Bupa Cromwell Hospital

ICU Antimicrobial Treatment Guidelines

Contents

Introduction and Purpose

Antimicrobial Guidelines are intended to provide clinicians guidance on the management (both treatment and prevention) of common infections. This guideline forms part of a series of antimicrobial guidelines.

The clinical guidelines provide evidence based and best practice on the management of patients with infective episodes. They include empirical antimicrobial therapy including dose, route and duration of therapy and where necessary microbiological investigations and

Objectives

- To improve the quality of antimicrobial prescribing and reduce inappropriate prescribing.
- To maximise the clinically effectiveness of antimicrobial agents used.
- To reduce drug related toxicity and development of antimicrobial resistance.
- To ensure cost effective use of antimicrobial agents.

Scope

This guideline applies to all healthcare professionals involved in the prescription, administration and monitoring of antimicrobial agents.

Development and consultation

The clinical guidelines have been produced by the lead clinician and lead pharmacist for each division in conjunction with microbiology.

Implementation, monitoring and documentation

Implementation and adherence to the guidelines is the responsibility of the lead clinician and lead pharmacist for each division.
Key aspects of the guidelines will be monitored as part of the annual audit programme.

Previous antibiotic therapy should be considered before initiating therapy.
Antibiotic therapy should be modified according to culture results.

Antibiotic treatment on any ICU should be agreed with Microbiology on initiation whenever possible.

Dose: Use the highest dose commensurate with patient body mass, renal and hepatic function. Pharmacy can advise on doses.

Spectrum: Keep antibiotic spectrum narrow if the pathogen is known

EMPIRICAL TREATMENT – NO OBVIOUS SOURCE

If patient has diarrhoea, only use Teicoplanin, Tazocin or Metronidazole as necessary. Avoid cephalosporins.

1st choice within 72h of admission/intubation	Cefuroxime 750mg – 1.5g IV 8 hourly for 5 days **OR** Co-amoxiclav 1.2g IV 8 hourly for 5 days
If in hospital for longer than 72h or high risk of MRSA	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for (if patient is over 85kg, give 6mg/kg) **plus** Ceftazidime 2g IV 8 – 12 hourly for 5 days
Penicillin allergy	Ciprofloxacin 400mg IV 12 hourly (or 500mg PO 12 hourly if able to tolerate oral) **plus** Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for (if patient is over 85kg, give 6mg/kg) for 5 days
If hypotensive or shocked (Refer to Gentamicin dosing guideline for advice on levels).	**Add** Gentamicin 7mg/kg IV 24 hourly for 5 days **OR** Gentamicin 80mg IV 12–24 hourly (if CrCl <20ml/min) for 5 days
If anaerobic infection suspected	**Add** Metronidazole 500mg IV 8 hourly (Not necessary with Co-amoxiclav)

EMPIRICAL TREATMENT OF PNEUMONIA (within 72h of surgery or ICU admission)

Risk of atypical pneumonia depends on history and symptoms on presentation.

1st choice	Cefuroxime 750mg – 1.5g IV 8 hourly **plus** Clarithromycin 500mg IV 12 hourly for 7 - 10 days
Penicillin allergy	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for (if patient is over 85kg, give 6mg/kg) **plus** Clarithromycin 500mg IV 12 hourly for 7-10 days

EMPIRICAL TREATMENT OF PNEUMONIA including VENTILATOR ASSOCIATED PNEUMONIA (more than 72h after surgery or ICU admission)

1st choice	Ceftazidime 2g IV 8 – 12 hourly for 5 days
2nd choice	Tazocin 4.5g IV 8 hourly for 5 days
3rd choice and if penicillin allergy	Ciprofloxacin 400mg IV 12 hourly for 5 days
MRSA carriage	**Add** Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for (if patient is over 85kg, give 6mg/kg) for 5 days

ASPIRATION PNEUMONIA

Treat if infection likely.

1st choice	Co-amoxiclav 1.2g IV 8 hourly for 5 days **OR** Cefuroxime 750mg – 1.5g IV 8 hourly **plus** Metronidazole 500mg IV 8 hourly
Penicillin allergy	Clindamycin 300mg IV 6 hourly for 5 days
MRSA carriage	**Add** Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for (if patient is over 85kg, give 6mg/kg) for 5 days

INTRAVENOUS CATHETER INFECTION

Change or remove catheter if possible. If cannot, or fever does not settle then treat as below:-

1st choice	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for (if patient is over 85kg, give 6mg/kg) for 5 days

STERNAL WOUND INFECTION

Treatment may change once the pathogen is identified.

If organism unknown or *Staphylococcus*	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly (if patient is over 85kg, give 6mg/kg) **plus** Rifampicin 300mg PO bd ***OR*** Sodium fusidate 500mg PO tds as advised by microbiology for 7-10 days Review treatment in light of sensitivity results.
If Gram negative organism	Ceftazidime 2g IV 8 – 12 hourly **OR** Tazocin 4.5g IV 8 hourly for 5 days

ABDOMINAL SEPSIS

1st choice (*Refer to Gentamicin dosing guideline for advice on levels).	Cefuroxime 1.5g IV 8 hourly **plus** Metronidazole 500mg IV 8 hourly **plus** Gentamicin* 7mg/kg IV 24 hourly for 7-10 days
Penicillin allergy	Ciprofloxacin 400mg IV 12 hourly **plus** Metronidazole 500mg IV 8 hourly **plus** Gentamicin* 7mg/kg IV 24 hourly for 7-10 days
If MRSA or high risk	**Add** Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for (if patient is over 85kg, give 6mg/kg) for 7-10 days

Pancreatitis may be treated with a carbapenem for up to 2 weeks as there is some evidence of improvement of necrotic pancreatitis. However, there is a documented risk of multiresistant infection following such a policy. Discuss treatment with Microbiology.

URINARY TRACT INFECTION

Treatment if symptomatic or suspected bacteraemia.

Within 72h of catheterisation (*Refer to Gentamicin dosing guideline for advice on levels).	Cefuroxime 750mg – 1.5g IV 8 hourly **plus** Gentamicin* 7mg/kg IV 24 hourly for 3days
More than 72h from catheterisation	Ceftazidime 2g IV 8 – 12 hourly for 3 days
Penicillin allergy	Ciprofloxacin 400mg IV 12 hourly for 3 days

STAPHYLOCOCCUS AUREUS INFECTION

1st choice if known to be susceptible (*Refer to Gentamicin dosing guideline for advice on levels).	Flucloxacillin 1g – 2g IV 6 hourly **plus** Gentamicin* 7mg/kg IV 24 hourly for 7-10 days or 14 days if bacteraemia
MRSA or staphylococci of unknown susceptibility or penicillin allergy	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly (if patient is over 85kg, give 6mg/kg) **plus** Gentamicin* 7mg/kg IV 24 hourly ***OR*** Vancomycin (2nd line) ***OR*** Linezolid (glycopeptide intermediate resistant *S. aureus* – GISA) Duration: 7-10 days or 14 days if bacteraemia

STREPTOCOCCUS GROUP A INFECTION

Treatment must be given without any delay as soon as infection suspected.

1st choice	Benzyl penicillin 1.2g IV 4 hourly **plus** Clindamycin 600mg IV 6 hourly for 7-10 days
Penicillin allergy	Clindamycin 600mg IV 6 hourly for 7-10 days

ENTEROCOCCUS INFECTION

1st choice	Tazocin 4.5g IV 8 hourly for 5 days
Penicillin allergy	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly for 5 days (if patient is over 85kg, give 6mg/kg)
VRE (Vancomycin resistant enterococcus)	Linezolid – discuss with Microbiology

OTHER GUIDELINES

The following guidelines are available on the intranet formulary (Inform) and can be accessed via the links below.

a) Pneumocystis carnii pneumonia guideline. Contact ID team.

b) If Legionnaire's pneumonia suspected, contact Microbiology urgently.

c) Neutropenic sepsis guidelines. Contact on-call Haematologist.

d) Meningitis treatment guidelines.

e) Endocarditis treatment guidelines.

f) Treatment of *Clostridium difficile* infection guideline.