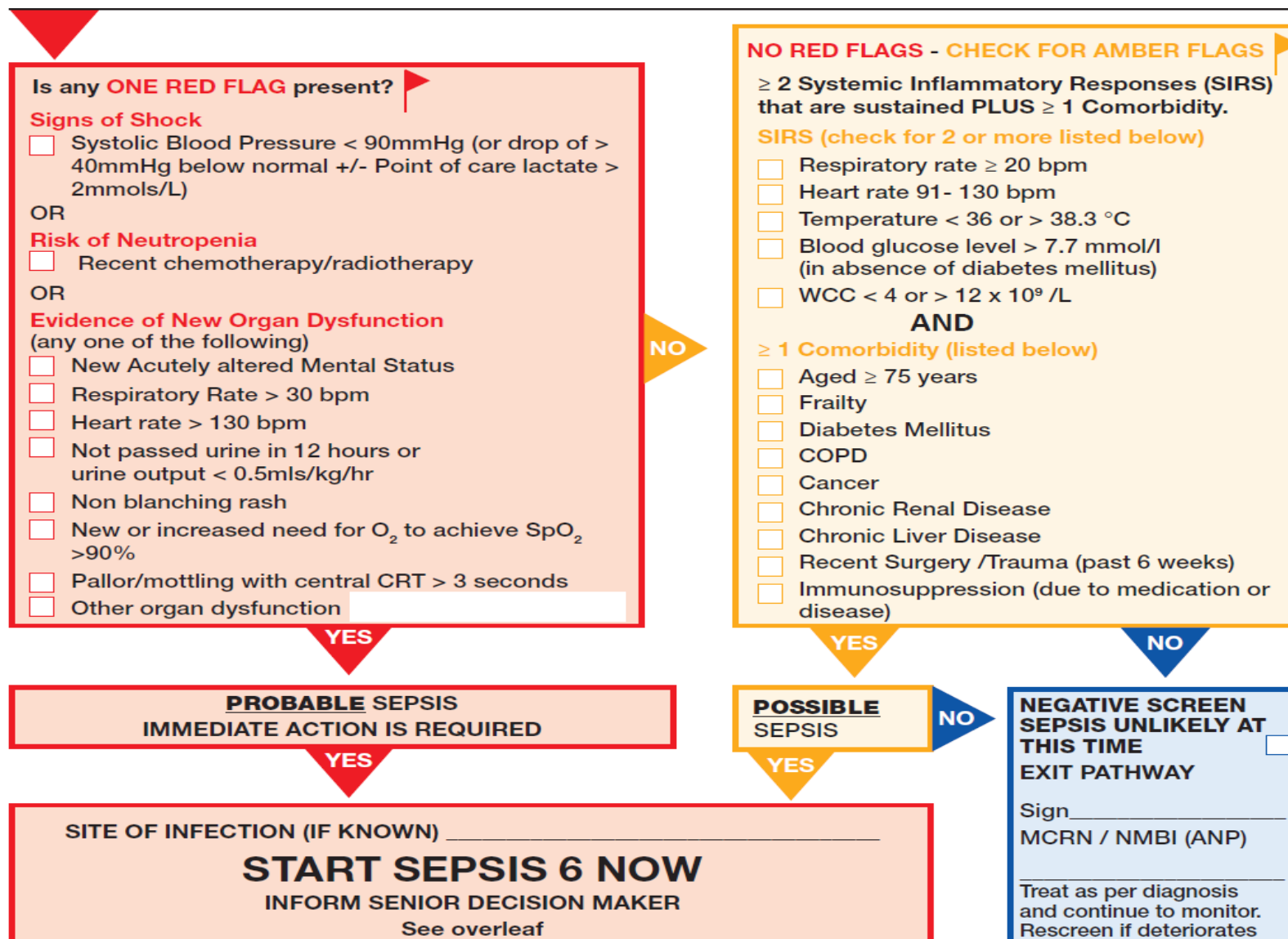
Time Zero is recorded as 14.00hrs on the sepsis screening tool.



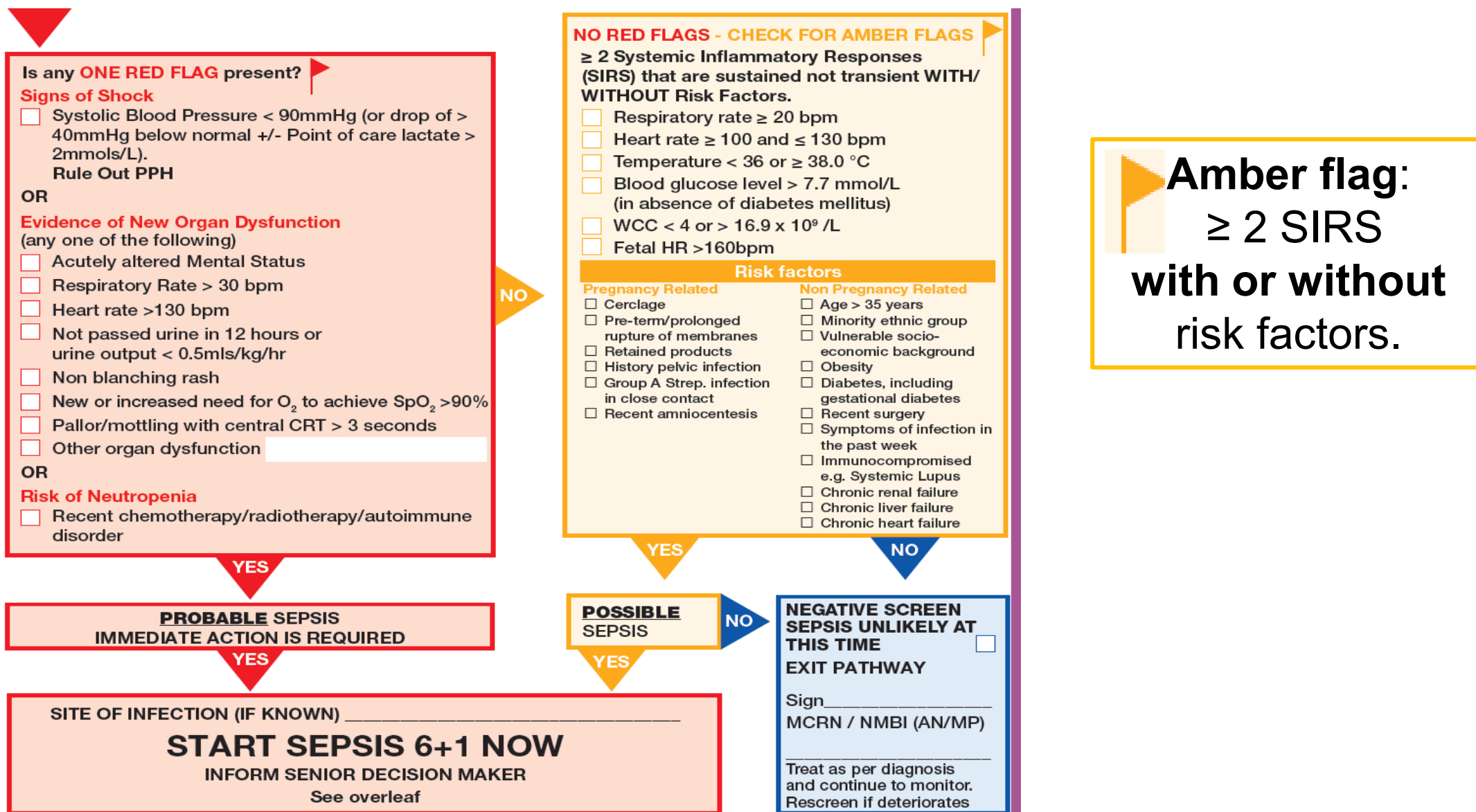
Topic 3

Sepsis screening and management.

Sepsis screening and High Risk Adult Groups



Sepsis screening and High Risk *Maternity* Groups



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.

SITE OF INFECTION (IF KNOWN) _____

START SEPSIS 6 NOW

INFORM SENIOR DECISION MAKER

See overleaf

- 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"/>

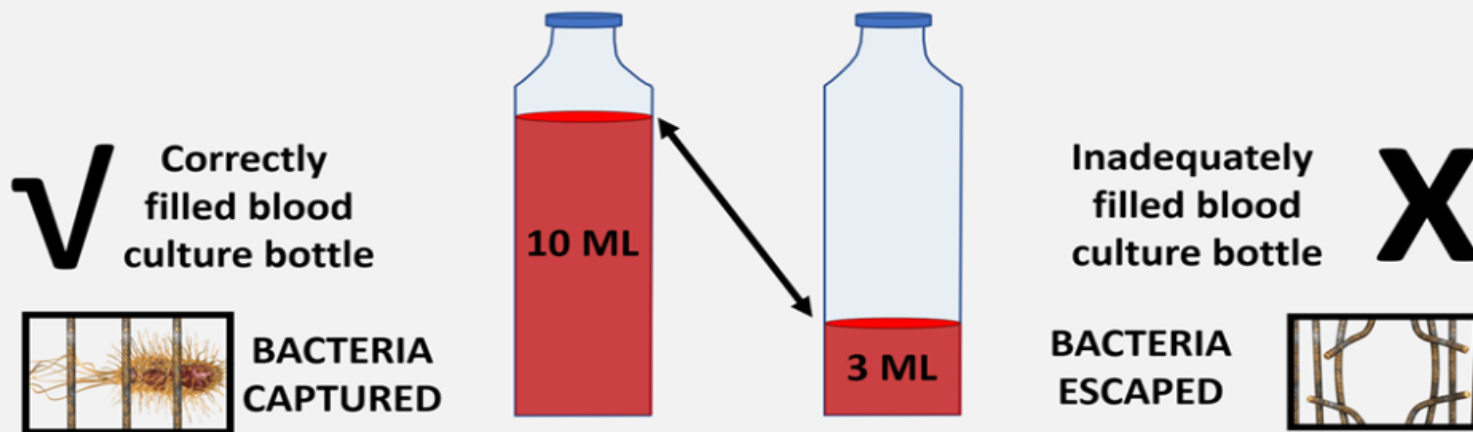
Fetal assessment:

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





- Volume of blood cultured is critical to detection of Blood Stream Infection (BSI)
- Between 20-40% of patients with BSI are not on effective treatment.
- By culturing the correct amount of blood you will provide the best chance of detecting the bug making the patient unwell
- The most effective antibiotic can then be selected

Small difference **BIG IMPACT**

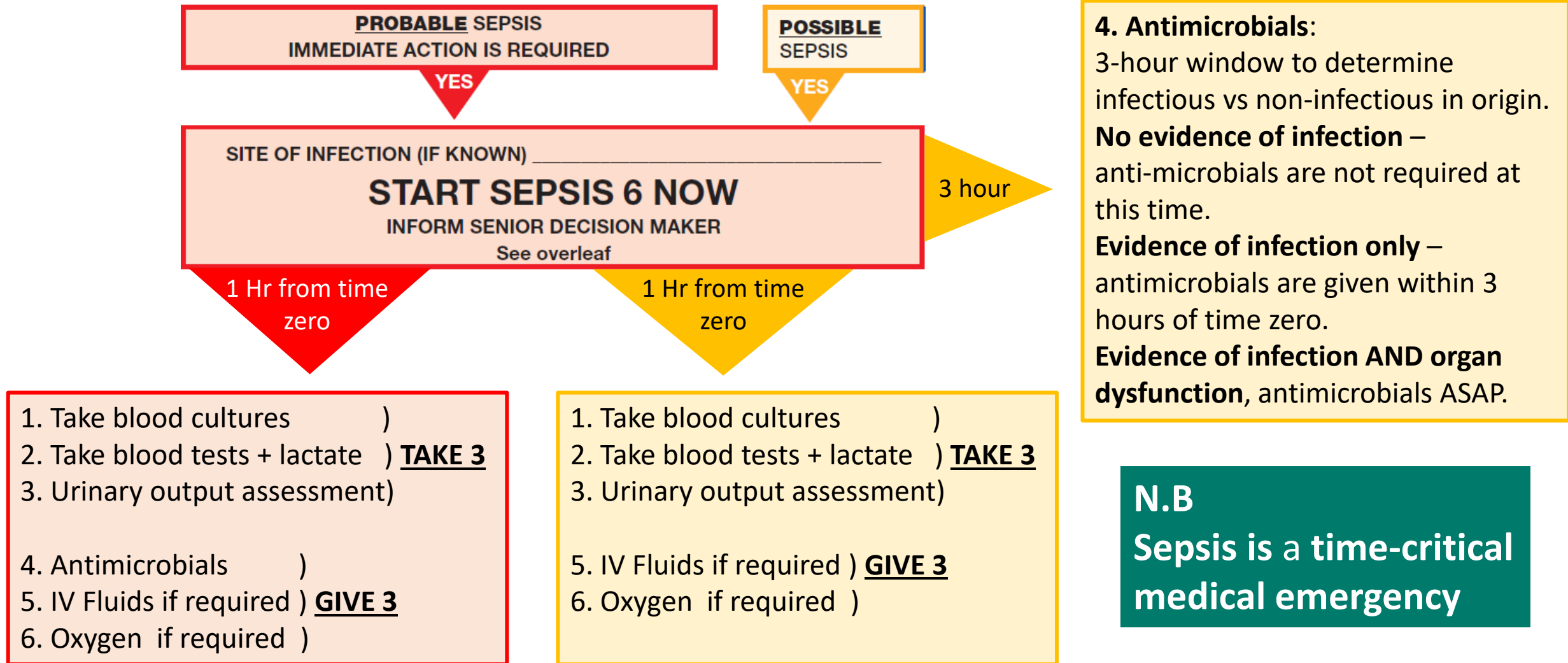
GIVE PATIENTS THE BEST CHANCE
PUT 8-10ML IN EVERY ADULT BLOOD CULTURE BOTTLE

Figure 1. Illustration of correctly filled blood culture bottle. 8–10 ml of blood is required to best detect bacteria.

Give 3

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 <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	
GIVE 3	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 94-96% (88-92% for patients with chronic lung disease).	
		Time Given: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> or N/A <input type="checkbox"/>	
		Time Given: <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> or N/A <input type="checkbox"/>	

Sepsis 6 bundle timeframe



FLUID RESUSCITATION ALGORITHM FOR ADULTS (INCLUDING MATERNITY) WITH SEPSIS



Hypotension:

- SBP <90mmHg or >40mmHg drop from baseline
- OR
- MAP <65mmHg

OR

Hypoperfusion:

- Tachycardia
- Vasoconstriction
- Oliguria
- Lactate $\geq 2\text{mmol/L}$

For hypotension or hypoperfusion give a 250 - 500mls IV bolus of balanced crystalloid * **
Select the patient response from one of the boxes A, B or C below

A. Hypovolaemia
Altered mental state
Hypotension
Hypoperfusion
• Tachycardia
• Cold mottled peripheries
• Prolonged capillary refill
• Oliguria

B. <30mls/Kg fluids administered
Patient normotensive
AND lactate <2mmol/L –
• Exit pathway
• Continue to monitor

C. Fluid overloaded
• Increased respiratory rate
• Decreased O₂ saturations
• JVP distention
• New onset crepitations
• New onset discomfort lying flat

30mls/Kg IV fluids administered

+/- Hypotension
OR
Repeated lactate $\geq 2\text{mmol/L}$

High mortality risk
• Call/ Inform Critical care
• Senior decision maker to decide on further fluids and/or inotropes / vasopressors

! ALERT!
Call Critical Care – start inotropes / vasopressors in patients who are fluid intolerant

Hypotensive
OR
Repeat Lactate $\geq 2\text{mmol/L}$

• Call Critical Care
• Stop all fluids
• Start inotropes / vasopressors
• NIV or intubation as indicated
• Not for diuretics

Normotensive
AND
Repeat Lactate <2mmol/L

• Contact senior decision maker
• Stop all fluids
• Consider diuretics
• Consider contacting Critical Care
• Consider respiratory support measures

*A total volume of fluid resuscitation up to 30ml/kg (ideal body weight) within the first 3 hours unless fluid intolerant or the patients clinical condition requires earlier referral to critical care for consideration of inotropes / vasopressors. Caution in pre-eclampsia.

**Strict monitoring and documentation of urine output assessment and measurement in mls on a fluid balance chart.

SBP: Systolic blood pressure, MAP: Mean arterial pressure, JVP: Jugular venous pressure, NIV: Non-invasive ventilation
For more information on National Clinical Guideline No. 26 Sepsis Management go to: www.hse.ie/sepsis

Modern Printers 050 7721739

V2 15/07/2025



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 Brown¹, Li Wang², Taylor D Coston³, Nathan I Krishnan³, Jonathan D Casey¹, Jonathan P Wanderer^{4 5}, Jesse M Ehrenfeld^{4 5 6 7}, Daniel W Byrne², Joanna L Stollings⁸, Edward D Siew⁹, Gordon R Bernard¹, Wesley H Self¹⁰, Todd W Rice¹, Matthew W Semler¹

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 Semler¹, Wesley H Self¹, Jonathan P Wanderer¹, Jesse M Ehrenfeld¹, Li Wang¹, Daniel W Byrne¹, Joanna L Stollings¹, Avinash B Kumar¹, Christopher G Hughes¹, Antonio Hernandez¹, Oscar D Guillamondegui¹, Addison K May¹, Liza Weavind¹, Jonathan D Casey¹, Edward D Siew¹, Andrew D Shaw¹, Gordon R Bernard¹, Todd W Rice¹; 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.

<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"/> : <input type="text"/> <input type="text"/>

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

Other specialist involvement may also be needed, such as consultant microbiology, intensivist, anaesthesiologist 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 40 mmHg 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 micromol/L or Urine output < 0.5 ml/kg for 2 hours – despite adequate fluid resuscitation
Renal – Creatinine > 170 micromol/L or Urine output < 500 ml/24hrs – despite adequate fluid resuscitation
Liver – Bilirubin > 32 micromol/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.






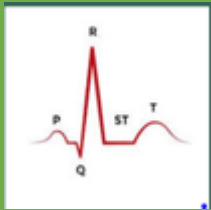


Topic 5

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.

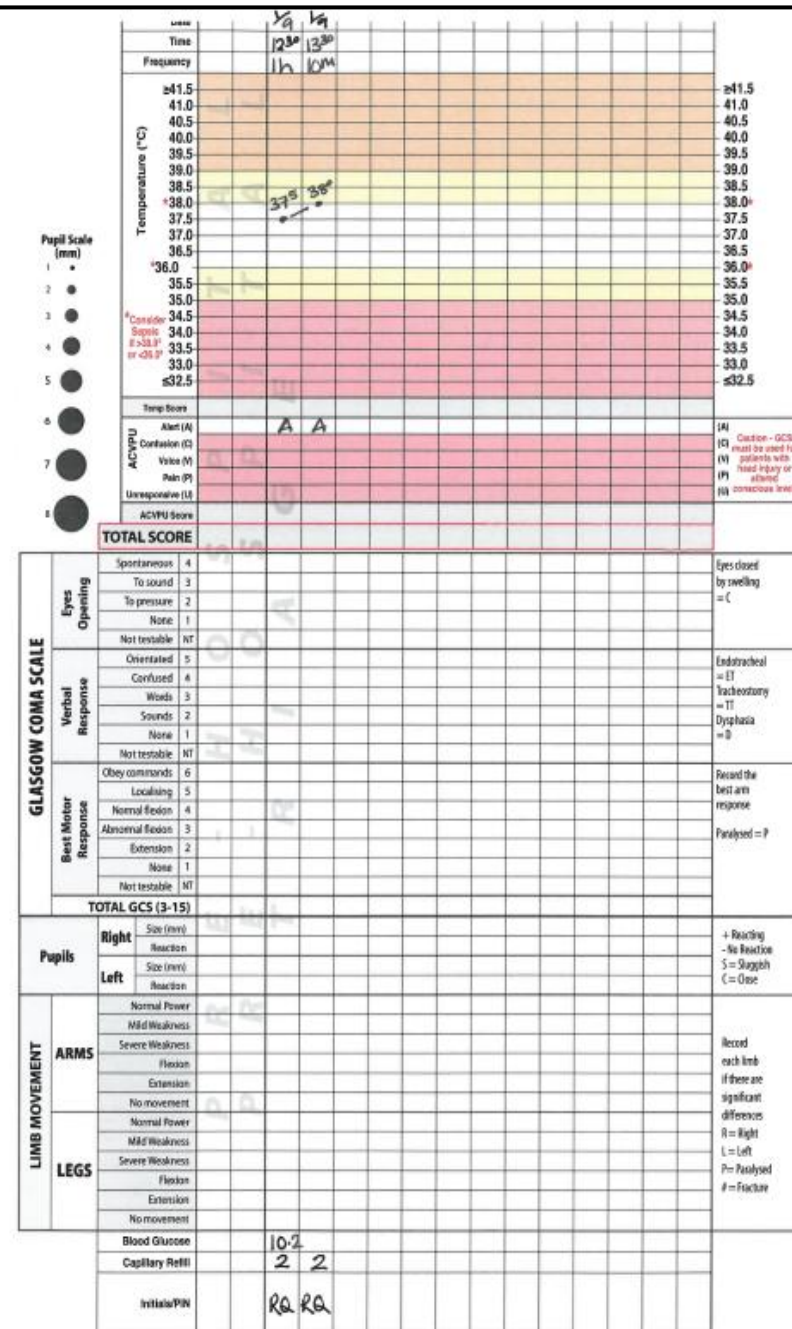
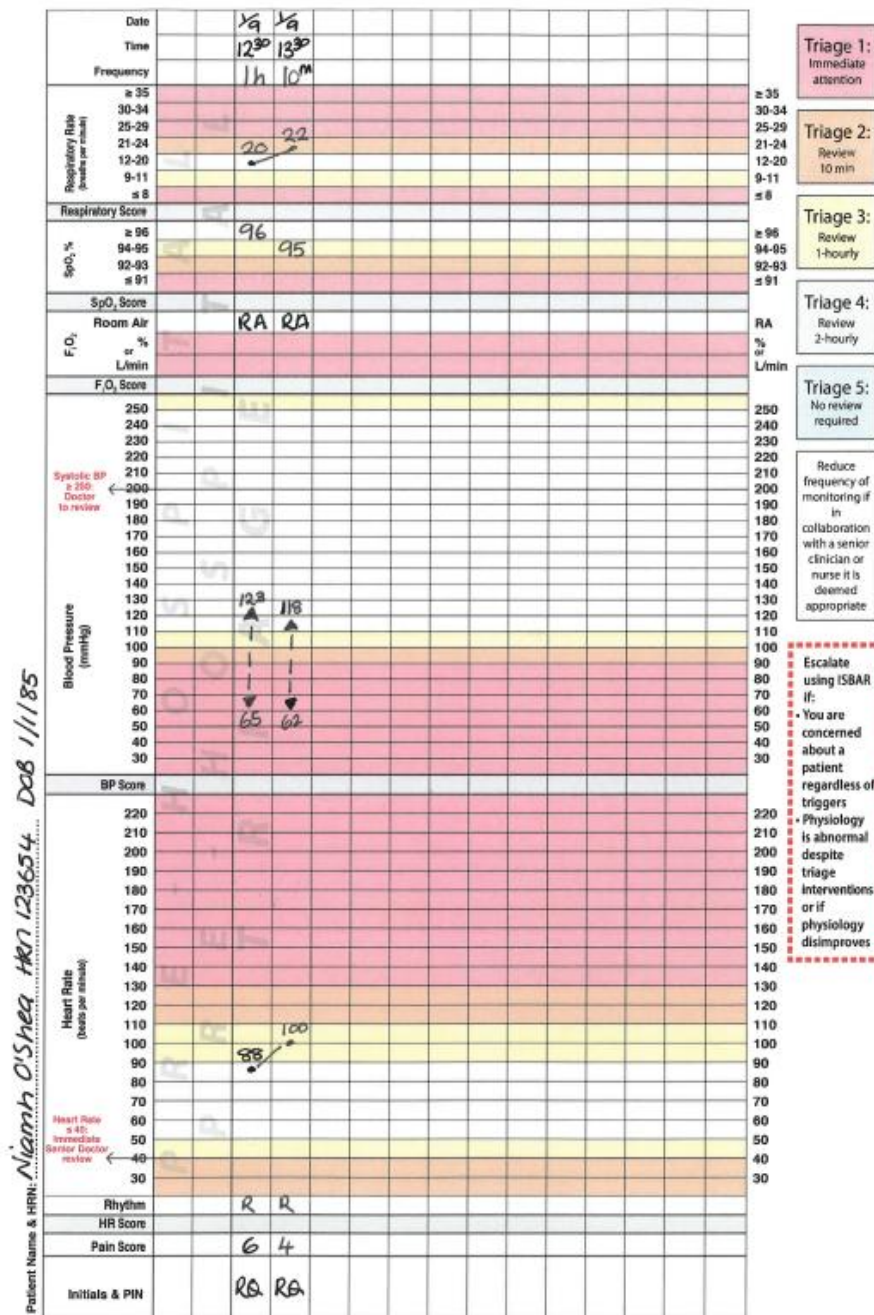
At 13.30, Rosa notices that Niamh is pale, lethargic and looks sick. She is clinically concerned. She records vital signs on the EMEWS chart (see trends)

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

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

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

☒ Emergency Dept. Manchester Triage Category 2

☒ Elevated EMEWS or INEWS (INEWS ≥ 4 or ≥5 if on O₂)

☒ Patient/Family/Carer/Clinician Concern

☐ GP/ Ambulance personnel queries sepsis

Score: **2 yellow 1 orange**

YES *Time Zero: **13:30**

*When the patient 1st triggers for sepsis screen

Name Rosa Quinn

NMBI/MCRN 12345

Grade SIN

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 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 x 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

POSSIBLE SEPSIS

YES

SITE OF INFECTION (IF KNOWN) _____

START SEPSIS 6 NOW
INFORM SENIOR DECISION MAKER
See overleaf

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 _____

Medical Review

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

HE 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
☒ Emergency Dept. Manchester Triage Category 2
☒ Elevated EMEWS or INEWS (INEWS ≥ 4 or ≥5 if on O₂)

☒ Patient/Family/Carer/Clinician Concern
☒ GP/ Ambulance personnel queries sepsis

Score: **2 yellows 1 orange**

YES *Time Zero: **13:30** Name: **Rosa Quinn** Grade: **SN**
*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

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 x 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

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) **Leg wound**

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. 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).

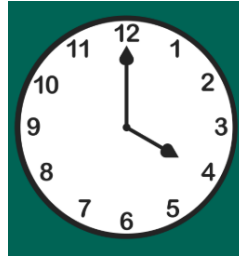
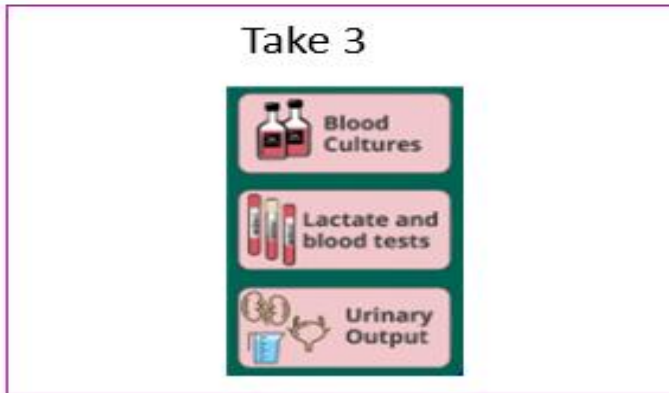
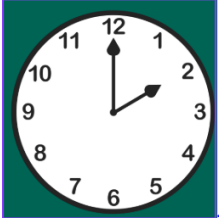
Possible cellulitis and sepsis.

Differential DX:

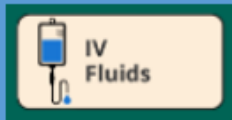
- Deep Vein Thrombosis (DVT)
- DVT assessment: d dimer bloods, measure calves
- Arrange a Doppler ultrasound

Treatment and Diagnosis

What elements of the Sepsis 6 should be administered immediately?



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	17x 10 ⁹ /L
Neutrophils	7.8 x 10 ⁹ /L
Platelets	68 x 10 ⁹ /L
Creatinine	78 µmol/L
Bilirubin	6 µmol/L
INR	1.2 APPT 14secs
D Dimer	<500ng/mL – fibrinogen
Urine output	85mls
Lactate (repeat)	2.1

41

Date							
Time							
Frequency							
Respiratory Rate (breaths per minute)	≥ 35						
	30-34						
	25-29						
	21-24						
	12-20	20	22	22	22	21	19
	9-11						20
	≤ 8						
Respiratory Score							
SpO ₂ %	≥ 96	96				96	96
	94-95		95	95	95		
	92-93						
	≤ 91						
SpO ₂ Score							
Room Air		RA	RA	RA	RA	RA	RA
F.O ₂ %							
F.O ₂ L/min							
F.O ₂ Score							
Blood Pressure (mmHg)	250						
	240						
	230						
	220						
	210						
	200						
	190						
	180						
	170						
	160						
	150						
	140						
	130	123					
	120						
	110						
	100						
	90						
	80						
	70						
	60						
	50						
	40						
	30						
BP Score							
Heart Rate (beats per minute)	220						
	210						
	200						
	190						
	180						
	170						
	160						
	150						
	140						
	130						
	120						
	110						
	100	88	100	105	103	100	94
	90						92
	80						
	70						
	60						
	50						
	40						
	30						
Rhythm		R	R	R	R	R	R
HR Score							
Pain Score		6	4	4	4	3	3
Initials & PIN		RA	RA	RA	RA	RA	RA

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

Time		12 ³⁰	13 ⁰⁰	14 ⁰⁰	14 ³⁰	15 ⁰⁰	15 ³⁰	16 ⁰⁰	
Frequency		1hr	10m	30m	30m	30m	30m	1hr	
Temperature (°C)	≥41.5								≥41.5
	41.0								41.0
	40.5								40.5
	40.0								40.0
	39.5								39.5
	39.0								39.0
	38.5								38.5
	38.0								38.0
	37.5								37.5
	37.0								37.0
	36.5								36.5
	36.0								36.0
	35.5								35.5
	35.0								35.0
	34.5								34.5
34.0								34.0	
33.5								33.5	
33.0								33.0	
≤32.5								≤32.5	
Temp Score									
ACVPU	Alert (A)								(A)
	Confusion (C)								(C)
	Verbal (V)								(V)
	Pain (P)								(P)
	Unresponsive (U)								(U)
ACVPU Score									
TOTAL SCORE									
Spontaneous		4							Eyes closed by swelling = C
To sound		3							
To pressure		2							
None		1							
Not testable		NT							
Oriented		5							Endotracheal = ET Tracheostomy = TT Dysphagia = D
Confused		4							
Words		3							
Sounds		2							
None		1							
Not testable		NT							
Obey commands		6							Record the best arm response Paralysed = P
Localising		5							
Normal flexion		4							
Abnormal flexion		3							
Extension		2							
None		1							
Not testable		NT							
TOTAL GCS (3-15)									
Right	Size (mm)								+ Reacting - No Reaction S = Sluggish C = Close
	Reaction								
Left	Size (mm)								
	Reaction								
Normal Power									Record each limb if there are significant differences R = Right L = Left P = Paralysed # = Fracture
Mild Weakness									
Severe Weakness									
Flexion									
Extension									
No movement									
Normal Power									
Mild Weakness									
Severe Weakness									
Flexion									
Extension									
No movement									
Blood Glucose									
Capillary Refill									
Initials/PIN									



01/09/2025

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		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				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

Niamh O'Shea

Hen 123654

Addressograph

Doc 01/01/85

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: 13:55
	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: 13:55
	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: 14:00 Fluid balance chart commenced <input checked="" type="checkbox"/>
GIVE 3	4	IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL. Consider Microbiology review <div><div>Red Flags (PROBABLE SEPSIS) IV Antimicrobials within 1 HOUR</div><div>Amber Flags (POSSIBLE SEPSIS) 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.</div></div> <div>TIME GIVEN <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</div>	
	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: 14:15 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"/> : <input type="text"/> 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 M. Smyth

Print Dr Melissa Smyth

MCRN / NMBI (ANP) 555.55

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




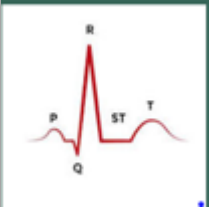

Sepsis in Practice.

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.

11:00

			ACVPU		INEWS 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

Escalation



HE **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
☒ Emergency Dept. Manchester Triage Category 2
☒ Elevated EMEWS or INEWS (INEWS ≥ 4 or ≥5 if on O₂)

☒ Patient/Family/Carer/Clinician Concern
☐ GP/ Ambulance personnel queries sepsis

Score: **15**

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 > 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 x 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

POSSIBLE SEPSIS

NEGATIVE SCREEN
SEPSIS UNLIKELY AT THIS TIME
EXIT PATHWAY
Sign: _____
MCRN / NMBI (ANIP): _____
Treat as per diagnosis and continue to monitor. Rescreen if deteriorates

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: _____

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 INEWS score is 2. Respirations are 24/min. SpO2 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

Tom O'Dowd
MRN: 42512
Dob 21/09/1960
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

- | | |
|---|--|
| <input checked="" type="checkbox"/> Patient looks sick | <input checked="" 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 222 444 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

YES

SITE OF INFECTION (IF KNOWN) Chest

START SEPSIS 6 NOW

INFORM SENIOR DECISION MAKER
See overleaf

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 x 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

POSSIBLE SEPSIS

YES

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 Dr Dara Molloy MCRN 25250



IRISH NATIONAL EARLY WARNING SYSTEM (INEWS) Scoring Key									
Alert	1	2	3	4	5	6	7	8	9
Respiratory Rate (bpm)	10-20	21-24	25-30	31-34	35-40	41-44	45-50	51-54	55-60
Heart Rate (bpm)	50-90	91-100	101-110	111-120	121-130	131-140	141-150	151-160	161-180
SpO ₂ (%)	94-96	93-94	92-93	91-92	90-91	89-90	88-89	87-88	86-87
Urine Output (ml/kg/hr)	≥0.5	0.4-0.5	0.3-0.4	0.2-0.3	0.1-0.2	0.0-0.1	0.0	0.0	0.0
Temp (°C)	36.0-37.5	37.6-38.0	38.1-38.5	38.6-39.0	39.1-39.5	39.6-40.0	40.1-40.5	40.6-41.0	41.1-41.5

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 (HCP)/Patient/Family/Concern: AB

AB (Airway & Breathing)

Respiratory Rate (bpm) per minute: 24

SpO₂ (%) on Room Air: 95

Room Air or Supplementary O₂: 0

C (Circulation)

Heart Rate (bpm) per minute: 100

Blood Pressure (mmHg): 120/80

Urine Output (ml/kg/hr): 0.5

Temp (°C): 36.5

D (Disability)

Alert (A): 1

Orientation (O): 1

Best (V): 1

Best (U): 1

E (Exposure)

Temperature (°C): 36.5

INEWS Score

Alert (A): 1

Orientation (O): 1

Best (V): 1

Best (U): 1


Temp (T): 1

Consider Sepsis if INEWS ≥ 4 (or ≥ 5 on O₂)

Notify Doctor if urine output is < 0.5 ml/kg/hr

Student/NCA 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

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



RECOGNISE SEPSIS
A PUBLIC HEALTH PRIORITY

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

SEPSIS 6 BUNDLE

- COMPLETE WITHIN 1 HOUR

Tom O'Dowd
DOB: 21/09/1960
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 <div><div>Red Flags (PROBABLE SEPSIS) 1 HOUR IV Antimicrobials within 1 HOUR</div><div>Amber Flags (POSSIBLE SEPSIS) 3 HOURS 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.</div></div> <div>TIME GIVEN 15:50 <input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time</div>	
	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: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> or N/A <input checked="" type="checkbox"/>



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

Tom O'Dowd
Doc: 21/09/1960
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 <div><div>Red Flags (PROBABLE SEPSIS) IV Antimicrobials within 1 HOUR</div><div>Amber Flags (POSSIBLE SEPSIS) 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 <input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time</div></div>
	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: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 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
Print Dr Dara Molloy Date: 11/9/25 Time 16:05

Medical Review and Treatment

Bloods / test results including repeat lactate

Blood Tests & Investigations

WCC	3.0x 10 ⁹ /L
Neutrophils	1.02 x 10 ⁹ /L
Platelets	100 x 10 ⁹ /L
Creatinine	195 µmol/L
Bilirubin	6 µmol/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 <u>mmols / L</u>

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




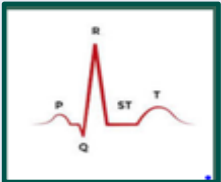


Sepsis in Practice.

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: Kaitlyn Bridges
 Date of Birth: 01/01/1984
 Healthcare Record No: 100010
 Addressograph

Document Number (eg. 1, 2): 1
 Booking BP: 125/68
 Gestation at Booking (weeks): 13

Booking BMI: 22.4
 Date of Admission: 01/10/25
 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	SpO ₂ %	Maternal heart rate	Systolic blood pressure	Diastolic blood pressure	Urine	Pain Score 0-10	APPU Score
≥38.0	96-100%	120	170	110	Protein	Alert (A)	A
37.5-37.9	95-99%	110	160	100	Glucose	Yellow (Y)	Y
36.0-37.4		100	150	90	Other	Pain (P)	P
35.1-35.9		90	140	80		Unresponsive (U)	U
≤35.0		80	130	70			
		70	120	60			
		60	110	50			
		50	100	40			
			90				
			80				
			70				
			60				
			50				
			40				
			30				
			20				
			10				
			0				

Initials: TP GO

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

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

Woman's Name: Kaitlyn Bridges
 Date of Birth: 01/01/84
 Healthcare Record No: 100010
 Addressograph

Obstetric History
 Para: 2 Gestation: 3 Days post-natal: 2 Delivery type: SVB 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 1245 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 < 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
☐ 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

OR

Risk of Neutropenia
☐ Recent chemotherapy/radiotherapy/autoimmune disorder

NO RED FLAGS - CHECK FOR AMBER FLAGS
 ≥ 2 Systemic Inflammatory Responses (SIRS) that are sustained not transient WITH/WITHOUT Risk Factors.

✓ Respiratory rate ≥ 20 bpm
 ✓ Heart rate ≥ 100 and ≤ 130 bpm
 ✓ Temperature < 36 or ≥ 38.0 °C
 ✓ Blood glucose level > 7.7 mmol/L (in absence of diabetes mellitus)
 ✓ WCC < 4 or > 16.9 x 10⁹ /L
 ✓ Fetal HR > 160bpm

Risk factors

Pregnancy Related
☐ Pre-term/prolonged rupture of membranes
☐ Retained products
☐ History pelvic infection
☐ Group A Strep. infection in close contact
☐ Recent amniocentesis

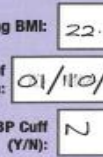
Post-natal/Concomitant Related
☒ Age > 35 years
☐ Minority ethnic group
☐ Vulnerable socio-economic background
☐ Obesity
☐ Diabetes, including gestational diabetes
☐ Recent surgery
☐ Symptoms of infection in the past week
☐ Immunocompromised e.g. Systemic Lupus
☐ Chronic renal failure
☐ Chronic liver failure
☐ Chronic heart failure

YES PROBABLE SEPSIS IMMEDIATE ACTION IS REQUIRED
 YES START SEPSIS 6+1 NOW INFORM SENIOR DECISION MAKER See overleaf

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

56

	Woman's Name: Kaitlyn Bridges	Document Number (eg. 1, 2): 1	Booking BMI: 22.4
	Date of Birth: 01/01/1984	Booking BP: 125/68	Date of Admission: 01/11/25
	Healthcare Record No: 100010	Gestation at Booking (weeks): 13	Large BP Cuff (Y/N): N
Addressograph			

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

	Date:	V10	T10	F10				
Resp Rate per min	Time:	14 ⁰	10 ⁰	10 ³⁰				
	≥25			25				≥25
	20-24		22					20-24
	11-19	18						11-19
Sat Sat Sat	≤10							≤10
SpO ₂ %	96-100%	98	98	98				96-100%
	≤95%							≤95%
	≥38.0							≥38.0
	Temp °C	37.5-37.9	36.9	37.2	37.5			
	36.0-37.4							36.0-37.4
	35.1-35.9							35.1-35.9
	≤35.0							≤35.0
	Maternal Heart Rate	120			120			
110			112					110
100								100
90								90
	80	82						80
	70							70
	60							60
	50							50
Systolic Blood Pressure	170							170
	160							160
	150							150
	140							140
	130							130
	120	122						120
	110		110					110
	100			90				100
	90							90
	80							80
	70							70
	Diastolic Blood Pressure	110						
100								100
90								90
80		75						80
	70							70
	60		60					60
	50			55				50
	40							40
Urine	Protein							Protein
	Glucose							Glucose
	Other							Other
Pain Score 0-10	4	7	7				Pain Score	
APV Neuro Response	Alert (A)	A	A	A				A
	Voice (V)							V
	Pain (P)							P
	Unresponsive (U)							U
Total Yellow Zones	0	2	2				Total yellow zones	
Total Pink Zones	0	0	2				Total pink zones	
Initials	TP	GO	GO				Initials	



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												
Intake							Output					
Time	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				Hartmanns				0				
11:00				500								
12:00												
13:00												
14:00												
15:00												
16:00												
17:00												



MATERNITY PATIENTS



RECOGNISE SEPSIS
INCREASE SURVIVAL

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

SEPSIS 6+1 BUNDLE

- COMPLETE WITHIN 1 HOUR

Kaitlyn Bridges
Dob 01/01/84
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: <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
GIVE 3	4	IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL. Consider Microbiology review <div> <div> Red Flags (PROBABLE SEPSIS) 1 HOUR IV Antimicrobials within 1 HOUR </div> <div> Amber Flags (POSSIBLE SEPSIS) 3 HOURS 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. </div> </div> <div> TIME GIVEN 10:50 <input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time </div>	
	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: <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> 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



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

		Contact appropriate personnel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Form completion and Sepsis diagnosis

MATERNITY PATIENTS		SEPSIS TREATMENT PROTOCOL FOR MATERNITY PATIENTS (UP TO 42 DAYS POST-PARTUM)		Kaitlyn Bridges Dob 01/01/84 Addressograph Hbn 100010	
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	
	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: <input type="checkbox"/> : <input type="checkbox"/> : <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
GIVE 3	4	IV ANTIMICROBIALS (if appropriate), THINK SOURCE CONTROL. Consider Microbiology review <div> <div> Red Flags (PROBABLE SEPSIS) 1 IV Antimicrobials within 1 HOUR TIME GIVEN 10:50 <input type="checkbox"/> Patient already on appropriate antimicrobials <input type="checkbox"/> This patient does not require antimicrobials at this time </div> <div> Amber Flags (POSSIBLE SEPSIS) 2 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 <input type="checkbox"/>:<input type="checkbox"/>:<input type="checkbox"/> </div> </div>			
	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: <input type="checkbox"/> : <input type="checkbox"/> : <input type="checkbox"/> 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.					
THIS IS LIKELY TO BE SEPSIS <input checked="" type="checkbox"/> OR SEPTIC SHOCK <input type="checkbox"/> AT THIS TIME <input checked="" type="checkbox"/> Senior Clinician informed Time: 11:00 <input type="checkbox"/> Sepsis UNLIKELY at this time					
Signature <i>Dr Helen Roberts</i>		MCRN / NMBI (AN/MP) 55555		Date: 2/10/25 Time: 11:10	

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

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 healthpromotion.ie and can be printed to give to patients.
- For further information on the Sepsis NCG go to: <http://www.hse.ie/sepsis>



