Standard Operating Procedure for the Screening and Initial Management of Adult, Non-Pregnant Patients attending Acute Admitting Areas with Suspected Sepsis

Document Control:

For Use In:	Acute Admitting Areas		
Search Keywords	Sepsis, Sepsis Six, Sepsis 6, Screening, Management, Acute, Suspected, Infection		
Document Author:	Dr Katie Allan and Emma-Jane Thornton		
Document Owner:	Dr Katie Allan, Recognise and Respond Consultant Emma-Jane Thornton, Recognise and Respond Team Lead for Quality Assurance and Education Dr Shailesh Shah, Recognise and Respond Consultant Lead Recognise and Respond Committee		
Approved By:	**Clinical Guidelines Assessment Panel (CGAP)**		
Ratified By:	**Clinical Safety and Effectiveness Board**		
Approval Date:	17/05/2023	**Date to be reviewed by:**	17/05/2026
Implementation Date:	N/A		
Reference Number:	12160		

Version History:

Version	Date	Author	Reason/Change
V1.0	December 2015	QA & Education Lead	To originate document
V4.0	May 2023	QA & Education Lead	Changes Made

Previous Titles for this Document:

Previous Title/Amalgamated Titles	Date Revised
None	Not applicable

Distribution Control

Printed copies of this document should be considered out of date. The most up to date version is available from the Trust Intranet.

Consultation

The following were consulted during the development of this document:

- David Thornton, RRT Matron
- Dr Shailesh Shah, RRT Medical Lead Consultant, Intensive Care and Acute Medicine Consultant
- Dr Katie Allan, RRT Consultant, Consultant Anaesthetist,
- Emma-Jane Thornton, RRT QA and Education Lead
- Alanna Forrester, RRT Clinical Lead
- Michael Irvine, Chief of Service Surgical and Consultant Anaesthesia and Critical Care
- Danny Brewster, Senior Divisional Matron
- Emergency Department Lead
- EAUS Lead
- AMU Lead

Monitoring and Review of Procedural Document

The document owner is responsible for monitoring and reviewing the effectiveness of this Procedural Document. This review is continuous however as a minimum will be achieved at the point this procedural document requires a review e.g., changes in legislation, findings from incidents or document expiry.

Relationship of this document to other procedural documents

This document is a clinical procedure applicable to Individual Trust; please refer to local Trust's procedural documents for further guidance.

Guidance Note

This guideline has been approved by the Trust's Clinical Guidelines Assessment Panel as an aid to the diagnosis and management of relevant patients and clinical circumstances. Not every patient or situation fits neatly into a standard guideline scenario and the guideline must be interpreted and applied in practice in the light of prevailing clinical circumstances, the diagnostic and treatment options available and the professional judgement, knowledge and expertise of relevant clinicians. It is advised that the rationale for any departure from relevant guidance should be documented in the patient's case notes.

The Trust's guidelines are made publicly available as part of the collective endeavour to continuously improve the quality of healthcare through sharing medical experience and knowledge. The Trust accepts no responsibility for any misunderstanding or misapplication of this document**.**

Standard Operating Procedure for the Screening and Initial Management of Adult, Non-Pregnant Patients attending Acute Admitting Areas with Suspected Sepsis

Standard Operating Procedure for the Screening and Initial Management of Adult, Non-Pregnant Patients attending Acute Admitting Areas with Suspected Sepsis

Contents Page

Standard Operating Procedure for the Screening and Initial Management of Adult, Non-Pregnant Patients attending Acute Admitting Areas with Suspected Sepsis

1. Introduction

Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. (1)

Sepsis is a life-threatening condition that arises when the body's response to an infection injures its own tissues and organs.

The Surviving Sepsis Campaign (SSC) recommends against using qSOFA compared with Systemic Inflammatory Response Syndrome (SIRS), National Early Warning Score version 2 (NEWS2), or Modified Early Warning Score (MEWS) as a single-screening tool for sepsis or septic shock. (2)

The AoMRC recommendations support that the updated NEWS2 should be used to supplement clinical judgement to identify adult patients with suspected sepsis who are critically ill and need treatment quickly. This rapid bedside score is already recommended by NHS England as the national system to monitor acutely ill adult patients. (3)

Septic shock is defined as a subset of sepsis in which underlying circulatory and cellular metabolism abnormalities are profound enough to substantially increase mortality. Sepsis with shock is a life-threatening condition that is characterised by low blood pressure despite adequate fluid replacement, and organ dysfunction or failure.

Patients with septic shock are complicated by organ dysfunction, which can be identified with a clinical construct of sepsis with persisting hypotension requiring vasopressors to maintain MAP ≥65 mm Hg and having a serum lactate level >2 mmol/L (18mg/dL) despite adequate volume resuscitation. With these criteria, hospital mortality is in excess of 40%.(2)

1.1. Rationale

This guideline is designed to facilitate the completion of the core components of the initial recognition and management of sepsis (in conjunction with NG51, 2016 and Quality Standard QS161, 2017) and should be applied to all adult, non-pregnant patients attending the acute admitting areas Emergency Department (ED), Acute Medical Admissions Unit (AMAU) and Emergency Admissions Unit Surgical (EAUS). The most recent National Institute for Health and Care Excellence (NICE) guideline 2017 provides a framework for risk assessment, to aid identification of those at high risk of sepsis, which we have incorporated in our Adult Sepsis Screening and Treatment Tool (see Appendix 1, Trust Doc 13148) including treatment and or 'safety-netting' of people not needing immediate resuscitation. (4) The intention of this guideline is to ensure that all people with sepsis due to any cause are recognised and initial treatment initiated before definitive treatment on other specific pathways is instituted.

Sepsis is a common, time dependant medical emergency that can affect a person of any age irrespective of underlying health and concurrent medical conditions. There are approximately 300 cases of sepsis per 100,000 of population per annum (5). Sepsis is an important cause of death in people of all ages. Both a UK Parliamentary

and Health Service Ombudsman enquiry (2013) and a UK National Confidential Enquiry into Patient Outcome and Death (NCEPOD, 2015) highlighted sepsis as being a leading cause of avoidable death that kills more people than breast, bowel and prostate cancer combined. In the UK alone sepsis is estimated to cost 37,000 lives a year at an estimated cost to the NHS of £2.5 billion [(6)]

Patients with sepsis have a prolonged hospital stay and often require critical care admission. In the UK sepsis accounts for 30% of critical care expenditure and it is estimated to cost £20,000 to treat each patient.[(6)]

Sepsis is difficult to diagnose with certainty. Although people with sepsis may have a history of infection, fever is not present in all cases. The signs and symptoms of sepsis can be very non-specific and can be missed if clinicians do not think 'could this be sepsis?'. Simple interventions like the administration of antibiotics within 1 hour of diagnosis have been demonstrated to save lives and reduce hospital length of stay but are delivered in less than one fifth of patients in studies across many institutions. [(2)] A recent UK report from the Health Service Ombudsman outlined a number of key areas that needed to be improved when the management of ten patients who died of sepsis was reviewed.

These included:

- Lack of timely history and examination (including timely escalation on presentation)
- Lack of necessary investigations
- Failure to recognize the severity of the illness
- Inadequate first-line treatment with fluids and antibiotics
- Delays in administering first-line treatment
- Inadequate physiological monitoring of vital signs
- Delay in source control of infection
- Delay in senior medical input, and the lack of timely referral to critical care

The SSC first published guidelines for the management of severe sepsis and septic shock in 2004. Updates were published in 2008, 2012, and 2017 & 2021. [(1)] SSC was created to reduce mortality in patients with sepsis by determining best practice in the management of sepsis and educating staff accordingly. Introducing programs that implement best practice in the management of sepsis in keeping with the SSC have been shown to reduce mortality by 5.4% [(7).] The Sepsis Six protocol is a bundle of six simple interventions that when completed within an hour of diagnosis has been shown to reduce the relative risk of death by 46.6% (one life saved for every five episodes of care), reduce Intensive Care Unit (ICU) stay by 2 days and hospital stay by 3.4days. [(1)]

The 2021 guidelines again recommend delivering antimicrobials as soon as possible, ideally within 1 hour of sepsis recognition for those displaying Red Flags of Sepsis.

The 2021 guidelines provide additional guidance on initiation of antimicrobials, recognising the challenge of diagnostic uncertainty early in a patient's presentation. The guidelines now stratify antimicrobial timing recommendations based on the likelihood of sepsis and presence of shock. For patients with probable sepsis or with shock resulting from possible or probable sepsis, the guidelines recommend administering antimicrobials immediately, ideally within 1 hour of recognition (Red Flag Sepsis).[(6)] For patients with possible sepsis but without shock, the guidelines recommend rapid assessment of the likelihood of infection versus non-infectious illness. If concern for infection persists after a time-limited course of rapid investigation, then antimicrobials should be administered within 3 hours from when sepsis was first recognised (Amber Flag Sepsis). [(6)] Finally, for patients with a low likelihood of infection and without shock, the guidelines suggest deferring antimicrobials while continuing to closely monitor the patient.

Clinicians can 'upgrade' the actions required using the NEWS2 as an aid to clinical assessment, and not a substitute for competent clinical judgement. Any concern about a patient's clinical condition should prompt an urgent clinical review, irrespective of the NEWS2.

In summary, the core components of the initial management of sepsis are:

- The early recognition of patients with sepsis
- The appropriate initial management of patients with sepsis - in essence the Adult Sepsis Screening and Treatment Tool (see Appendix 1; Trust Doc 13148)
- The appropriate referral of patients with severe sepsis/septic shock for senior review and to critical care

1.2. Objective

The objective of this document is to provide guidance and describe processes to improve the early recognition, initial management and appropriate referral to critical care of adults, with sepsis attending acute admitting areas Emergency Department ED, AMAU and EAUS.

1.3. Scope

This guideline is for use in all adult, non-pregnant patients who develop sepsis on admission to the ED, AMU or EAUS at the Norfolk and Norwich University Hospital NHS Foundation Trust. Different guidance is available on the Trust Intranet for the management of Sepsis In-Patient areas (Trust Doc ID 20457), paediatric patients (Trust Doc ID 14150) and pregnant patients (Trust Doc ID 855). In patients at risk of neutropenic Sepsis (typically within 6 weeks of chemotherapy) reference should also be made to the Trust Guideline 'Policy for prevention and management of infection for adult (>16 yrs) Neutropenic / Immuno-compromised patients under the care of Oncology and Haematology Departments' (Trust Docs ID 8330).

1.4. Glossary

The following terms and abbreviations have been used within this document:

Term	Definition
ACP	Advanced Care Practitioner
AMAU	Acute Medical Admissions Unit
AOS	Acute Oncology Service
EAUS	Emergency Admissions Unit Surgical
ED	Emergency Department
ICU	Intensive Care Unit
Infection	a pathological process caused by invasion of normally sterile tissue or fluid or body cavity by pathogenic or potentially pathogenic micro-organisms.
MEWS	Modified Early Warning Score
NCEPOD	National Confidential Enquiry into Patient Outcome and Death
NEWS	National Early Warning Score
NICE	National Institute for Health and Care Excellence
NNUH	Norfolk and Norwich University Hospital
RN	Registered Nurse
RRT	Recognise and Respond Team
SIRS	Systemic Inflammatory Response Syndrome
SSC	Surviving Sepsis Campaign

2. Responsibilities

All stakeholders will ensure the document remains up to date, in line with latest evidence-based practice and will maintain oversight of necessary audit requirements:

- Dr Shailesh Shah, Intensive Care and Acute Medicine Consultant, RRT Medical Lead
- Katie Heathcote, RRT Matron
- Dr Katie Allan, Consultant Anaesthetist, RRT Consultant
- Emma-Jane Thornton, RRT QA and Education Lead
- Alanna Forrester, RRT Clinical Lead
- Michael Irvine, Chief of Service Surgical and Consultant Anaesthesia and Critical Care

3. Processes to be followed

This guideline should be applied to all adult, non-pregnant admitting patients who have a NEWS2 of ≥5 or 3 in any one parameter, or who are clinically unwell, with a suspected new infection, new confusion, or who have had chemotherapy in the last 6 weeks and have a suspected infection. For an overview of the process see the quick guide chart in Appendix 2.

Note: Please give special consideration to patients with learning disabilities or autism. This is a high-risk group of patients who are often difficult to diagnosed with signs and symptoms of Sepsis and are therefore more likely to be very unwell by the time they are diagnosed. These patients will require reasonable adjustments (Equality Act 2010) to be made to ensure they receive timely and appropriate sepsis care.

Consider:

- Allow extra time.
- Consider alternative clinical spaces.
- Adapt your language i.e., use simple words where possible and break information down into “bite size” pieces.
- Consider alternative forms of information i.e., pictures and symbols.
- Where possible gain the persons interest in what you are doing.
- Information and assistance from families, friends and carers may be key to diagnosis and treatment.

3.1. Doctors/ACP responsibility

The doctor reviewing the patient should assess the patient and decide whether the patient could be septic or not. This decision Yes or No and the time this decision is made **MUST** be documented on symphony and in the patient notes. Upon admission, as an in-patient, this changes to the Adult Sepsis Screening and Treatment Tool on WebV (see Appendix 1: Trust Doc 13148).

- If a provisional diagnosis of Sepsis is confirmed and the patient is screened as positive, the rest of the Sepsis Six bundle **MUST** be commenced as per the Sepsis Treatment Tool (Appendix 1: Trust Doc 13148)
- Utilise the Norfolk and Norwich University Hospital (NNUH) Sepsis Emergency Kit at the bottom of the resus trolley and call RRT on x4444 (x4444 RRT cover excludes ED but is available in AMU and EAUS)
- Patients who fail to respond to initial treatment such as intravenous antibiotics and a fluid bolus should be discussed with a consultant within an hour of initial screening confirmation
- If a patient remains critically unwell or you are concerned, discuss with a consultant for a possible Critical Care Referral
- At any stage any concern about a patient’s clinical condition should prompt an urgent clinical review, irrespective of the NEWS2

Any reason for deviation from the Sepsis Six process (for example if it is not appropriate to escalate the patients care or other clinical reasons) **MUST** be documented in the patient notes.

New sepsis definitions have moved away from using suspected/proven infection with the presence of some of the Systemic Inflammatory Response (SIRS) Criteria to define sepsis. It has moved towards looking at infection with organ dysfunction. It is

also common for some groups of patients (i.e., elderly, immuno-compromised) to have sepsis without triggering SIRS criteria thresholds. Studies have found that up to 20% of septic patients do meet SIRS criteria. Pragmatically therefore this guideline has moved away from the classical use of SIRS criteria as a pre-requisite for sepsis diagnosis and has instead adopted an approach of using physiological un-wellness (organ dysfunction) of patients as measured by NEWS2, as both the trigger for sepsis screening and a diagnostic indicator for it. For the purposes of this guideline therefore a patient will be treated as having possible sepsis if they have physiological derangement (reflected by an elevated NEWS2) that could be caused by a new infection (suspected following a focused history and examination).

3.2. HCA/Registered Nurse (RN) responsibility:

- To undertake a full set of clinical observations and upload them onto symphony, calculating a NEWS2 within 15 minutes of arrival at any acute admitting area for all patients presenting with signs or symptoms consistent with a diagnosis of sepsis.
- Input this data onto the symphony system. Patients with a NEWS2 of ≥5 or 3 in any one parameter will trigger the sepsis pathway on the symphony system and clinicians **MUST** complete the first page of the Adult Sepsis Screening and Treatment Tool (Appendix 1: Trust Doc 13148) . This also applies if the patient has a suspected new infection, new confusion or has had recent chemotherapy (within the last 6 weeks). The patient should be referred to a doctor/ACP for an urgent medical review (within 30 minutes).
- In AMU/EAUS: Patients with a NEWS2 of ≥5 or 3 in any one parameter with a suspected new infection, a raised NEWS2, clinically looks unwell, raised lactate, signs of organ failure or has had recent chemotherapy (within the last 6 weeks) **MUST** have an Adult Sepsis Screening and Treatment Tool document completed on WebV (Appendix 1: Trust Doc 13148).
- The patient should be referred to a Doctor/ACP and the Recognise and Respond Team on x4444 for an urgent medical review (within 30 minutes).
- Utilise the NNUH Sepsis Emergency Kit at the bottom of the resus trolley and call x4444 for help and support.
- Any reason for deviation from the process (for example if it is not appropriate to escalate the patients care) **MUST** be documented in the patient notes.
- At any stage any concern about a patient's clinical condition should prompt an urgent clinical review, irrespective of the NEWS2.

4. References

1. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) JAMA. 2016 Feb 23; 315(8): 801–810.
2. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock 2021: Critical Care Medicine: November 2021 - Volume 49 - Issue 11 - p e1063-e1143
3. Academy of Medical Royal Colleges Statement on the Initial Antimicrobial Treatment of Sepsis. Academy of Medical Royal Colleges 2022.
4. Sepsis: recognition, diagnosis and early management. NICE guideline [NG51] Published: 13 July 2016 Last updated: 13 September 2017. Review March 2022.
5. Hall MJ, Williams SN, DeFrances CJ, Golosinskiy A. Inpatient care for Septicemia or Sepsis: A challenge for patients and hospitals. NCHS data brief, no 62. Hyattsville, MD: National Center for Health Statistics, 2011.
6. UK Sepsis Trust. http://sepsistrust.org/
7. Gao F, Melody T, Daniels DF, Giles S, Fox S. The impact of compliance with 6-hour and 24-hour Sepsis bundles on hospital mortality in patients with severe Sepsis: a prospective observational study. Crit Care Med. 2005;9: R764-R70.
8. Improving Outcomes for Patients with Sepsis: A Cross-System Action Plan [Internet].2015. https://www.england.nhs.uk/wp-content/uploads/2015/08/Sepsis-Action-Plan-23.12.15-v1.pdf

5. Audit of the process

Compliance with the process will be monitored through the following:
A random sample of 10 will be taken from across each of the adult, non-pregnant admitting areas (ED, AMU, EAUS, AOS) for patients attending each month:

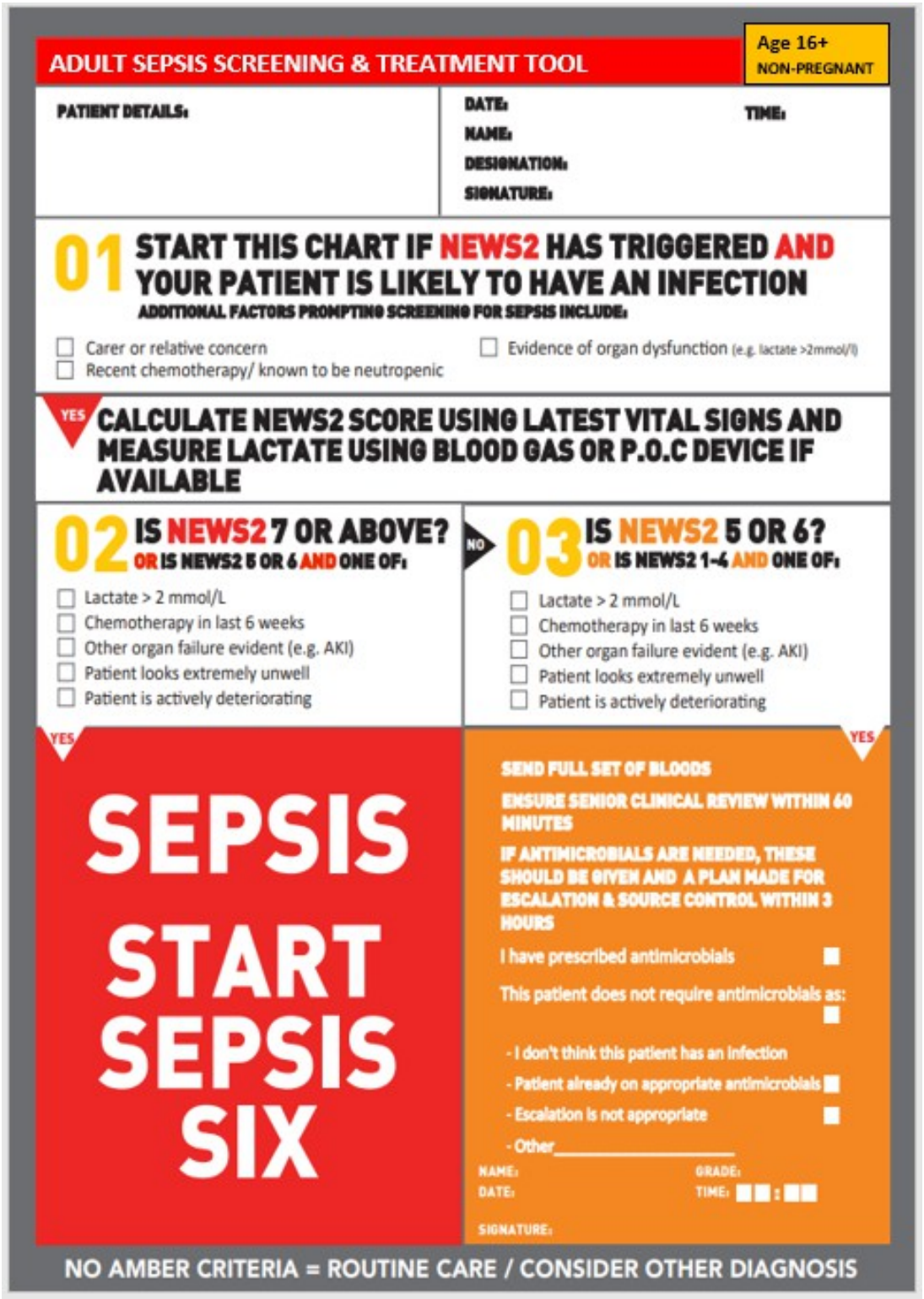
Key elements	Process for Monitoring	By Whom (Individual / group /committee)	Responsible Governance Committee /dept	Frequency of monitoring
Monthly review of % of adult, non-pregnant patients with a diagnosis of sepsis, attending an admitting area (ED, AMU, EAUS, AOS) who have observations taken within 15 Minutes of arrival.	Audit	Departmental team	RRT Governance	Monthly
Monthly review of % of adult, non-pregnant patients with a diagnosis of sepsis, attending an admitting area (ED, AMU, EAUS, AOS) who have a correct National Early Warning Score (NEWS2) calculated within 15 Minutes of arrival	Audit	Departmental team	RRT Governance	Monthly
Monthly review of % of patients attending an admitting area with a NEWS2 >5 or 3 in any one parameter who have evidence of sepsis screening, either within notes or on Symphony	Audit	Departmental team	RRT Governance	Monthly
Monthly review of % of patients who are diagnosed with sepsis on admission, who have antibiotics administered within 1 hour of diagnosis if	Audit	Departmental team	RRT Governance	Monthly

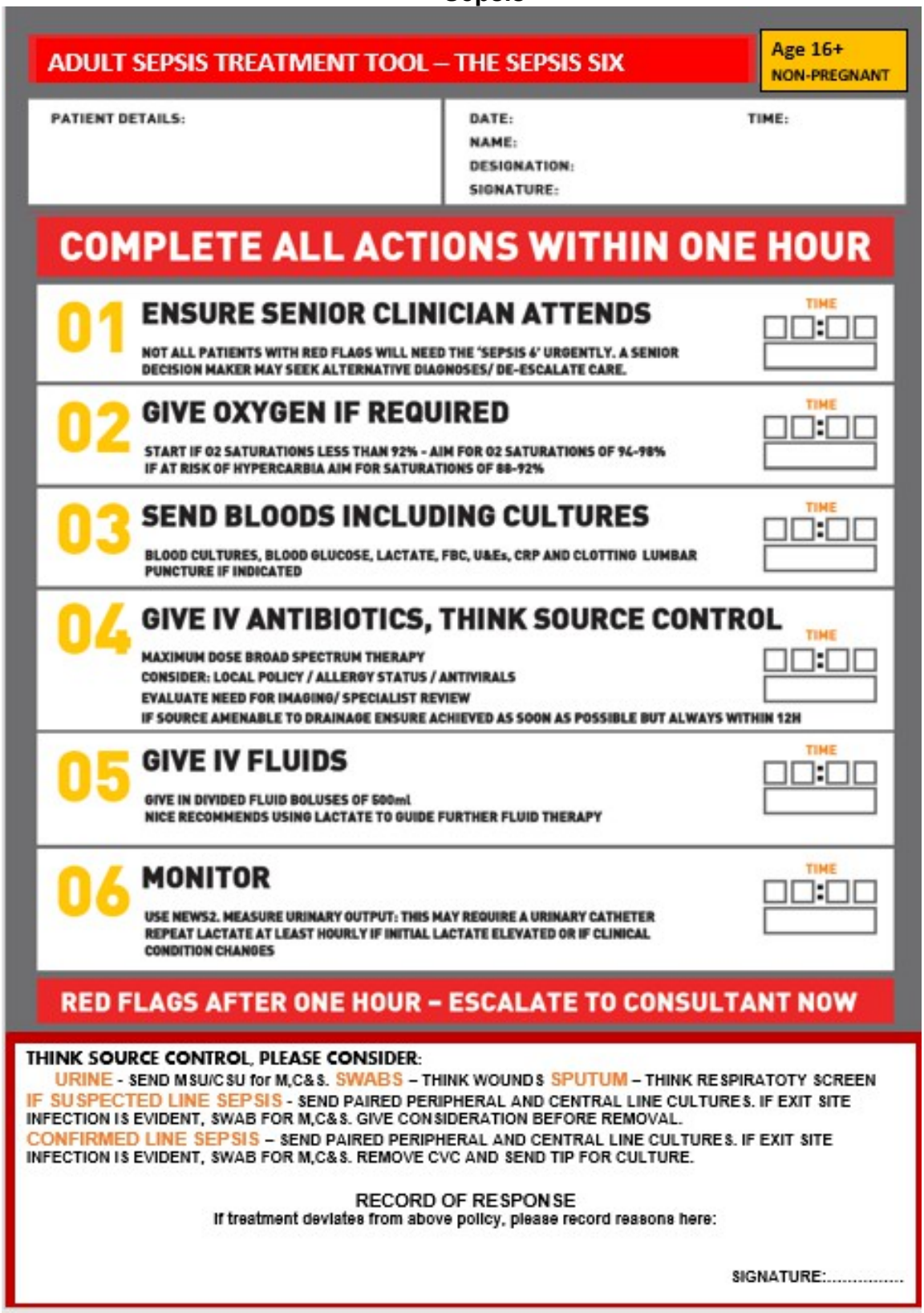
Red Flag Criteria are met OR 3 Hours if Amber Flag Criteria are met				
Monthly review of % of patients who are diagnosed with sepsis on admission, who have the “Sepsis Six Treatment Tool” completed with the 1 Hour (Red Flag)	Audit	Departmental team	RRT Governance	Monthly

Note: Patients who have a documented clinical reason to deviate or not complete the Sepsis protocol, will be excluded from the denominator for calculation purposes. Audit results will be disclosed to the Recognised and Respond Committee who will ensure that these are discussed at relevant governance meetings and make recommendations for further actions.

6. Appendices

6.1. Appendix 1: NNUH Adult Sepsis Screening and Treatment Tool (Pages 1-3) (Trust Doc 13148)





ADULT SEPSIS TREATMENT TOOL – THE SEPSIS SIX

Age 16+
NON-PREGNANT

PATIENT DETAILS:

DATE: TIME:
NAME:
DESIGNATION:
SIGNATURE:

COMPLETE ALL ACTIONS WITHIN ONE HOUR

01 ENSURE SENIOR CLINICIAN ATTENDS — TIME □□:□□

NOT ALL PATIENTS WITH RED FLAGS WILL NEED THE 'SEPSIS 6' URGENTLY. A SENIOR DECISION MAKER MAY SEEK ALTERNATIVE DIAGNOSES/ DE-ESCALATE CARE.

02 GIVE OXYGEN IF REQUIRED — TIME □□:□□

START IF O2 SATURATIONS LESS THAN 92% - AIM FOR O2 SATURATIONS OF 94-98%
IF AT RISK OF HYPERCARBIA AIM FOR SATURATIONS OF 88-92%

03 SEND BLOODS INCLUDING CULTURES — TIME □□:□□

BLOOD CULTURES, BLOOD GLUCOSE, LACTATE, FBC, U&Es, CRP AND CLOTTING LUMBAR PUNCTURE IF INDICATED

04 GIVE IV ANTIBIOTICS, THINK SOURCE CONTROL — TIME □□:□□

MAXIMUM DOSE BROAD SPECTRUM THERAPY
CONSIDER: LOCAL POLICY / ALLERGY STATUS / ANTIVIRALS
EVALUATE NEED FOR IMAGING/ SPECIALIST REVIEW
IF SOURCE AMENABLE TO DRAINAGE ENSURE ACHIEVED AS SOON AS POSSIBLE BUT ALWAYS WITHIN 12H

05 GIVE IV FLUIDS — TIME □□:□□

GIVE IN DIVIDED FLUID BOLUSES OF 500ml
NICE RECOMMENDS USING LACTATE TO GUIDE FURTHER FLUID THERAPY

06 MONITOR — TIME □□:□□

USE NEWS2. MEASURE URINARY OUTPUT: THIS MAY REQUIRE A URINARY CATHETER
REPEAT LACTATE AT LEAST HOURLY IF INITIAL LACTATE ELEVATED OR IF CLINICAL CONDITION CHANGES

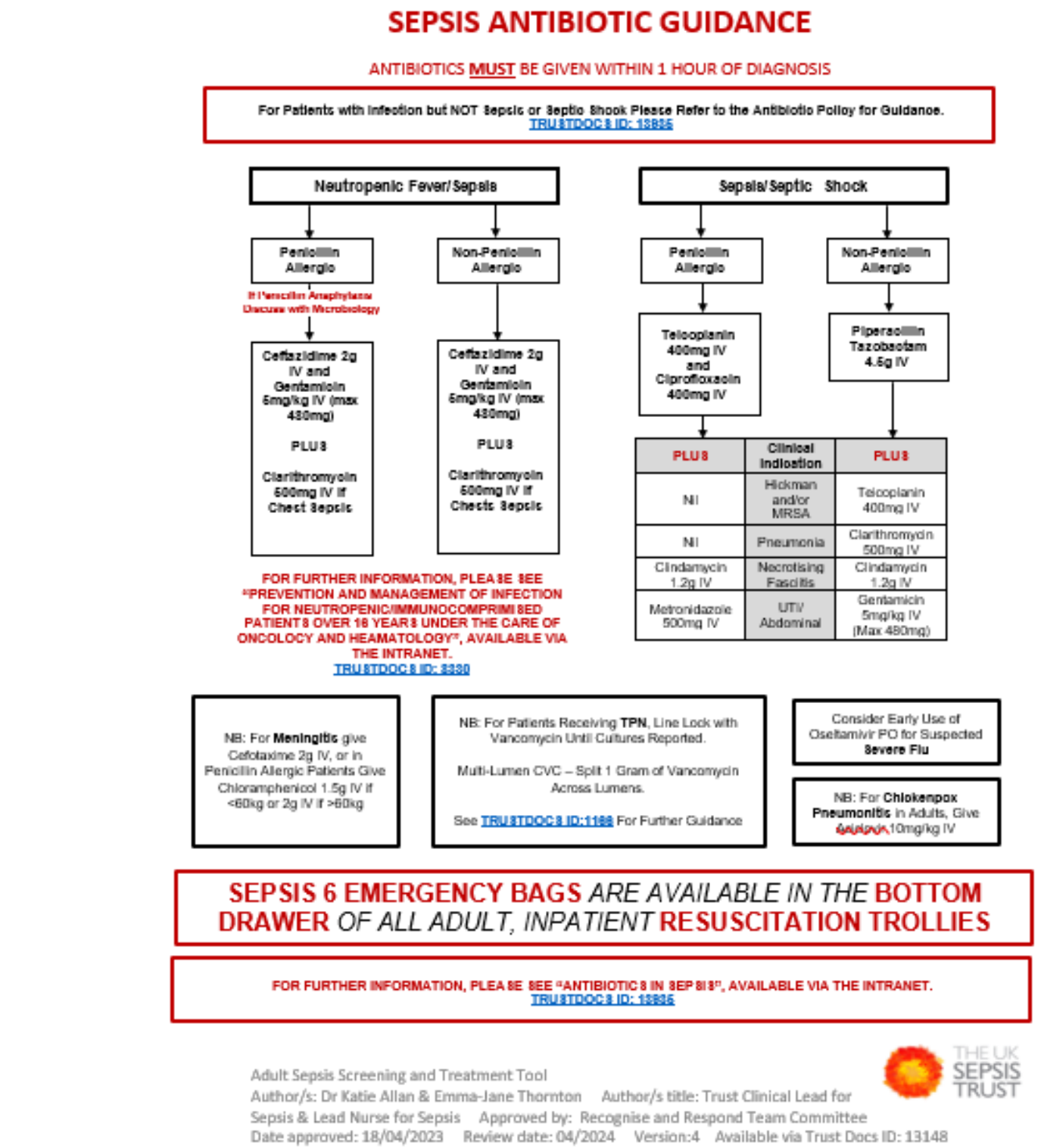
RED FLAGS AFTER ONE HOUR – ESCALATE TO CONSULTANT NOW

THINK SOURCE CONTROL, PLEASE CONSIDER:

URINE - SEND MSU/CSU for M,C&S. SWABS – THINK WOUNDS SPUTUM – THINK RESPIRATOTY SCREEN
IF SUSPECTED LINE SEPSIS - SEND PAIRED PERIPHERAL AND CENTRAL LINE CULTURES. IF EXIT SITE INFECTION IS EVIDENT, SWAB FOR M,C&S. GIVE CONSIDERATION BEFORE REMOVAL.
CONFIRMED LINE SEPSIS – SEND PAIRED PERIPHERAL AND CENTRAL LINE CULTURES. IF EXIT SITE INFECTION IS EVIDENT, SWAB FOR M,C&S. REMOVE CVC AND SEND TIP FOR CULTURE.

RECORD OF RESPONSE
If treatment deviates from above policy, please record reasons here:

SIGNATURE:.....



Appendix 2: NNUH Trust Quick Guide for Adult Non-Pregnant Patients Developing Sepsis in In-patient Areas (2023)

7. Equality Impact Assessment (EIA)

Complete the assessment inserted below

Standard Operating Procedure for the Screening and Initial Management of Adult, Non-Pregnant Patients attending Acute Admitting Areas with Suspected Sepsis

Type of function or policy	New/Existing (remove which does not apply)

Division	Surgery	**Department**	RRT
Name of person completing form	Emma-Jane Thornton	**Date**	18/01/2023

Equality Area	**Potential** **Negative Impact**	**Impact** **Positive Impact**	**Which groups are affected**	**Full Impact Assessment Required YES/NO**
Race	No	No	NA	No
Pregnancy & Maternity	No	No	NA	No
Disability	No	No	NA	No
Religion and beliefs	No	NO	NA	No
Sex	No	No	NA	No
Gender reassignment	No	No	NA	No
Sexual Orientation	No	No	NA	No
Age	No	No	NA	No
Marriage & Civil Partnership	No	No	NA	No
EDS2 – How does this change impact the Equality and Diversity Strategic plan (contact HR or see EDS2 plan)?	NA			

- **A full assessment will only be required if: The impact is potentially discriminatory under the general equality duty**
- **Any groups of patients/staff/visitors or communities could be potentially disadvantaged by the policy or function/service**
- **The policy or function/service is assessed to be of high significance**

IF IN DOUBT A FULL IMPACT ASSESSMENT FORM IS REQUIRED

The review of the existing policy re-affirms the rights of all groups and clarifies the individual, managerial and organisational responsibilities in line with statutory and best practice guidance.