

# Haematology Neutropenic Sepsis Guidance

**Neutropenic sepsis = [sepsis](#) plus neutrophil count  $<0.5$  or  $<1$  if chemotherapy within past 21 days**

- Assess patient with possible neutropenic sepsis within 15 minutes of presentation to hospital and commence resuscitation following "Sepsis 6" care bundle
- Assume they are neutropenic if they have received chemotherapy within the past 3 weeks
- Assess severity of sepsis and assign to risk category as detailed below
- [Penicillin/beta-lactam Allergy](#) – confirm type and severity of previous reaction e.g. rash, anaphylaxis
- If patient has had chemotherapy within the past 3 weeks and has temperature  $\geq 38^{\circ}\text{C}$  or  $<36^{\circ}\text{C}$  or clinical evidence of significant sepsis (SIRS $\geq 2$ ) **initiate antibiotic therapy within 1 hour – do not wait for the blood results to come back. Always take blood cultures before giving antibiotics but do not wait for full infection screen to be performed**
- When blood results are available switch to [Hospital Antibiotic Adult](#) protocol if above definition of neutropenic sepsis not fulfilled
- All patients should have a full infection screen - **Blood cultures (Hickman line and peripheral venous) Stool culture MSU Sputum culture Chest X-ray Swab skin lesions and Hickman line exit site Throat swab – bacterial and viral**
- Review previous microbiology results for resistance

**STANDARD RISK PATIENTS**  
Neutropenia + [Sepsis](#) + NEWS Score  $\leq 6$

**START ANTIBIOTIC THERAPY WITHIN 1 HOUR**

**Piperacillin/Tazobactam**

**No routine gentamicin**

Penicillin Allergy: Teicoplanin + Aztreonam

If history of anaphylaxis or angioedema:

Teicoplanin + Ciprofloxacin<sup>Δ</sup>

<sup>Δ</sup>If receiving ciprofloxacin prophylaxis – consider

Teicoplanin + Gentamicin\* or discuss options with Micro

**HIGH RISK PATIENTS**  
Neutropenia + [Septic Shock](#) or NEWS  $\geq 7$   
or Acute leukaemia or Allogeneic Transplant

**START ANTIBIOTIC THERAPY WITHIN 1 HOUR**

**Piperacillin/Tazobactam + Gentamicin\* (see below)**

Penicillin Allergy:

Teicoplanin + Aztreonam + Gentamicin\* (see below)

If anaphylaxis or angioedema:

Teicoplanin + Ciprofloxacin + Gentamicin\* (see below)

**Add Antimicrobial cover for specific additional infection risks:**

- Previous or current MRSA infection/colonisation, suspected line infection – Teicoplanin
  - Teicoplanin resistant organism isolated previously - Vancomycin
- Community acquired pneumonia suspected (consider bronchoscopy) – Clarithromycin/Doxycycline
- Previous ESBL infection of known ESBL carrier, in place of piperacillin/tazobactam - Meropenem

**MONITOR ALL PATIENTS HOURLY**

**Reassess antibiotic therapy after 48 - 72 hours**

Afebrile within first 2-3 days of treatment

Persisting fever during first 3 days of treatment

Aetiology identified

Adjust to most appropriate treatment

No aetiology identified

**Low Risk**  
Neutropenia  $<7$  days  
Clinically well

Change to oral ciprofloxacin 750mg bd for 5 days

**High Risk**  
Neutropenia  $>7$  days  
Absolute neutrophil  $<0.1 \times 10^9/\text{L}$   
Unstable clinical signs  
Mucositis

Continue with same antibiotics

Discontinue antibiotics when afebrile for 5 days  
Observe carefully  
Reintroduce prophylaxis

Seek specialist advice

Repeat cultures

Add teicoplanin if not already started and consider change to Meropenem. **If patient already on Meropenem get Micro/ID advice.**

**If persistent fever after 96 hours and no focus of infection**

Refer to [Haematology Antifungal Guidance](#)

If continuing fever and prolonged neutropenia consider adding G-CSF (Discuss with consultant)

## Antibiotic Dosing

(assuming normal renal and hepatic function)

Piperacillin/tazobactam IV 4.5g qds

Aztreonam IV 2g qds

Ciprofloxacin IV 400mg bd

Clarithromycin IV 500mg bd

Doxycycline PO 100mg bd

Meropenem IV 1g tds

Teicoplanin – 400mg bd for 3 doses then

400mg od (if  $>80\text{kg}$  6mg/kg)

Vancomycin – follow local dosing [guidance](#)

AMG/Haematology: July 2012

Updated: Feb 2017

Review: Feb 2019

Ref: [SAPG guidance 2016](#)

Local expert opinion

## Gentamicin\*

Standard dose – 7mg/kg follow [guidance](#)

Myeloma patients – discuss with SpR/Cons

(consider reduced dose 5mg/kg)

eGFR  $<30\text{ml/min}$  – discuss with SpR/Cons