Neutropenic Sepsis: recognition, diagnosis and early management in adult patients

For immediate information refer directly to appendix 1

REF NO:	

KEY WORDS (To assist in searching for the Guideline on the Intranet – suggested minimum 10 words)	Sepsis, septic shock, neutropenic, red flags, infection, deterioration, escalation, antibiotics, chemotherapy, cancer

AUTHOR		**AUTHOR'S LINE MANAGER**		**RATIFIED BY**	
Name:	Catherine Mitchell	**Name:**	Martin Hogg	**Name**:	P MacDowall
Title:	Consultant clinical oncologist	**Title:**	Consultant Clinical Oncologist	**Title:**	Chair Evidence Based Guidelines Group

INITIATING DIRECTORATE	**DATE RATIFIED**
Oncology	July 2017
TARGET AUDIENCE	**REVIEW DATE**
All staff at LTH, particularly those involved in acute admission of cancer patients in the admission areas, Ribblesdale ward and oncology directorate.	July 2020

CLINICAL GUIDELINE

The governing principles outlined within this document are fully supported in every respect by the Clinical Governance Sub-Committee.
All members of staff are required to adhere to the principles involved as outlined within this document, together with any related procedures, which are enabled by this guideline.

This guideline was produced in consultation with:	
Dr Ruth Board – Consultant Medical Oncologist	Denise Brooks – Consultant Nurse
Consultant microbiologist - Dr Reddy	Lindsay Wallbank – Acute Oncology CNS
Emma Duane – Sepsis Nurse	Jo Wilkinson – Acute Oncology CNS

GROUP OR COMMITTEE APPROVED BY:
(This will involve local or specialist group review / scrutiny using a body of expertise and knowledge who have confirmed that the document is fit for purpose. Where no such relevant body exists for the approval of a document approval may be obtained from those individuals or groups involved in the consultation process).

DEFINITION OF CLINICAL GUIDELINES

Clinical Guidelines are evidence based systematic statements to assist practitioners and patients in making decisions about appropriate health care for specific clinical circumstances.

1. Full Guideline Title

Neutropenic Sepsis: recognition, diagnosis and early management in adult patients

2. Adaptation

- LTH Protocol for the Management of Neutropenic Sepsis in adult Patients June 2013
- LTH Protocol for the Sepsis: Recognition, Diagnosis and Treatment June 2017
- NICE (2012) Neutropenic sepsis: prevention and management of neutropenic sepsis in cancer patients. London, NICE.
- NCEPOD Nov 2015 "Just Say Sepsis"
- NICE NG 51 July 2016 Sepsis: recognition, diagnosis and early management
- UK Sepsis Trust sepsistrust.org

3. Guideline Aim

- To support all health care providers in the early recognition, response and management of all adult patients with suspected or confirmed neutropenic sepsis.
- Promote use of the Sepsis 6 within 60 minutes for Red Flag sepsis/Septic shock.
- Promote good antimicrobial stewardship.

4. Disease/condition/target population:

Adults and young people 18 years and over in the acute hospital setting.

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

Neutropenic sepsis is defined as sepsis with a neutrophil count $<0.5 \times 10^9$.

Septic shock: These patients can be identified as having a clinical construct of Sepsis with persistent hypotension (systolic blood pressure <90mmHg, following administration of 3 litres of IV fluids)

- Sepsis-Induced Hypotension Refractory (stubborn) to Fluid Resuscitation that requires vasopressors (specific medications) to maintain MAP ≥65 mmHg.
- A serum lactate level >2 mmol/L (18 mg/dL) despite adequate volume resuscitation.

Ref: UK Sepsis Trust (July 2016)

Suspect neutropenic sepsis in patients having anticancer treatment within the last month who become unwell:

NEWS ≥5 or 3 in any 1 parameter
And / or patients looks sick.

From Diagnosis to implementation of Sepsis 6, should be within 60 minutes.

5. Implementation strategy

The guideline will be cascaded through Clinical Governance (CG) leads and monthly CG meetings. It will then be cascaded via Trust email to all Clinical Directors, Divisional Directors of Nursing to cascade to senior leads and ward areas/departments. An initial copy of the pathway will be ordered via managed

stationary and delivered to all appropriate areas, until these are obtained via managed stationary, within 4 weeks of the launch.

It will be promoted in all educational events, both internally and externally as appropriate by the lead facilitator. This will include pre-registration learning, other health care workers and undergraduate learning.

The guideline will be used as a guide for best practice to review incidents relating to recognition of neutropenic sepsis and at Sepsis Ward Champion meetings.

6. Body of Guideline

Escalation plan/treatment: For immediate information refer directly to pathway
http://intranet.lthtr.nhs.uk/download.cfm?doc=docm93jijm4n5276.pdf&ver=8492

A patient who has had recent chemotherapy (within 28days) who presents with a raised NEWS (Total score of 5 or above, or 3 in 1 parameter) and / or patient looks sick / confirmed infection will follow the pathway.

The Escalation plan on the reverse of the NEWS chart and the pathway support points of contact to support escalation. Parent team, Critical Care Outreach (bleep 3388 RPH, 3456 CDH) or Hospital at Night (bleep 9090).

Implementing the Sepsis pathway during patient assessment and escalation will support rapid review by ST3 & above, or equivalent grade. Use of the pathway will also support implementation of the Sepsis 6, or review and reassessment within the appropriate time frame.

The Sepsis pathway will form part of the patient documentation and must be included within the patient's case notes. On-going review, reassessment and antimicrobial stewardship must be documented clearly.

Definitions:

High risk criteria:

If Red Flags are identified, initiate treatment on the Sepsis pathway immediately. If unresponsive to treatment, refer directly to Critical Care registrar (Bleep 3186), Critical Care Outreach (bleep 3388 RPH, 3456 CDH) or Hospital at Night (bleep 9090).

- Objective evidence of new altered mental state
- Respiratory rate 25 breaths per minute or more, OR new need for oxygen (more than 40% FiO2) to maintain saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease)
- Heart rate 130 beats per minute or above
- Systolic blood pressure 90 mmHg or less, or drop >40mmHg below normal
- Not passed urine in previous 18 hours, or for catheterised patients passed less than 0.5ml/kg of urine per hour
- Mottled or ashen appearance, cyanosis of skin, lips or tongue, non-blanching rash of skin
- Recent chemotherapy (within 28 days)
- Lactate 2 mmol/l or greater

Moderate to high risk criteria:

- History from patient, friend or relative of new onset of altered behaviour or mental state
- History of acute deterioration of functional ability
- Impaired immune system (illness or drugs including oral steroids)
- Trauma, surgery or invasive procedures in the last 6 weeks
- Respiratory rate 21-24 breaths per minute
- Heartrate 91-130 beats per minute (for pregnant women 100-130 beats per minute) or new onset arrhythmia
- Systolic blood pressure 91-100mmHg
- Not passed urine in the past 12-18 hours, or for catheterised patients 0.5-1ml/kg of urine per hour
- Tympanic temperature less than 36 degrees Celsius
- Signs of potential infection, including redness, swelling or discharge at surgical site or breakdown of wound

Low risk criteria:

Suspected sepsis but;

- Normal behaviour
- No high risk or moderate to high risk criteria met

Ref: NG51 (July 2016)

Death certificate: Death from Neutropenic Sepsis should be as per NCEPOD recommendations included on the death certificate.

Coding/definitions: The term Red Flag Sepsis can still be coded as Sepsis for the information of clinical coding.

Information for patients and relatives

The Trust uses the UK Sepsis Trust information booklets, “SEPSIS: A guide for patients and relatives”. These are available for relatives in the waiting areas within Critical Care, at the follow up clinic visit post critical illness. Patients admitted to Critical Care with Sepsis will be given a booklet as part of their routine follow up visit by the Critical Care Outreach team. All patients discharged from hospital following an episode of Sepsis should be provided with information regarding sepsis and recovery.

Procedure for Discharge of Patients with Low Risk Febrile Neutropenia

Decision for early discharge should be made by a consultant oncologist or haematologist or by the on call oncology registrar (who should only allow discharge following discussion with the consultant on call).

Patients should be discharged home with a copy of the patient information sheet.

It is the discharging doctor’s responsibility to assess the patient’s understanding of the information and

that they fulfill criteria for early discharge on oral antibiotics.

The discharging doctor should ensure that the patient's telephone details are recorded accurately on the quadramed system and inform the chemotherapy support team.

The chemotherapy support team will call the patient within 24 hours of discharge to reassess symptoms and answer any questions.

The chemotherapy support team is responsible for checking all culture results and arranging review or change of antibiotics if appropriate.

Patients, in whom there has been any deterioration, should be re-admitted.

7. Clinical Algorithms

- Sepsis screening and action tool - http://intranet.lthtr.nhs.uk/download.cfm?doc=docm93jijm4n5276.pdf&ver=8492
- Antimicrobial Guidelines – http://lthtr-documents/current/P5.pdf
- Sepsis: Recognition, Diagnosis and Treatment - http://lthtr-documents/current/P754.pdf

8. Patient Resources

- All patients receive information about their chemotherapy at the time of consent and a booklet detailing their chemotherapy treatments and recent blood counts.
- Patients are given 24 hour contact numbers to alert the chemotherapy service if they develop signs or symptoms suggestive of potential neutropenic sepsis and told what symptoms to be aware of.
- Patients discharged on oral antibiotics are given the Patient Information Leaflet as approved by the LTH Patient Information Group. **Appendix 5**

9. References checked by library ??????/2017

Merriam-Webster (2017) *Septic shock.* [Online] Available at: https://www.merriam-webster.com/dictionary/septic%20shock [Accessed 13 March 2017].

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

National Institute for Health and Care Excellence (2016) *Sepsis: recognition, diagnosis and early Management.* London, NICE.

NHS England (2015) *Improving outcomes for patients with sepsis: A cross-system action plan.* Redditch, NHS England.

Parliamentary and Health Service Ombudsman (2013) *Time to act - Severe sepsis: rapid diagnosis and treatment saves lives.* London, PHSO.

National Institute for Health and Clinical Excellence (2012) *Neutropenic sepsis: prevention and*

management of neutropenic sepsis in cancer patients. London, NICE.

10. Companion Documents / Appendices

Sepsis links

LTHTR (2017) *LTHTR sepsis screening and action tool*. Version 3.
http://intranet.lthtr.nhs.uk/download.cfm?doc=docm93jijm4n5276.pdf&ver=8492

LTHTR (2017) sepsis: recognition, diagnosis and early management in adults http://lthtr-documents/current/P754.pdf

Appendix 1

Educational Resources

- Senior review alert on raised lactate level reported by pathology
- Pocket cards promoting Sepsis 6 and red flags
- Information regarding Sepsis on reverse of observation charts
- Standardised set of desk top slides used for educational events
- Sepsis Simulation workshops available for all nursing/medical staff
- Multiple educational events internally, supported by sepsis nurse and educational lead for sepsis
- E-learning package available for nursing and medical staff
- Sepsis newsletter
- Links with community based health care workers, and GP educational events
- Included in trust induction document for nursing staff
- Raised awareness weeks/Sepsis September
- Sepsis stations in each ward area
- UK Sepsis Trust website
- External promotional event

Appendix 2

Trust/Ward/Dept Resources

A Sepsis working group consists of multiple stakeholders for example lead clinicians, education, senior nurse and designated Sepsis Nurse, microbiology, antimicrobial pharmacist and supported by an executive lead.

The aim is that all wards/departments will have a nominated Sepsis Champion, supported by the trust safety champion initiative. These safety champion leads for Sepsis will be supported by the Sepsis Nurse. Their role will be to relay all information back to their wards/departments, maintain resources, including educational/information displays. Acting as a contact/resource for their area.

Appendix 3

Monitoring/performance measures

The Trust are supporting the mandatory Sepsis CQUIN, including admission and inpatient areas, for all ages. Communication links are established with the Sepsis CQUIN leads within the clinical commissioning group and internally.

Advancing Quality Alliance (AQuA) measures for sepsis within the admission areas for 18 years and over is collected. Quarterly meetings with AQuA discuss compliance, share practice and feedback, targeting agreed parameters.

Compliance is included in the reports delivered to Safety and Quality, Harm Free Care and cascaded to Clinical leads.

The acute oncology team will aim to review all patients admitted with suspected neutropenic sepsis within 24 hours of admission Monday – Friday

Compliance will be prospectively audited by the acute oncology team and reported monthly within sepsis reports to admission area leads. Annual audits will be presented at acute oncology network meetings. Monthly neutropenic sepsis audit results will be sent to all admission areas. Compliance is included in the reports and cascaded to Clinical leads.

Audit data is presented annually to the network acute oncology group

Appendix 4

Contacts:

- Acute Oncology Lead: Dr Catherine Mitchell, email Catherine.Mitchell@lthtr.nhs.uk
- Acute Oncology CNS: Lindsay Wallbank email Lindsay.wallbank@lthtr.nhs.uk
- Sepsis Nurse: Emma Duane, email emma.duane@lthtr.nhs.uk
- Consultant Nurse/Nurse lead for Sepsis: Denise Brooks, email denise.brooks@lthtr.nhs.uk
- Education: Christopher Ellis, email Christopher.Ellis@lthtr.nhs.uk

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Appendix 5:
Patients discharge information leaflet

Lancashire Teaching Hospitals NHS
NHS Foundation Trust

Patient Discharge Information

Discharge information for patients with an infection and low white blood count following chemotherapy

Oncology Department
Specialist Services Directorate

Discharge information

You have developed an infection as a result of a low white blood cell count during your chemotherapy treatment. You are going home with tablet antibiotics to treat your infection. We know this is safe practice and of benefit to patients.

However, If you experience **any** of the following symptoms, please phone the chemotherapy helpline immediately on 01772 523205:

- Vomiting
- Rash
- Diarrhoea
- Temperature - more than 38C
- If you feel unwell and are concerned

Patients occasionally need to return to hospital for antibiotics through a drip.

Following discharge:

- You will receive a telephone call from the chemotherapy support team within 24hrs of discharge.
- Please do not wait for this call if you have any of the above symptoms, ring the 24hour helpline - 01772 523205.
- Please phone for advice if you have any other concerns or worries.
- Please ensure your family members are aware of this information.
- You can drive and continue normal activities following discharge.

Sources of further information:
www.lancsteachinghospitals.nhs.uk
www.nhsdirect.nhs.uk
www.patient.co.uk
www.nice.org.uk

Lancashire Teaching Hospitals NHS Foundation Trust
Cancer Information and Support Service
01772 523709
cancerinfocentre@lthtr.nhs.uk

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