



OUTSTANDING CARE
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**United Lincolnshire
Hospitals**
NHS Trust

SEPSIS

Antimicrobial message of the month

August 2020

SEPSIS is the presentation of overwhelming infection in the body. It is a MEDICAL EMERGENCY. If not treated immediately, sepsis can result in organ failure and death. Inappropriate choice of antibiotics in these crucial situations can cost lives.



Incident relating to inappropriate antibiotics given for Sepsis

RECENT INCIDENT - A patient in A&E with true penicillin allergy received Clarithromycin instead of the ULHT 3rd line treatment (Vancomycin+ Metronidazole+Ciprofloxacin) for red flag sepsis of unknown source.

Clarithromycin was not a good choice as it does not cover many of the potential infecting organisms that may be causing sepsis. The patient deteriorated further and required intensive care. It is very likely this was due to inadequate antibiotic choice.

Correct Antibiotic Treatment for Sepsis of Unknown source

Before prescribing antibiotics, adequate cultures and relevant samples should be taken where possible. These will help guide further treatment decisions

Refer to the **ULHT antimicrobial guidelines** for most appropriate antibiotic choice!

Management of SEPSIS of unknown source in Adult Patients	
BEFORE PRESCRIBING ANTIMICROBIALS, ADEQUATE CULTURES AND RELEVANT SAMPLES SHOULD BE TAKEN WHERE POSSIBLE.	
ALSO TAKE INTO ACCOUNT:	
Drug allergies & sensitivities	Drug-drug and -food interactions
Ideal Body Weight (IBW)	Renal Function
	Hepatic Function
	Recent antibiotic use
	Past Medical History
	Clostridium difficile risk
PIPERACILLIN/TAZOBACTAM AND MEROPENEM ARE HEAVILY RESTRICTED ANTIMICROBIALS. ANY USE OUTSIDE THE ANTIMICROBIAL FORMULARY REQUIRES MICROBIOLOGY APPROVAL WITHIN 24 HOURS OF INITIATION.	
AMBER FLAG (Simple Sepsis)	<p>First Line: Co-amoxiclav 1.2g iv 8 hourly +/- gentamicin stat (5mg/kg actual body weight, max 400mg)</p> <p>Second Line (Minor penicillin rash): Cefuroxime 1.5g iv 8 hourly plus metronidazole 500mg iv 8 hourly plus gentamicin daily (5mg/kg actual body weight, max 400mg, but see antimicrobial guidelines for exclusions).</p> <p>Third Line (Severe Beta-lactam allergy): Vancomycin iv (dose as per antimicrobial guidelines) plus metronidazole 500mg iv 8 hourly plus ciprofloxacin 500mg po 12 hourly (400mg iv every 12 hours)</p> <p>Duration: Review in 24-48 hours when origin of infection determined, or isolate and sensitivity known</p>
	<p>First Line: Piperacillin/tazobactam 4.5g iv 8 hourly</p> <p>Second Line (Minor penicillin rash): Meropenem 2g iv every 8 hours</p> <p>Third Line (Severe Beta-lactam allergy): Vancomycin iv (dose as per antimicrobial guidelines) plus metronidazole 500mg iv 8 hourly plus ciprofloxacin 500mg po 12 hourly (or 400mg 12 hourly, if oral route not available)</p> <p>Duration: Review in 24-48 hours when origin of infection determined, or isolate and sensitivity known</p>
SEPTIC SHOCK	<p>A single, FIRST dose of Meropenem 2g should be given (as a stat dose only) to initiate treatment in emergency within 1 hour of recognising Septic Shock.</p> <p>Further treatment is based on site of probable origin of the infection.</p> <p>Specimens: Blood culture. It is essential to collect at least 1 set before starting antibiotics. If clinical circumstances permit, a further 2 sets may be taken, by separate venepuncture, during a 2-4 hour period.</p> <p>Duration: Appropriate broad spectrum antimicrobials should be commenced within 1 hour of presentation. In all cases intravenous antibiotics should be given for not less than 2 days and should continue for at least 24 hours after clinical recovery. If no clinical response after 48 hours, contact Consultant Microbiologist.</p>
In cases of Neutropenic Sepsis, high risk of MRSA, or high risk of ESBL – refer to antimicrobial guidelines.	
A full version of the antimicrobial guidelines is available on the intranet. For further advice please contact Consultant Microbiologist via Switchboard.	

Take into account **drug allergies**, and recent antibiotic use

Where patients have allergies always enquire nature of reaction. Distinguish true allergy from mild sensitivity. Patients with **true penicillin allergy are more at risk of receiving suboptimal antibiotic treatment** as the choices remaining are generally more toxic and less effective in a critical situation.

Beware of interactions and contraindications (seek advice from a pharmacist if unsure)

Refer to the **Sepsis poster** for guidance on best antibiotic choices **if underlying source is unknown**. These posters are on display in every clinical area. Find it and **check it out, so you know where it is when you need it!** If underlying source is known, refer to the **Blue Man Poster**, also displayed on every clinical area.

Antibiotic review

Management of infections in Adult Patients
Short Guide to First-Line Antimicrobial Recommendations

BEFORE PRESCRIBING ANTIBIOTICS, ADEQUATE CULTURES AND RELEVANT SAMPLES SHOULD BE TAKEN WHERE POSSIBLE. ALSO TAKE INTO ACCOUNT: Drug choice, Sensitivity, Drug route and dose, Frequency, Need for IV, Patient factors, Clinical judgement, and Cost/efficacy ratio.

PIPERACILLIN/TAZOBACTAM AND MEROPENEM ARE HEAVILY RESTRICTED ANTIBIOTICS. ANY USE OUTSIDE THE ANTIBIOTIC GUIDELINES REQUIRES MICROBIOLOGY APPROVAL WITHIN 24 HOURS OF INITIATION. PHARMACY WILL LIMIT SUPPLY TO 24 HOURS IF APPROPRIATE INDICATION OR MICROBIOLOGY APPROVAL IS NOT MADE CLEAR ON THE PRESCRIPTION.

For management of SEPSIS of unknown source in Adult Patients – see sepsis poster

In cases of bacteraemia, sepsis, high risk of SIRS, or high risk of SIRS – refer to the full version of the antimicrobial guidelines, via the ULHT Intranet. For further advice please contact Consultant Microbiologists via Switchboard.

2020

CNS INFECTIONS
Meningitis: Ceftriaxone 2g 8 hourly IV
Refer to Antimicrobial Guidelines for meningitis pathogenology
Epidemic meningitis: ceftriaxone 2g 8 hourly IV
Refer to Antimicrobial Guidelines for meningitis pathogenology

SUSPECTED ENDOCRINITIS (SYSTEMIC INFECTIONS)
Take 1 set of blood cultures over an hour and 1 ROUTINE IV blood culture (antibiotic free) before treatment
Meningitis: ceftriaxone 2g 8 hourly IV
Epidemic meningitis: ceftriaxone 2g 8 hourly IV
Refer to Antimicrobial Guidelines for meningitis pathogenology

URINARY INFECTIONS
Pyelonephritis / urinary tract infection: ceftriaxone 1g 8 hourly IV + amoxicillin 500mg 3 hourly PO
Cystitis: amoxicillin 500mg 3 hourly PO
Refer to Antimicrobial Guidelines for urinary tract infection pathogenology

SOFT TISSUE INFECTIONS
Cellulitis: co-amoxiclav 625mg/400mg 3 hourly IV
Epidemic meningitis: ceftriaxone 2g 8 hourly IV
Refer to Antimicrobial Guidelines for soft tissue infection pathogenology

COMMUNITY-ACQUIRED PNEUMONIA
For patients admitted to hospital setting, refer to guidelines for Hospital-Acquired Pneumonia
Refer to Antimicrobial Guidelines for Community-Acquired Pneumonia
Refer to Antimicrobial Guidelines for Community-Acquired Pneumonia

HOSPITAL-ACQUIRED PNEUMONIA
Refer to Antimicrobial Guidelines for Hospital-Acquired Pneumonia
Refer to Antimicrobial Guidelines for Hospital-Acquired Pneumonia

ABDOMINAL INFECTIONS
Acute diverticulitis: ceftriaxone 1g 8 hourly IV + amoxicillin 500mg 3 hourly PO
Refer to Antimicrobial Guidelines for abdominal infection pathogenology

SEPSIS & JOINT INFECTIONS
Doxycycline 200mg 2 hourly PO
Refer to Antimicrobial Guidelines for sepsis and joint infection pathogenology

Weight (kg) Calculations
Refer to Antimicrobial Guidelines for weight calculations

If underlying source of sepsis is known, (may not be apparent at first presentation) refer to the **Blue Man Poster** for antibiotic advice as this is much better **focussed for the infection source**. These posters are also displayed on every clinical area.

Find it and **check it out, so you know where it is when you need it!**

All antibiotic treatment should be reviewed regularly by a senior clinician, and a clear plan should be decided and documented in medical notes by 72 hours in regards to next antibiotic steps. This decision is guided by insight on diagnosis from investigations undertaken, bloods, observations and microbiology reports.

Where possible, the antibiotic choice should be narrowed down to treat the specific pathogen or infection type. IV to oral switch should be considered, and a proposed stop or review date must be clearly communicated on the prescription chart.

Reminder: The Sepsis poster and Blue Man poster are both available on the Antimicrobial pages of the intranet

Check it out, so you know where it is when you need it!

Antibiotics sub-menu

- Antibiotic Guidelines
- Antibiotic Guidelines for Adults
- Antimicrobial Education and Training
- Antibiotic Information Sheets
- Antimicrobial Stewardship
- OPAT (Outpatient Parenteral Antibiotic Therapy)
- Penicillin Allergy
- Prescribing Policy
- Surviving Sepsis
- Contact Us

Antibiotic Guidelines for Adults

- Antibiotic Guidelines 2019 [pdf] 2MB
- Blue Man Poster 2020 [pdf] 516KB
- Diagnosis of Urinary Tract Infection in Adults [pdf] 67KB
- Guidance on Antibiotic use in Patients with Covid-19 Post NICE 173-v2 [pdf] 733KB
- Sepsis poster 2019-19 [pdf] 78KB

Total results: 5

- Guidance for Antimicrobial Drug Dosing in Extremes of Body Weight (Adults)
- Guideline for Antibiotic dosage in renal impairment

MINIMIZE APPROPRIATE ANTIBIOTIC USE

Prescribe antibiotics in line with the Trust Antibiotic Stewardship and Prescribing Guidelines.

OPEN GENTAMICIN CALCULATOR

If in doubt contact us for advice:

Balwinder Bolla - Consultant Antimicrobial Pharmacist
01522 307494 or 573735 or ULHT mobile 07585 881042

Sue Wen Leo - Senior Pharmacist Antimicrobials
01522 573464 or ULHT mobile 07585 881039

Isabel SzeWing Fok – OPAT and Antimicrobial Pharmacist
01205 445973



Out of Hours – Contact the on-call Microbiologist via switchboard