North West Anglia
NHS Foundation Trust

Sepsis and Suspected Neutropenic Sepsis Policy for Patients > 16 years of age.

(Excluding all pregnant patients and up to 6 weeks post-partum)

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Author Name and Job Title	Leanne Shaw- Sepsis Specialist Nurse
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Target Audience	North West Anglia NHS Foundation Trust
	All sites

Equality Impact Assessment North West Anglia NHS Foundation Trust (NWAngliaFT) strives to ensure quality of opportunity for all service users, local people and the workforce. As an employer and a provider of health care, NWAngliaFT aims to ensure that none are placed at a disadvantage as a result of its policies. This policy has therefore been equality impact assessed to ensure fairness and consistency for all those covered by it regardless of their individuality. The results are shown in the Equality Impact Tool at Appendix J.

North West Anglia NHS Foundation Trust

DOCUMENT VERSION CONTROL SCHEDULE					
Year and Version Number	**Author**	**Date Published on Document Library**	**Revisions from previous issue**	**Ratifying Committee**	**Date of Ratification**
2010 Version 1	Sue Shipton	2010	New Policy	Clinical Governance Committee	September 2010
2015 Version 2	Sue Shipton	01/10/2015	Combines two previous documents: • Early recognition and management of the adult patient with possible sepsis (central index number 0104) • Neutropenic Sepsis Guidelines for the Treatment of Adults (central index number 0279) Reviewed and formatted into new Trust format	Quality Governance Committee	15/09/2015
2019 Version 3	Leanne Shaw	22/05/2019	Updated document, written in new Trust format.	Quality Governance Committee	17/05/2019

Summary of key points in this document:

- Rapid recognition and initiation of treatment are critical to a patient's chances of survival and does reduce mortality and morbidity currently associated with sepsis.
- Sepsis and severe infection are one of the most common reasons for admission to hospital and perhaps the most common cause of inpatient deterioration.
- Neutropenic sepsis and sepsis are both time critical medical emergencies and must be treated as such.
- The Sepsis Screening Tool must be used alongside the National Early Warning Score (NEWS2). This policy is only applicable to adults and young people >16 years of age (excluding pregnant patients and up to 6 weeks post-partum).
- Using the sepsis six bundle as early goal directed resus therapy is a well validated treatment bundle for sepsis and is proven to reduce mortality.
- Education, raising awareness and knowledge for all clinical staff is key to improving compliance.
- It is imperative to ensure that principles of good antimicrobial stewardship and appropriate use of antibiotics are built into all activities.

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Contents

1. Introduction

Sepsis is important and is a main cause of acute illness, death and disability in the UK (RCP 2017). Incidences of sepsis are rising by 11.5% each year (Daniels and Nutbeam 2017). The 2015 National Confidential Enquiry into Patient Outcome and Death (NCEPOD) 'Just say Sepsis' report suggested there were around 200 000 cases of sepsis in the UK each year claiming at least 60 000 lives of which 80% as a response to community acquire infections.

Sepsis is believed to contribute to 1 in every 2-3 deaths in hospital and patients are receiving suboptimal care across all departments in acute care. There is a failure to recognise a patient with sepsis (NCEPOD 2015, Singer et al 2016).

Neutropenic sepsis is a potentially fatal complication of anticancer treatment with mortality rates ranging between 2%-21% reported in adults. Aggressive use of inpatient intravenous antibiotic therapy has significantly reduced morbidity and mortality rates and resulted in fewer than 5% of cases requiring Intensive Care management in England (NICE 2012).

Neutropenic sepsis and sepsis are life threatening, time critical, medical emergencies and should be treated as such. There must be no delay in delivering lifesaving treatment (NICE 2012).

In July 2016, the National Institute for Health and Clinical Excellence (NICE) published Sepsis: recognition, diagnosis and early management (NG51). The guideline provides universal standards of care to ensure all healthcare practitioners are risk stratifying and delivering gold standard care to patients with suspected sepsis.

Following on from the release of NG51 in 2016. NICE published a Quality Standard for sepsis in September 2017 (QS161). The standard focuses on urging professionals across the NHS to think 'could this be sepsis?' It describes high quality care in priority areas for improvement with 5 quality statements which will form the basis of the policy.

In 2017, NHS England (NHSE) released sepsis guidance implementation advice for adults which provided a unified framework to improve adult sepsis identification. NHSE (2017) advocates using NEWS2 (National Early Warning Score version 2) to identify patients with organ failure and acute deterioration. An aggregated NEWS2 score of 5 or more is associated with a >3 fold increased risk of patient transfer to Intensive Care or death in patients with sepsis.(RCP 2017).

A patient with an aggregated NEWS2 score of 5 or more and signs/symptoms of infection or a high risk of infection are most likely to represent sepsis and require urgent escalation of treatment. This forms the prompt for formalised sepsis screening tool to focus on organ dysfunction. An infective cause must be considered wherever a patient presents with acutely altered physiology,

deteriorates unexpectedly during treatment for another condition, or simply fails to improve as expected

Delivering the sepsis six within 60 minutes is one of the most effective lifesaving treatments in medicine (Daniels and Nutbeam 2017, NICE 2012, NICE 2016). Each hour delay in administering antibiotics increases mortality by 7.6% (Nutbeam, Daniels & Keep 2016). Relative death from sepsis can be reduced by 46.6% if all six elements of the sepsis six are completed within the recommended hour (Nutbeam, Daniels & Keep 2016).

2. Purpose

The main purpose of this policy is to provide an evidenced based standardised structure in the prompt recognition and management of sepsis. The policy will clearly state how and when to screen patients for sepsis.

The policy aims to raise awareness and highlight the importance of screening patients for sepsis when they meet the criteria to be screened. There must be a culture of eliminating sepsis from enquires.

The policy aims to empower staff to provide high quality care when dealing with Neutropenic sepsis and sepsis. The sepsis screening and action tool (Appendix 1&2) will provide an operationally sound, systematic, robust screening process and subsequent resuscitation treatment. It conforms to the NICE guidance, NHSE recommendations and is affiliated with the UK Sepsis Trust.

3. Scope

This policy should be used by all clinical staff that may be responsible for recognising / assessing and treating the unwell / deteriorating patient. It will work in partnership with the National Early Warning Score (NEWS2) (RCP 2017).

This document is for the use of all prescribers in the Trust to reduce risk associated with sepsis of unknown origin and neutropenic sepsis. It will provide guidance to assess the above and recommend treatment with the choice of agent, route of administration, dose and course length.

This policy is only applicable to adults or young people over the age of 16 who require screening and/or treatment for sepsis. There are separate policies and screening bundles available on SharePoint for Maternal Sepsis (CI4.27PCH/SO2HH) and Paediatric Sepsis (C1061).

This policy links closely with the Adult track and trigger physiological observation tool NEWS2. Paediatric (PEWS) and Maternity (MEOWS) patients have their own specific track and trigger tools and should be used in conjunction with the specific client group and sepsis bundles.

4. Duties and Responsibilities

All health care professionals (inclusive of Health Care Assistants and student trainees) have a duty to familiarise themselves with what sepsis is and the policies and procedures for dealing with sepsis. Any concerns regarding the patient's condition must be reported to a registered practitioner or doctor responsible for the patient. All health care professionals must recognise that every patient attending or in hospital are at risk of sepsis. Every contact with the acutely unwell patient counts.

All registered practitioners must attend the sepsis education at Registered Practitioner Induction upon commencing their role within the organisation. Following on from this all registered practitioners must attend the sepsis education at their annual mandatory clinical update day.

All medical staff must receive sepsis education and ensure that they are aware of current practice, protocol and policies in regards to sepsis recognition and management within North West Anglia NHS Foundation Trust (NWAFT).

All of the acute oncology nursing team must complete the UK Acute Oncology Nursing triage competencies and update these annually.

All registered practitioners that are responsible for the acute oncology 24 hour helpline out of hours must receive training from the acute oncology team and complete the additional UK Acute Oncology Nursing triage competencies and update these annually.

All sepsis super nurses must attend the sepsis link meetings and act as a sepsis champion for their clinical area. The sepsis super nurses must agree to fulfil an additional set of roles and responsibilities including audit in their clinical areas.

A multi-disciplinary team approach must be utilised when assessing and treating a patient with sepsis. There must be an open and transparent culture when risk stratifying and preventing deterioration from sepsis. A culture of professional curiosity will be supported as every patient contact counts and clinical judgement must not be discredited irrelevant of position.

All patients must have access to education surrounding the dangers of sepsis by promoting a safety netting culture within emergency areas and upon discharge. Patients must have access to literature to ensure that they are able to recognise the signs and symptoms of sepsis and how to access to medical care.

All patients who have been diagnosed with sepsis must be informed and have access to educational literature surrounding sepsis and expectations upon discharge.

5. Definitions of terms

The following definitions are the current most up to date definitions set by The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) (Singer et al 2016).

Infection can be classified as an inflammatory response to microorganisms or invasion of normally stable tissues, as evidenced from clinical examination, imaging or laboratory tests.

Sepsis is a life-threatening organ dysfunction due to a dysregulated host response to infection. Current evidence states once you have developed Sepsis your mortality rate is increased by 10% (Daniels and Nutbeam 2017).

Neutropenic Sepsis diagnose neutropenic sepsis in patients having anticancer treatment whose neutrophil count is 0.5 x 10^{9}/L or less and who either have a temperature higher than 38°C or other signs and symptoms consistent with a clinically significant sepsis (NICE 2012)

Within NWAFT it has been agreed that there will be additional vigilance surrounding this patient group and all patients with a neutrophil count of 1 x or less will be considered as neutropenic.

Septic Shock is a subset of sepsis in which particularly profound circulatory, cellular and metabolic abnormalities substantially increase mortality. Mortality is at least 40% (RCP 2017).

Patients with septic shock can be identified with the following clinical criteria:

Persisting hypotension requiring vasopressors to maintain MAP ≥ 65mmHg despite adequate volume fluid resuscitation.

Blood lactate greater or equal to 2 mmol/L despite adequate volume fluid resuscitation.

6 Screening Patients for sepsis in all areas inclusive of emergency areas

Registered health care practitioners/doctors must screen all patients who meet the criteria to be screened regardless of where they are within the organisation, inclusive of outpatient areas.

Patients must be screened if they meet the following criteria to be screened regardless of their reason for admission or current treatment pathway. The only exception to this is if the patient attends the resuscitation room within the emergency department following serious trauma.

Screening criteria

1) Does the patient look unwell?
2) Is the aggregated NEWS2 score 5 or above or is there a NEWS2 of 3 in a single parameter?

See Appendix 1 and 2 for sepsis screening and action Tool. See Appendix 3 for detailed information around the sepsis screening protocol and rationales.

Patients who are screened for sepsis and identified as low risk of sepsis must be rescreened if their condition deteriorates or staff concerned. All documentation must be clear, concise and there must be evidence of the screening tool within the patients' medical records.

If the patient is screened and sepsis is identified the patient does not need to be rescreened or have repeat blood cultures for 72 cultures in line with antibiotic stewardship. The patient's condition must be continually monitored. The response to treatment must be monitored and escalated if identified in line with the escalation strategy as per NEWS2. Antibiotics must be de-escalated at the earliest opportunity if the patient is improving and/or microbiology investigations are negative in line with good antibiotic stewardship. These patients must be reviewed daily and decisions made by senior clinical decision makers.

If the patient is stepping down/being discharged from an area of higher acuity (i.e. theatres/critical care) they must have the relevant sepsis screen completed if meeting the criteria to be screened. If a patient is on the sepsis pathway this must be communicated upon discharge.

If a patient is started on treatment and at 72 hours the patient is failing to improve, condition is deteriorating and/or the patient NEWS2 aggregated 5 or 3 in a single category sepsis screening must be recommenced. If the patient is identified as septic the sepsis six 60 minute resuscitation treatment bundle must be re-initiated and all 6 elements completed. The team must contact the Microbiologist to discuss antibiotic therapy/escalation. There is 24 hour access to a Microbiologist across all sites.

7. Suspected Neutropenic Sepsis Screening

Within the acute setting patients should be screened as illustrated in Point 6 – 6.7 and as per Appendix 1 with no exception.

A high index of suspicion must be maintained for this patient group and an additional prompt to screen must be a temperature equal or greater than 38°C.

Patients at home must be given safety netting education by the Oncology team prior to commencing chemotherapy. This education covers how to recognise the early signs of sepsis. If the patient is feeling unwell they are advised to contact the 24 hour Oncology Helpline. See Appendix 5 and 6 for the process that these patients must follow upon contacting the helpline at Peterborough City Hospital and Hinchingbrooke Hospital. Patients undergoing anticancer treatment and their carers must receive written and oral information before starting and throughout their anticancer treatment on:

- Neutropenic sepsis
- How and when to contact 24 hour specialist oncology advice

- How and when to seek emergency care

It must be recognised by all staff that this patient group are at high risk of deterioration and death if not assessed and treated as a time critical medical emergency upon presentation.
Excellent communication is paramount when identifying these high risk patients.

This patient group must be recognised and seen as a priority upon attendance to emergency areas. All areas are pre alerted if triaged by 24 hour Oncology helpline. If a patient self presents to these areas without pre alert they are encouraged to present a 'red cancer card' upon arrival and inform staff on booking in that they have a cancer diagnosis undergoing chemotherapy and they must be seen as a priority.

It must be recognised that all patients that are triaged via the 24 hour Oncology helpline and instructed to attend have had verbal screening for sepsis and must receive the sepsis six treatment bundle upon arrival. The formal screening tool must be completed but this patient group will require time critical treatment upon arrival and there must not be a delay in delivering this.

Recent chemotherapy is a 'red flag' criterion and there must be no delay in delivering treatment. If this patient group are unwell, with any signs/concerns regarding infection they must be commenced on intravenous antibiotics. This patient group who are already immunocompromised deteriorate more rapidly than their counterparts without neutropenia and there cannot be a delay awaiting blood results to determine this. The sepsis six resuscitation bundle must be commenced and all 6 elements completed within 60 minutes. This is a time critical medical emergency.

The term 'recent chemotherapy' refers to any chemotherapy within the last 6 weeks. (Daniels and Nutbeam 2017).

8. Management of Sepsis

The sepsis six care bundle elements are combined with the sepsis screening tool to guide the management and care in the first hour after recognition of sepsis. See Appendix 1 & 2 for screening and treatment pathway.

Delivering the sepsis six 60 minute resuscitation treatment is one of the most effective lifesaving treatments in medicine (NICE (2017)) .QS161 states that for patients at high risk of severe illness or death from sepsis the clinical benefits from receiving the first dose of intravenous antibiotics within the hour outweighs any risk associated with possible antimicrobial resistance, an ethos that is supported within the Microbiology and Pharmacy departments. It forms a strategic pathway to deliver lifesaving treatment and ensure investigations are followed up and reviewed.

If the patient is screened and identified to have sepsis the patient requires urgent assessment by a senior clinical decision maker (defined by NICE CG51 as ST3+ or

a trained nurse with prescribing rights). The 60 minutes begins the moment sepsis is identified using the formalised tool. The nurse in charge must be made aware and clear, concise documentation is required. Doctors and/or competent health care practitioners who are formally assessing and making a diagnosis must document the working diagnosis and then ensure a confirmation is also documented.

If the patient is screened and identified to have sepsis and there are healthcare professionals trained and competent in delivering the sepsis/neutropenic sepsis antibiotic patient group directive present the sepsis six must be commenced and completed whilst awaiting urgent assessment by a senior clinical decision maker.

If a patient is screened and identified to have sepsis all actions must be completed within 60 minutes. This must be documented on the sepsis six care bundles. Any variances or delay(s) to treatment must be documented. All investigations must be followed up and reviewed urgently.

Within emergency areas any patient that self –presents with a 'red card' (undergoing cancer therapy) or has been pre-alerted to emergency areas with suspected neutropenic sepsis must be seen, assessed and treated if required within 60 minutes of arrival.

The six elements are focused interventions that can be divided into 3 actions and 3 investigations. The sepsis six aims to locate and treat the infection whilst restoring circulation and oxygenation.

Some of the blood tests and investigations that are required to make a formal diagnosis of sepsis may not be immediately available to the clinician at the time of assessment**.** A diagnosis of sepsis can be made if infection is clinically suspected or confirmed with the presence of organ dysfunction (red flag sepsis). There must not be a delay in delivering the 60 minute resuscitation treatment if a patient meets the criteria to treat. Clinicians must review blood results and other pertinent investigations and escalate/de-escalate treatment accordingly.

SEPSIS SIX	**CRITERIA**	**RATIONALE**
1 Administer Oxygen	Maintain Oxygen saturations >94%. If patient has confirmed hypercapnic drive to breathe maintain saturation 88-92%.	To improve oxygen content of the blood and therefore to the tissues,
2 Take blood cultures and bloods	Send blood cultures, ABG/VBG, FBC, CRP, U&Es, Lactate and coag. If the patient has a CVC insitu best practise to send blood cultures from each lumen.	To help identify pathogens, determine likely source of infection and ensure correct use of antibiotic therapies. Provides formal diagnosis of sepsis to guide initial diagnosis.

	Neutropenic patients must have extensive screening sent – please see Appendix 4 for detail.	Ensure that samples are sent from any suspicious cause i.e. productive cough – sputum, offensive urine odour – urine MC&S, skin breech – swab affected site.
3 Give antibiotics	Give antibiotics as per Trust protocol. Discuss any concerns with Microbiology, Always consider source and practise excellent antibiotic stewardship. **Please see appendix 7 and 8 for Neutropenic Sepsis and Sepsis of unknown origin antibiotic therapy guidance.**	To control the underlying infection, remove the trigger for the immune overreaction.
4 Give IV fluids	If hypotensive / lactate greater than 2 mmol/l give up to 30ml/kg and review response. If patient normotensive and lactate normal consider 500mls stat.	To improve preload to the heart by correcting hypovolaemia, improving cardiac output and BP. Delivery of IV fluids can help reverse the signs of Septic Shock, If Doctor does not think this is indicated this must be documented.
5 Check serial lactate	Corroborate a high VBG lactate with an arterial sample. If lactate greater or equal to 4 then it must be rechecked after each 10ml/kg fluid challenge and critical care must be contacted.	High lactate is indicative of hypo-perfusion, the response of the lactate to fluid guides resuscitation. The greater the lactate the greater the mortality and severity of sepsis.
6 Measure Urine Output	The patient requires strict fluid balance monitoring input and	Urine output will fall if the patient is hypovolaemia.

	output. Ensure there is an accurate weight for patient to ensure adequate urine output. 0.5mls/kg/hour. If unable to accurately monitor urine output or the patient condition deteriorates we must consider catheterisation.	Urine output also provides an indicator of adequate cardiac output.

Where a senior clinical decision maker has considered and discounted a diagnosis of sepsis within emergency areas and within inpatient areas the patient should be closely monitored for later signs of deterioration with a clear plan for review if said deterioration should occur. (NHSE 2017, NICE 2016).

If sepsis is identified and the patient is not for escalation of treatment/ intravenous antibiotics the clinical decision maker must clearly indicate this in the patient's treatment plan and notes. This decision should be made at consultant level in conjunction with the patient and/or discussed with their next of kin. (NHSE 2017, NICE 2016).

Intra-hospital transfers for this patient group must be limited and based upon a clinical need to transfer. There must be clear communication from all healthcare professionals when transferring the patient that the patient is on a sepsis pathway. The nurse caring for the patient must be aware of where the patient is in their 72 hour treatment pathway to ensure that screening is recommenced if indicated.

Patients that are failing to improve, deteriorating further or developing Septic Shock require rapid escalation to the Critical Care team for urgent assessment and require consultant grade review as per QS161. In the case of septic shock:

- Patients should have continuous cardiac monitoring in place and physiological observations documented every 30 minutes.
- Response to fluid therapy must be monitored by monitoring serial lactates.
- The patient must be escalated to the nurse in charge and a senior decision maker (ST3+ / gold standard consultant level) must be informed and attend as a priority.
- Critical care outreach and the critical care team must be made aware.

9. Implementation and monitoring

All nursing staff must attend Registered Practitioner Induction (RPI) upon taking on a position within the organisation, a session on sepsis screening and management is delivered at these sessions.

All nursing, Allied Health Professionals (AHP) and Health Care Assistants (HCA) within the organisation have to attend mandatory Clinical Update Days annually and a sepsis session is delivered at all of these sessions. This is monitored on Electronic Staff Records (ESR).

Teaching on current sepsis screening and management is delivered on all the mandatory Doctor Induction sessions.

Teaching is available to any staffs that identify the need for further training.

There is not currently a mandatory yearly update for medical staff but they have a duty and responsibility to be up to date with the latest policy and follow organisational protocol. Information sharing is given at clinical governance sessions.

The quality and compliance of sepsis screening and management is to be monitored on a monthly basis and reported on the Matrons Balance Scorecard (MBSC). This information is to be collected by designated Sepsis Super Nurses for each ward area. The audit will focus on screening and treatment compliance.

Sepsis information is included in the monthly Quality Report and reported at board level and to the CCGs.

There is a bi-monthly Sepsis Action Groups (SAG). This is attended by the Associate Medical Director for Patient Safety and mandatory representation is stipulated from each directorate. This is a forum to share best practise, current legislation and share lessons learnt.

10. Ratification

This policy will be approved by the Nursing & Midwifery Advisory Group, the Drugs and Therapeutics committee. It will be ratified by the Quality Governance Operational Committee.

11. Distribution

The policy will available on SharePoint.

12. References

Churpek M, N. Zadravecz F, J. Winslow c. Howell M, D & Edelson D, P. (2015). Incidence and prognostic value of Systemic Inflammatory Response Syndrome and organ dysfunction in ward patients. *American Journal Of Critical Care Medicine* 192 pp 958-964.

Daniels, R & Nutbeam, T. (2017) *The Sepsis Manual* 4th Ed 2017-2018. Birmingham. UK.

National Confidential Enquiry into Patient Outcome and Death (NCEPOD) (2015). *Just Say Sepsis: A review of the process of care received by patients with sepsis.* NCEPOD. London.

National Health Service England (2017) *Sepsis guidance implementation advice for adults* NHS England. London.

National Institute for Health and Clinical Excellence, (2012) .Clinical guideline 151 Neutropenic Sepsis: *Prevention and management of neutropenic sepsis in cancer patients*. NICE. London.

National Institute for Health and Clinical Excellence. (2016). *Sepsis: recognition, diagnosis and early management CG51* NICE. London.

National Institute for Health and Clinical Excellence. (2017). Quality Standard 16. *Sepsis.* NICE. London.

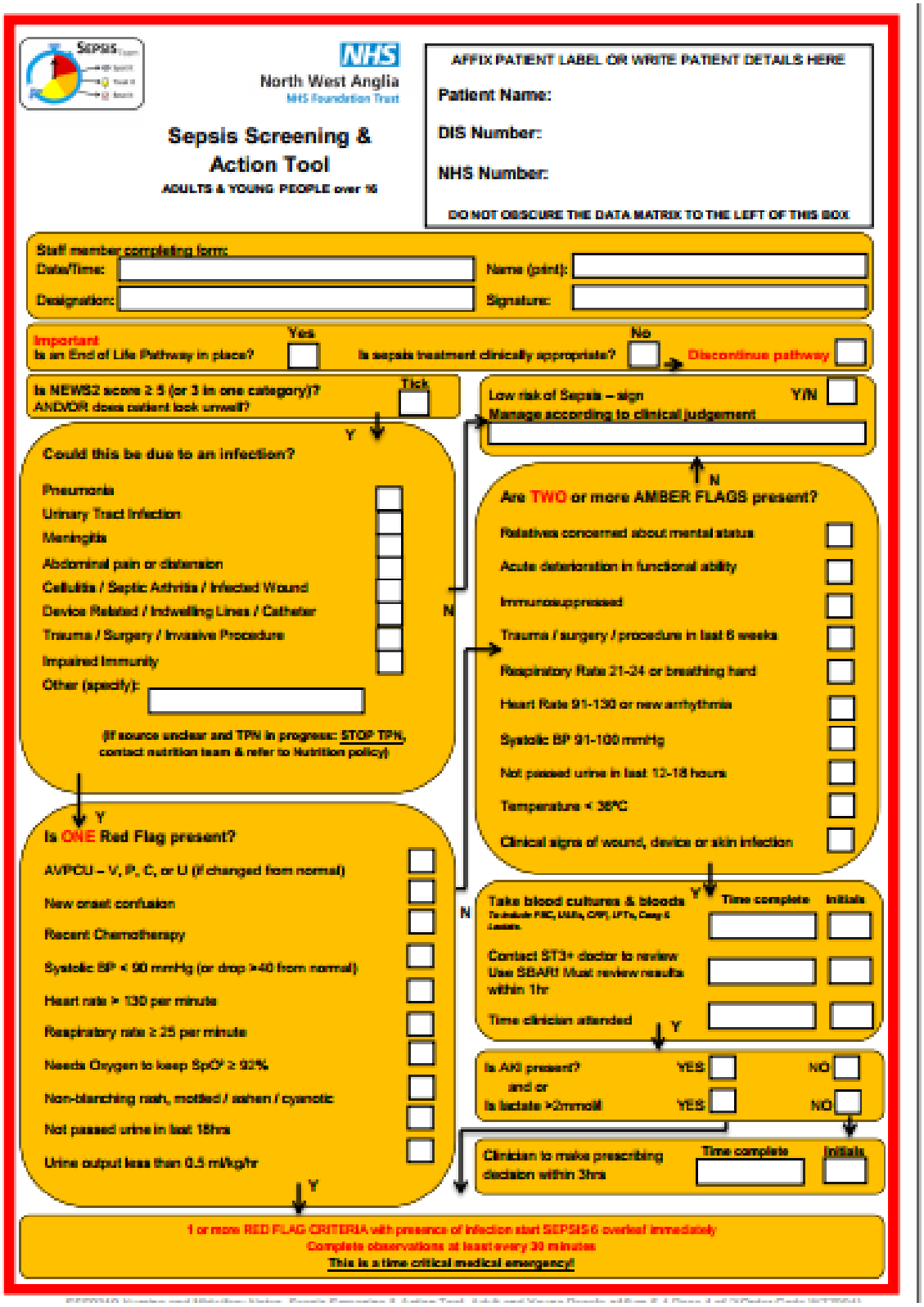
Nutbeam, T. Daniels, R & Keep, J (2016) *Toolkit: Emergency Department Management od Sepsis in Adults and Young People over 12 years old*. The UK Sepsis Trust. Birmingham, UK.

Royal College of Physicians (2017). *National Early Warning Score (NEWS) 2 - Standardising the assessment of acute illness severity in the NHS*. www.rcplondon.ac.uk

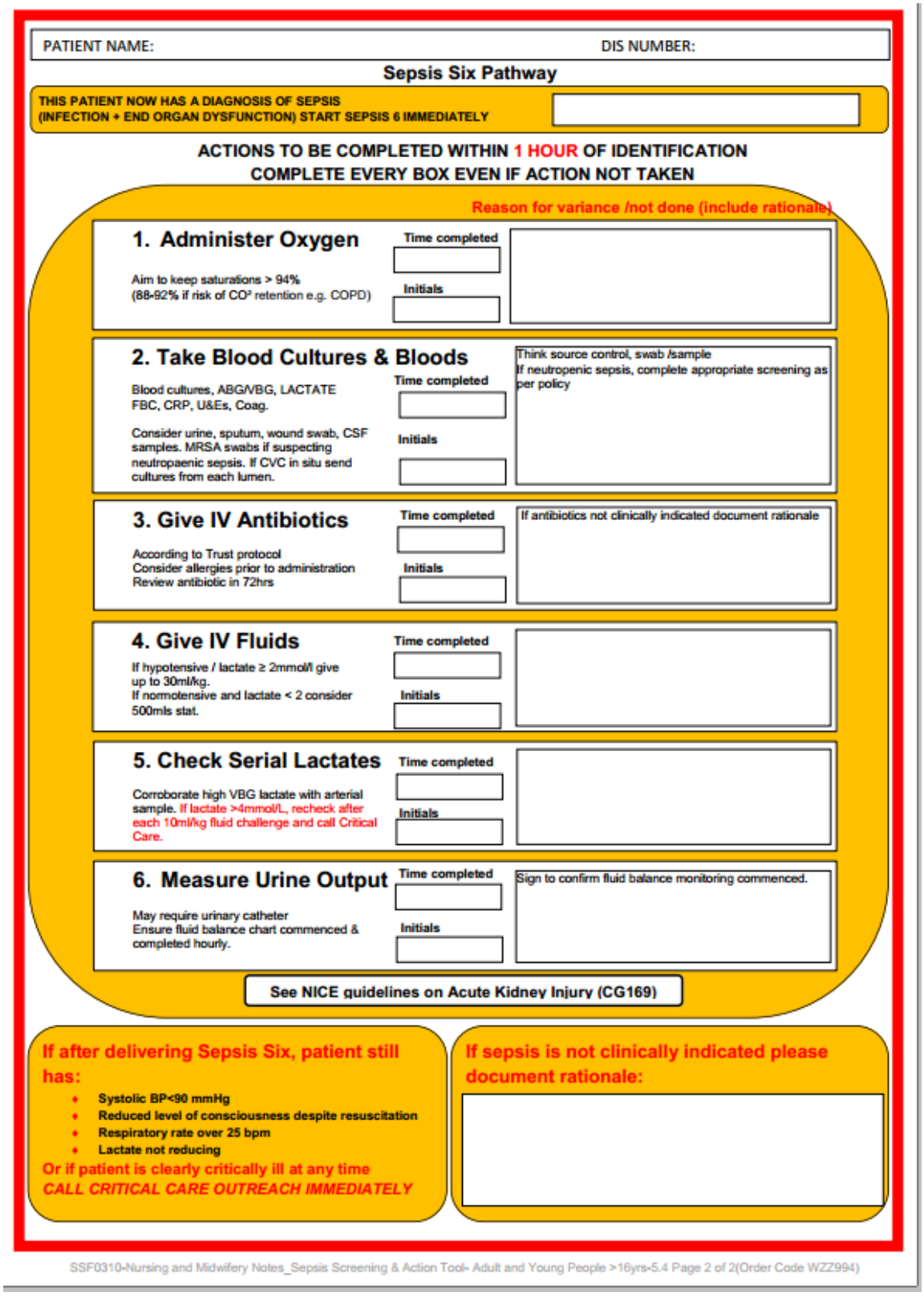
Seymour C, W. Liu V, X. Iwashyna T, J et al (2016). Assessment of clinical criteria for sepsis: for the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *Journal of the American Medical Association.* 315 pp732-774.

Singer M, Deutschman C S et al,(2016). *The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3*). *Journal of the American Medical Association* 315 (8) pp 801-810.

Appendix A: Sepsis Screening Tool



Appendix B: Sepsis Six Treatment Bundle



PATIENT NAME: DIS NUMBER:

Sepsis Six Pathway

THIS PATIENT NOW HAS A DIAGNOSIS OF SEPSIS (INFECTION + END ORGAN DYSFUNCTION) START SEPSIS 6 IMMEDIATELY

ACTIONS TO BE COMPLETED WITHIN 1 HOUR OF IDENTIFICATION
COMPLETE EVERY BOX EVEN IF ACTION NOT TAKEN

Reason for variance /not done (include rationale)

1. Administer Oxygen
Aim to keep saturations > 94%
(88-92% if risk of CO^2 retention e.g. COPD)
Time completed / Initials

2. Take Blood Cultures & Bloods
Blood cultures, ABG/VBG, LACTATE
FBC, CRP, U&Es, Coag.
Consider urine, sputum, wound swab, CSF samples. MRSA swabs if suspecting neutropaenic sepsis. If CVC in situ send cultures from each lumen.
Time completed / Initials
Think source control, swab /sample
If neutropenic sepsis, complete appropriate screening as per policy

3. Give IV Antibiotics
According to Trust protocol
Consider allergies prior to administration
Review antibiotic in 72hrs
Time completed / Initials
If antibiotics not clinically indicated document rationale

4. Give IV Fluids
If hypotensive / lactate ≥ 2mmol/l give up to 30ml/kg.
If normotensive and lactate < 2 consider 500mls stat.
Time completed / Initials

5. Check Serial Lactates
Corroborate high VBG lactate with arterial sample. If lactate >4mmol/L, recheck after each 10ml/kg fluid challenge and call Critical Care.
Time completed / Initials

6. Measure Urine Output
May require urinary catheter
Ensure fluid balance chart commenced & completed hourly.
Time completed / Initials
Sign to confirm fluid balance monitoring commenced.

See NICE guidelines on Acute Kidney Injury (CG169)

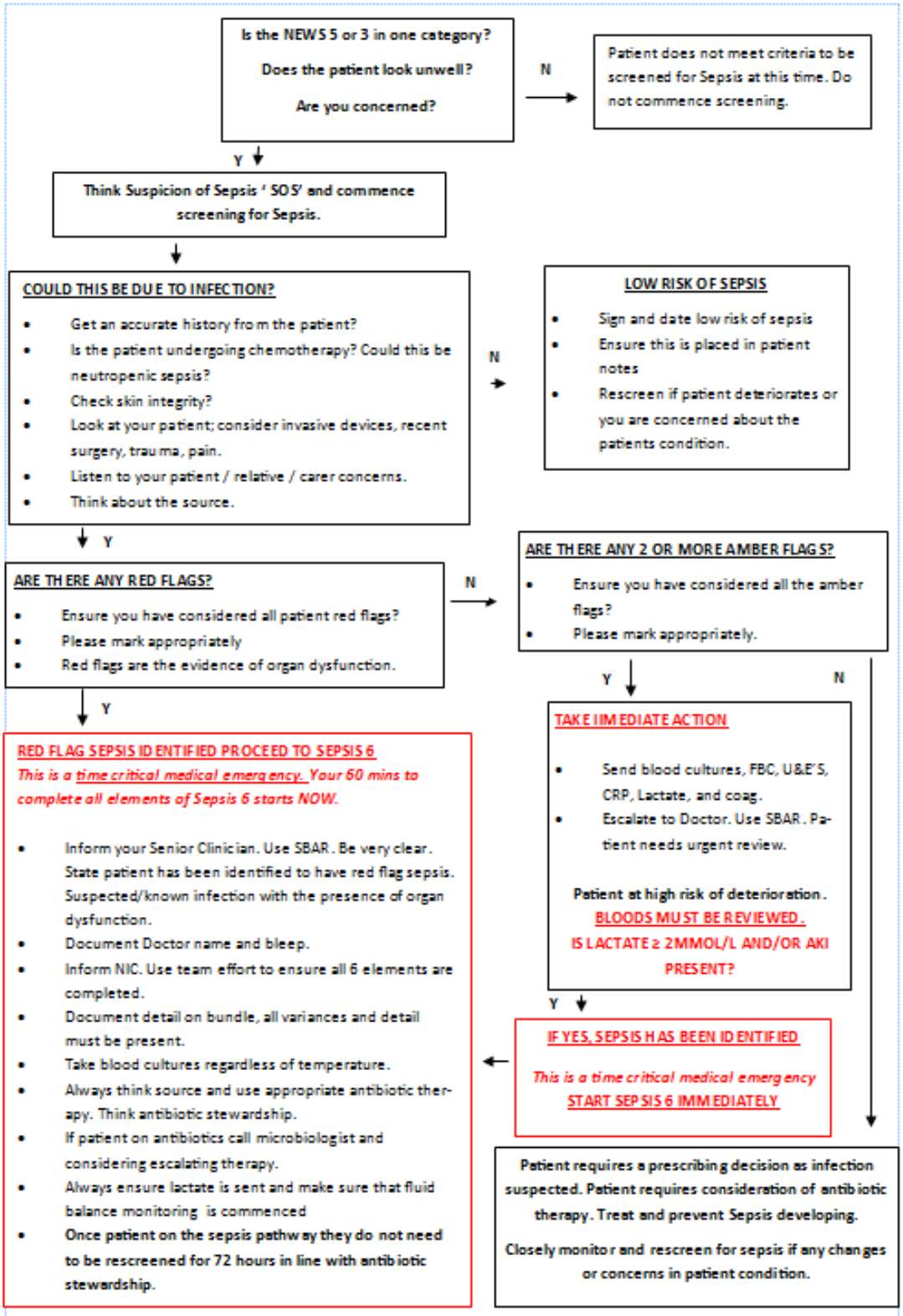
If after delivering Sepsis Six, patient still has:
- Systolic BP<90 mmHg
- Reduced level of consciousness despite resuscitation
- Respiratory rate over 25 bpm
- Lactate not reducing

Or if patient is clearly critically ill at any time
CALL CRITICAL CARE OUTREACH IMMEDIATELY

If sepsis is not clinically indicated please document rationale:

SSF0310-Nursing and Midwifery Notes_Sepsis Screening & Action Tool- Adult and Young People >16yrs-5.4 Page 2 of 2(Order Code WZZ994)

Appendix C: Sepsis screening detailed algorithm



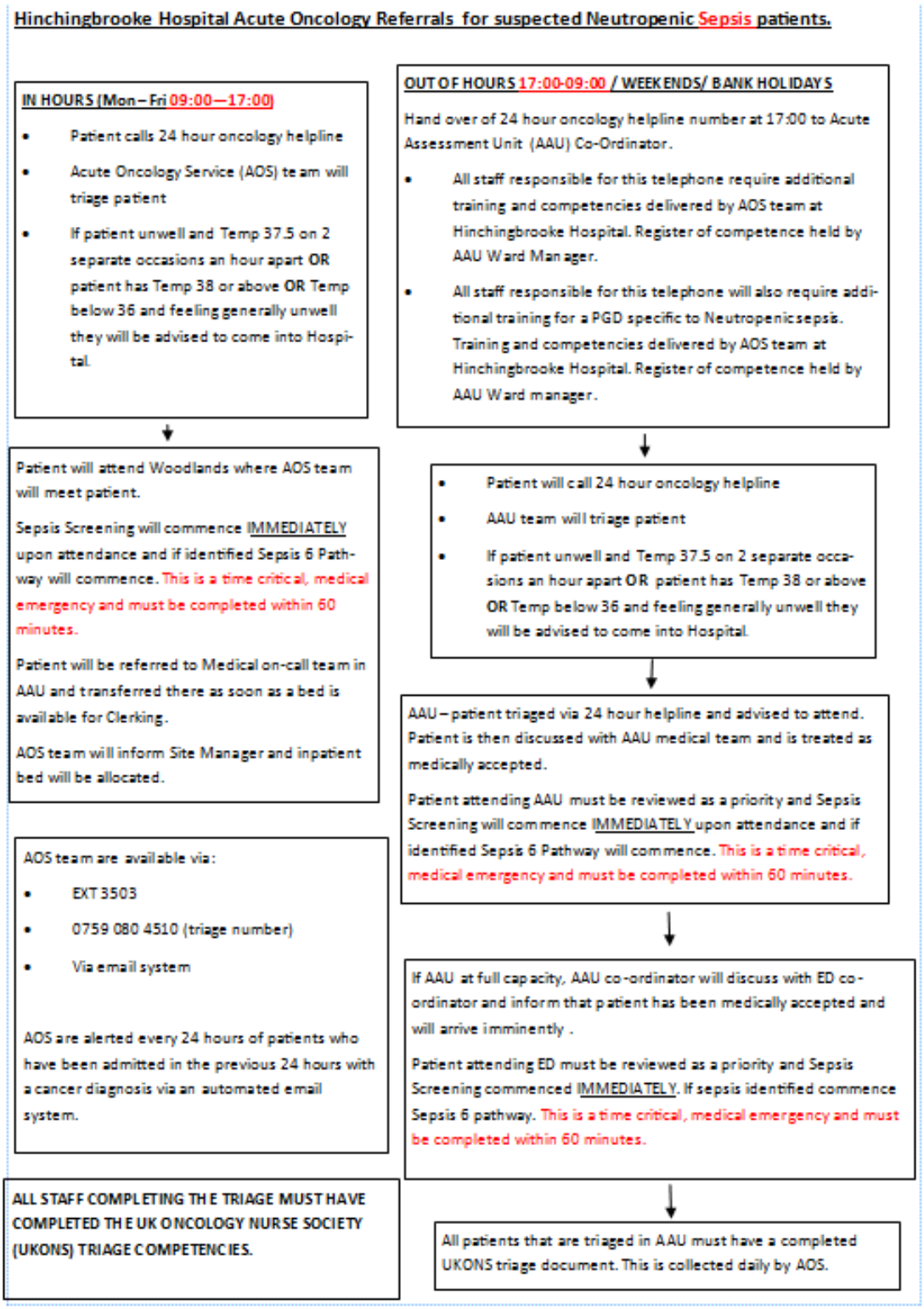
Appendix D: Neutropenic Screening and Source Control

All patients with suspected Neutropenic Sepsis must have a full Septic Screen for consideration of source. This list is based upon Microbiology guidance and is not exhaustive.

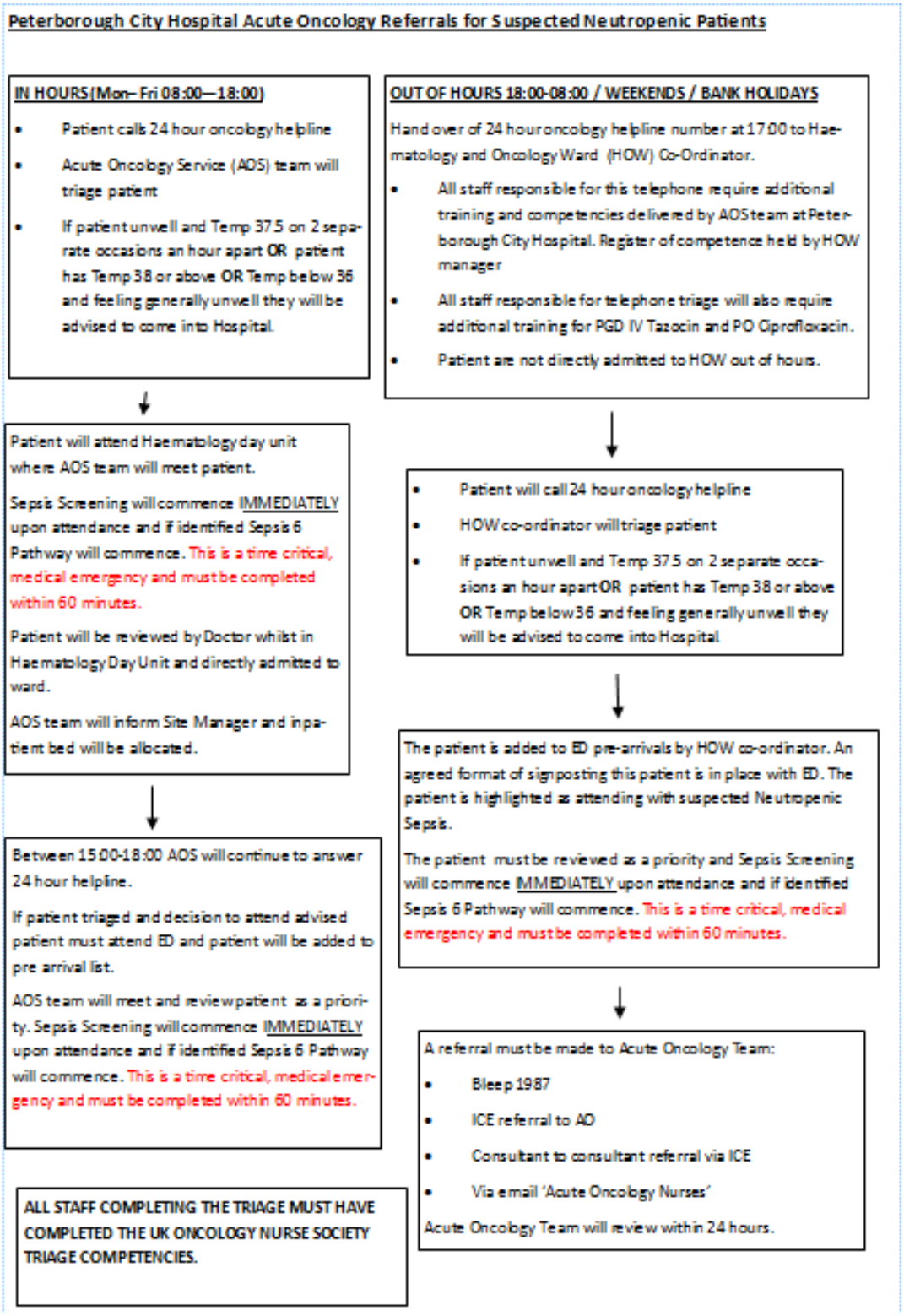
It is best practise for a Septic Screen to be carried out prior to commencing antibiotics but there must not be a delay giving antibiotic therapy to complete the screening:

- Two pairs of peripheral blood cultures
- Blood cultures from any central devices insitu
- 2 Throat swabs (1 x MC&S and 1 x viral)
- Full MRSA screen
- Mid Stream Urine (MSU) a dipstick is not sensitive enough to base a diagnosis on.
- Samples of any wounds or possible infected sites. For example, mouth ulcers, wounds, pressure ulcers.
- Discuss and examine patient for any skin breaches for possible subtle infective causes.
- Order a Chest X-ray but only if clinically indicated not as routine.
- Ensure other blood tests and samples sent as indicated and in line with the Sepsis 6.

Appendix E: Hinchingbrooke Hospital Acute Oncology Referral for Neutropenic patients



Appendix F: Peterborough City Hospital Acute Oncology Referral for suspected Neutropenic Sepsis



Appendix G: Treatment algorithm for Neutropenic Sepsis

<table>
<tr><th colspan="3"><u>Neutropenic Sepsis</u> (always dose adjust in renal impairment)</th></tr>
<tr><th>1st line</th><th>If penicillin allergy</th><th>Treatment duration</th></tr>
<tr><td>Piperacillin/Tazobactam
IV 4.5g QDS

If MRSA +ve or no clinical improvement at 72 hours, consider adding Vancomycin IV (see local policy for dosing) and rescreen for sepsis.

If no improvement after further 72 hours, please consider adding antifungals and contact microbiologist for further discussion.</td><td>1st line:
Gentamicin IV OD (see local Gentamicin policy for dosing; maximum 480mg daily)
PLUS Vancomycin IV (see local vancomycin policy for dosing) PLUS Metronidazole IV 500mg TDS.

2nd line:
Meropenem * IV 500mg to 1g TDS

If MRSA +ve: Add Vancomycin IV (see local policy) in addition to Meropenem IV.

Contact the Microbiologist if patient has severe allergy to penicillin (type 1 allergy^)</td><td rowspan="2">Review culture results and antibiotic treatments within 72 hours and step down to oral antibiotic or a narrow spectrum antibiotic if clinically appropriate</td></tr>
<tr><td colspan="2">If patient in SEPTIC SHOCK consider adding Gentamicin IV OD (see local Gentamicin policy for dosing ; maximum 480mg daily)</td></tr>
</table>

* **Non-type 1 allergy** = Also known as “mild” allergy; history of a non-immediate reaction to penicillin, commonly a rash of which the onset is >72 hours after penicillin administration. The rash is usually minor (i.e. non-confluent, non-pruritic rash restricted to a small area of the body).

^ **Type 1 allergy** = Also known as “severe” allergy; history of anaphylaxis, urticarial rash or a rash **immediately** after penicillin administration. Such patients should not receive a penicillin, cephalosporin, carbapenem or other beta-lactam antibiotic.

<u>PLEASE NOTE, IF SOURCE OF SEPSIS CLEAR PLEASE FOLLOW RESPECTIVE GUIDELINE. ENSURE YOU INVESTIGATE THE SOURCE AND ALWAYS THINK ABOUT ANTIBIOTIC STEWARDSHIP.</u>

Appendix H: Treatment algorithm for Sepsis of unknown origin

Sepsis of unknown origin pending further investigation (always dose adjust in renal impairment)		
1st line	**If penicillin allergy**	**Treatment duration**
Piperacillin/Tazobactam IV 4.5g TDS **If MRSA +ve:** add **Vancomycin** IV (see local Vancomycin policy for dosing) in addition to **Piperacillin/Tazobactam.** **If previous ESBL** replace **Piperacillin/Tazobactam** with **Meropenem** * IV 500mg to 1g TDS	**1st line:** **Vancomycin** IV (see local Vancomycin policy for dosing) PLUS **Gentamicin** IV OD (see local Gentamicin policy for dosing maximum 480mg daily) PLUS **Metronidazole** IV 500mg TDS. **2nd line:** **Meropenem** * IV 500mg to 1g TDS **If MRSA +ve:** Add **Vancomycin** IV (see local policy) in addition to **Meropenem IV**. **Contact the Microbiologist if patient has severe allergy to penicillin (type 1 allergy^)**	**Review culture results and antibiotic treatments within 72 hours and step down to oral antibiotic or a narrow spectrum antibiotic if clinically appropriate**

* **Non-type 1 allergy =** Also known as “mild” allergy; history of a non-immediate reaction to penicillin, commonly a rash of which the onset is >72 hours after penicillin administration. The rash is usually minor (i.e. non-confluent, non-pruritic rash restricted to a small area of the body).

^ **Type 1 allergy =** Also known as “severe” allergy; history of anaphylaxis, urticarial rash or a rash **immediately** after penicillin administration. Such patients should not receive a penicillin, cephalosporin, carbapenem or other beta-lactam antibiotic.

PLEASE NOTE, IF SOURCE OF SEPSIS CLEAR PLEASE FOLLOW RESPECTIVE GUIDELINE. ENSURE YOU INVESTIGATE THE SOURCE AND ALWAYS THINK ABOUT ANTIBIOTIC STEWARDSHIP.

North West Anglia NHS Foundation Trust

Compliance Monitoring Table **Appendix I**

Document Section		Control	Checks to be carried out to confirm compliance with the policy	How often the check will be carried out	Responsible for carrying out the check	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting
		WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
		Monthly audit from each ward area	Review of 10 sets of notes for patients who were identified to need screening and subsequently treatment if identified.	Monthly	Sepsis Super Nurses who send data to Sepsis data analyst	MBSC • Quality Report • Sepsis Super Nurses • CQUIN • Division lead	Monthly
		Random quality spot checks on sepsis screening compliance	Sepsis Specialist Nurses to take adhoc notes from ward areas	Quarterly	Sepsis Nurses	• Ward Managers • Matrons • Sepsis super nurses • Quality Report	Quarterly

North West Anglia
NHS Foundation Trust

Equality Impact Assessment (EqIA) screening form Appendix:J

Policy name & Central Index number: Sepsis and Neutropenic Sepsis Policy for Patients > 16 years of age.(Excluding all pregnant patients and up to 6 weeks post-partum)(C0104)
Name of Principal author or Policy: Leanne Shaw
Division: Care Quality Division **Date:**

Equality Impact Assessment Stage 1
Indicate in the table below what kind of impact this policy will have upon the protected groups or how it is likely to influence the Trust's ability to comply with the Public Sector Equality Duty, which is to;

a) Eliminate discrimination, victimisation, harassment or other unlawful conduct that is prohibited under the Equality Act 2010 and/or;
b) Advance equality of opportunity between people who share a characteristic and those who do not and/or;
c) Foster good relations between people who share a relevant protected characteristic and those who do not.

Consider this in the context of the whole policy being updated. The easiest means of approaching this is to consider the following questions;

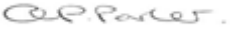
- **Would the adaptation meet my needs or ensure I had equal opportunities if I had any of the protected characteristics?**
- **Is there anything about the policy that would have a detrimental impact on me if I had one of the protected characteristics?**
- **Does it affect our ability to comply with the Public Sector Equality Duty?**

Please check the appropriate boxes relating to the impact of the policy or adaption:

Age	○ Positive	◉ None	○ Negative	○ Unknown
Disability	○ Positive	◉ None	○ Negative	○ Unknown
Gender Reassignment	○ Positive	○ None	○ Negative	○ Unknown
Marriage/Civil Partnership	○ Positive	○ None	○ Negative	○ Unknown
Pregnancy and Maternity	○ Positive	○ None	○ Negative	○ Unknown
Race	○ Positive	○ None	○ Negative	○ Unknown
Religion or Belief	○ Positive	○ None	○ Negative	○ Unknown
Sex (Gender)	○ Positive	○ None	○ Negative	○ Unknown
Sexual Orientation	○ Positive	○ None	○ Negative	○ Unknown

If any boxes are checked as Negative, please escalate to a stage 2 assessment by emailing nwangliaft.qualitygovernance@nhs.net

If any boxes are checked as Unknown, please contact nwangliaft.edi@nhs.net

Agreement by	Signature	Date
Approving Panel Chair for Stage 1		08.05.2019
Ratifying Panel Chair (if required) for Stage 2		
Equality, Diversity and Inclusion Lead (if required) for Stage 2		

North West Anglia NHS Foundation Trust

Quality Assurance Checklist - Version Number:3 Appendix K

		Y/N/ n/a	COMMENTS (to author for any amendments)
1	**Title of document** Sepsis and Neutropenic Sepsis Policy for Patients > 16 years of age. (Excluding all pregnant patients and up to 6 weeks post-partum) (C0104)		
2	**Type of document (e.g. policy, guidance)**	Policy	
	Is it clear whether the document is a policy, guideline, procedure?	Yes	
3	**Introduction**		
	Are reasons for the development of the document clearly stated?	Yes	
4	**Content**		
	Is there a standard front cover?	Yes	
	Are the key points identified? (Policies only)	Yes	
	Is the document in the correct format?	Yes	
	Is the purpose of the document clear?	Yes	
	Is the scope clearly stated?	Yes	
	Are the definitions clearly explained?	Yes	
	Are the roles and responsibilities clearly explained? (policies only)	Yes	
5	**Evidence Base**		
	Is the type of evidence to support the document explicitly identified?	Yes	
	Are key references cited?	Yes	
	Are associated documents referenced?		
6	**Approval Route**		
	Does the document identify which committee/group will approve it?	Yes	
7	**Process to Monitor Compliance and Effectiveness (policies only)**		
	Are there measureable standards or KPIs to support the monitoring of compliance with the effectiveness of the document? (has Appendix D Compliance Monitoring been completed)	Yes	
8	**Review Date**		
	Is the review date identified?	Yes	
9	**Equality and Diversity (policies only)**		
	Is a completed Equality Impact Assessment attached?	Yes	

If answers to any of the above questions is 'no', then this document is not ready for ratification, it needs further review.

North West Anglia NHS Foundation Trust

Compliance Team:		
1.	Date of Compliance Team approval	18/04/2019
2.	Comments to author for any amendments	
3.	Name of compliance lead	Stanley Balachander, Quality Governance and Policies Administrator

Approval Committee: Nursing & Midwifery Group			
Name	**Annette Parker**	**Date**	**08.05.2019**
Signature	A.P. Parker.		

Approval Committee: Antimicrobial Stewardship Committee			
Name	Ling Yau	**Date**	18/4/2019
Signature			

Approval Committee: Drugs and Therapeutics Committee			
Name	Suzanne Hamilton	**Date**	18th March 2019
Signature	Suzanne Hamilton		

If the committee/group is happy to approve this document would the chair please sign below and send the document and the minutes from the approval committee to the author. To aid distribution all documentation should be sent electronically wherever possible.

Ratifying Committee: Quality Governance Operational Committee			
If the committee/group is happy to endorse this document would the chair please sign below and send the document and the minutes from the endorsing committee to the author. To aid distribution all documentation should be sent electronically wherever possible.			
Name	KANCHAN RETE	**Date**	17.5.19
Signature			