Subject:	Neutropenic Fever Guideline for Junior Doctors
Date of Implementation:	January 2010
Date of Review:	January 2012
Director Responsible for Implementation and Review:	Consultant Clinical Oncologist, Consultant Clinical Haematologist
Policy location:	Master Clinical Guidelines Folder & Intranet (Medical & Emergency Services Department Guidelines)

Neutropenic Fever

A Care Pathway exists for the management of neutropenic fever. Copies of the care pathway document are available in EAU, A&E, Deanesly and CHU.

Please use this document for all patients admitted with neutropenic fever and follow the daily management plan.

Patients with **LOW RISK** neutropenic fever may be managed as an outpatient following the outpatient neutropenic fever policy pathway.

Please note patients may only be put on the outpatient neutropenic fever policy pathway by a consultant oncologist or oncology registrar.

Patients on the Low Risk Pathway are monitored by the oncology clinical nurse specialist so she/he must be informed when a patient is put on the pathway. Please see **LOW RISK** pathway document for further details.

N.B. All Haematology patients including Lymphomas are classified as HIGH RISK and should NOT be put on the LOW RISK pathway.

Risk Stratification of Patients with Neutropenic Fever

Definition of the LOW RISK Patient (See Appendix 1)

- Solid Tumour Malignancy
- Absolute neutrophil count > 0.1x 10^9/L
- WHO performance Status 0 or 1
- Expected duration of neutropenia less than 7 days
- Controlled Cancer (mild symptoms only)
- No other significant comorbid condition eg: COAD / CCF / Diabetes Mellitus
- No Hypotension
- No Dehydration
- Age < 70
- No evidence of indwelling central line infection
- No antibiotic therapy in the previous 96 hrs (including prophylactic antibiotics)
- Patient able to manage oral tablet therapy-minimal or no dysphagia or mucositis,
- Patient likely to comply with oral therapy
- Patient not home alone

All of the above MUST be present for the patient to be defined as LOW RISK.

For **LOW RISK** patients please contact the Durnall Suite ex 5033 or the on-call registrar to arrange for transfer of the patient for Oncology specialist review and management on the outpatient pathway.

All other patients are to be admitted as an emergency.

Definition of the HIGH RISK Patient (See Appendix 1)

- Patients who have had chemotherapy within the last 27 days
- Or Suffer from Leukaemia, Lymphoma, Myelodysplasia, or Myeloma
- Or known Neutropenic (neutrophil <1.0)
- With **ONE** of the following:
  - Rigors,
  - Temp >38c,
  - Temp >37.5 and signs of infection,
  - Reduced GCS,
  - Systolic BP <100,
  - Pulse >100

Should be treated as having a neutropenic fever until proven otherwise.
NOTE: Patients may be APYREXIAL and symptomatic of sepsis.

Management

On Arrival

1) High risk patients with neutropenic fever to be commenced on the neutropenic care pathway. However if the patient has septic shock ie: is hypotensive and/or tachycardic then resuscitate accordingly. These patients need individualized intensive therapy and should not be managed on the care pathway. **Neutropenic sepsis is a medical emergency**.

2) Cannulate the patient, take bloods, request as urgent for FBC/ U&E's / CRP / LFT / Blood Cultures/ Ca2+ / Clotting. If central line present take cultures Centrally *and* Peripherally.
Request CXR; send urine for microscopy and culture.

3) Administer the following: **IV Tazocin 4.5g TDS and Gentamicin 5mg/kg. (Protocol on last page of ICP). Consider Meropenem 1g TDS if allergy to Penicillin, document history of proven allergy.**
N.B. Do not wait for FBC to confirm neutropenic status.

The door to needle time target for the first dose of antibiotics is <1 hour.

4) Start IV Fluids if febrile, tachycardic, hypotensive, vomiting, diarrhoea or poor urine output. Check Urine output. When did the patient last PU?

Haematology patients may be particularly vulnerable and fluids must be commenced promptly in all patients

5) Swab and culture any other potential sites/route of infection.

6) Seek specialist advice without delay for:
- Suspected septic shock
- If Pulse >100 *and* Systolic BP<100 on admission, MEWS Score 4 or more
- Immediate aggressive resuscitation, monitoring and treatment required.
- Individual management.
- Discontinue ICP (record on front page of ICP) and continue in usual notes.

7) If you need advice after clinical assessment or patient unstable **contact:**
- Consultant Haematologist (out of hours - Consultant on call) or Haematology CNS during normal working hours.
- Oncology Registrar (out of hours - Registrar/Consultant on call through switchboard) If solid tumour, non-haematological malignancy.

8) **Please ensure that the patient's own team is informed of their admission as soon as possible – WITHIN 24hrs.**

9) Examine the patient for potential sites of infection: Line sites, Mouth, Perineum and Perianal areas. **Do not perform PR examination.**

10) THE FIRST DOSE OF ANTIBIOTICS MUST BE GIVEN WITHIN I HOUR OF THE PATIENT ARRIVING AT HOSPITAL. ENSURE ANTIBIOTICS HAVE BEEN GIVEN BEFORE THE PATIENT IS TRANSFERRED TO WARDS.

Out of hours SOLID TUMOUR PATIENTS ONLY from A+E or EAU - If the patient's condition is stable and the Neutropenic Fever Care Pathway document has been completed by the admitting doctor the patient **may be transferred to Deanesly ward directly after the first dose of antibiotics have been given.**

Haematology patients may be transferred to CHU after consulting with Haematology Consultant.

Post Admission

***For High Risk Haematology patients please discuss any further changes in antibiotics with Consultant Haematologist or the Haematology Clinical Nurse specialist.**
Otherwise please follow the guide lines as below.

Day 1

1) Daily FBC.
   Daily U&Es.
   Check Gentamycin levels (as per protocol on last page of ICP).
2) Continue IV antibiotics until patient has been apyrexial for 48 hours
3) Check U&Es from admission.
4) Continue IV fluids if required on admission.
5) Any other symptom care required.

Day 2

1) Continue IV antibiotics until apyrexial 48hrs then switch to oral antibiotic therapy taking to account any microbial sensitivity results available.
2) Check U&Es.
3) If drinking and pulse BP and urine output normal discontinue IV fluids.
4) Chase up microbial culture and sensitivity results.
5) Discontinue gentamycin if patient stable unless a gentamycin sensitive isolate has been grown on culture.
6) Any other symptom care required.

Day 3 onwards

1) Daily FBC and U+E until neutrophil count >1.
2) Document culture and sensitivity microbiology reports in the notes – change antibiotics as directed by C+S.
3) When drinking normally and pulse and BP normal discontinue IV fluids.
4) If Pyrexial > 72 hours contact Microbiology Department for advice and consider fungal infections or line infection.
5) When aprexial 48hrs discontinue I.V. antibiotics and change to oral antibiotics.
6) Discharge when apyrexial 24hr's on oral antibiotics.
7) TTO with oral antibiotics to complete a (minimum) 5 day antibiotic course (i.e. total days= no. of days of i.v. plus no. of days of oral).
8) Book outpatient appointment with oncology/haematology team prior to next scheduled chemotherapy course.

Appendix 1

Adapted from Neutropenic Fever Management Risk Group Stratification 2003

Low Risk (Must meet all criteria)

- Solid Tumour Malignancy
- Absolute neutrophil count> 0.1x 10 /L
- WHO performance Status 0 or 1 (Minimal symptoms from cancer)
- Expected Duration of neutropenia less than 7 days
- Controlled Cancer (mild symptoms only)
- No other significant co morbid condition
- No hypotension
- No dehydration
- No evidence of indwelling central line infection
- No antibiotic therapy in the previous 96hrs (including prophylactic / Neutropenic antibiotics and antibiotics given on low risk outpatient protocol)
- Age <70
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High Risk

- All patients not fulfilling the definition of low risk or Septic Shock

Septic Shock

- Pulse >100 *and* Systolic BP<100 on admission, MEWS Score 4 or more