ICU ANTIBIOTIC GUIDELINES

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.

Duration: Most courses should be 5 days or less
Severe pneumonia up to 10 days
Abdominal or mediastinal sepsis 10 - 21 days
Osteomyelitis or endocarditis 6 - 12 weeks

Spectrum: Keep antibiotic spectrum narrow if the pathogen is known

EMPIRICAL TREATMENT NO OBVIOUS SOURCE (within 48-72 hrs of admission / intubation)	
1st choice	Cefuroxime 750mg – 1.5g IV 8 hourly
Alternative (Order of choice may be changed if outbreaks of infection dictate e.g. *C. difficile*)	Co-amoxiclav 1.2g IV 8 hourly
If hypotensive or shocked (Refer to Gentamicin dosing guideline for advice on levels).	**Add** Gentamicin 7mg/kg IV 24 hourly **OR** Gentamicin 80mg IV 12–24 hourly (if CrCl <20ml/min)
If anaerobic infection suspected	**Add** Metronidazole 500mg IV 8 hourly (Not necessary with Co-amoxiclav)
If patient has diarrhoea, only use Teicoplanin, Ciprofloxacin or Metronidazole as necessary. Avoid cephalosporins.	

EMPIRICAL TREATMENT OF PNEUMONIA (within 72 hrs 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 **+ / -** Clarithromycin 500mg IV 12 hourly **OR** Erymax 500mg PO 12 hourly
Alternative	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly **+ / -** Clarithromycin 500mg IV 12 hourly

EMPIRICAL TREATMENT OF PNEUMONIA (within 72 hrs of surgery or ICU admission)	
1st choice	Ceftazidime 2g IV 8 – 12 hourly
2nd choice	Ciprofloxacin 400mg IV 12 hourly
3rd choice	Tazocin 4.5g IV 8 hourly

PNEUNOCYSTIS CARINII PNEUMONIA (PCP)	
Steroids given early in the course of therapy, in addition to PCP treatment have been shown to reduce mortality in cases of moderate to severe disease. **Check whether steroids indicated and doses needed with the Infectious Diseases team.**	
Treatment	
1st choice *Use ideal body weight to calculate dose if patient is 15% above or below their ideal body weight.	Co-trimoxazole 120mg/kg*/day PO/IV in 2 or more divided doses for 2 days then Co-trimoxazole 90mg/kg*/day in 2 or more divided doses for 19 days
2nd choice	Clindamycin 600mg PO/IV 6 hourly for 21 days **plus** Primaquine* (base) 15mg Po 24 hourly for 21 days (*Avoid in patients with G6PD deficiency)
Alternatives	Pentamidine, Trimetrexate Dapsone and Trimethoprim Atovaquone (Discuss with Infectious Diseases team)

LEGIONNAIRE'S PNEUMONIA
If suspected, contact Microbiology urgently

NEUTROPENIC FEVER
Refer to Neutropenic sepsis guidelines and contact on-call Haematologist

MENINGITIS
Refer to Meningitis treatment guidelines

ENDOCARDITIS
Refer to Endocarditis treatment guidelines

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 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 for 7 - 10 days
If Gram negative organism	Ceftazidime 2g IV 8 – 12 hourly **OR** Tazocin 4.5g IV 8 hourly

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
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.	

DIARRHOEA	
This is usually caused by *C. difficile*. Stop antibiotics if possible.	
1st choice	Metronidazole 400mg PO 8 hourly for 7 – 10 days
2nd choice	Vancomycin 125mg **PO** 6 hourly for 7 to 10 days IV Vancomycin is NOT effective

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
More than 72h from catheterisation	Ceftazidime 2g IV 8 – 12 hourly **OR** Ciprofloxacin 400mg IV 12 hourly

STAPHYLOCOCCUS AUREUS **INFECTION**	
1st choice (*Refer to Gentamicin dosing guideline for advice on levels).	Flucloxacillin 1g – 2g IV 6 hourly **plus** Gentamicin* 7mg/kg IV 24 hourly
MRSA	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly **plus** Gentamicin* 7mg/kg IV 24 hourly **OR** Vancomycin (2nd line) **OR** Linezolid (glycopeptide intermediate resistant *S. aureus* – GISA)

STREPTOCOCCUS GROUP A INFECTION	
Treatment must be given without any delay as soon as infection suspected.	
1st choice	Benzylpenicillin 1.2g IV 4 hourly **plus** Clindamycin 600mg IV 6 hourly

ENTEROCOCCUS INFECTION	
1st choice	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV 24 hourly **OR** Tazocin 4.5g IV 8 hourly
VRE (Vancomycin resistant enterococcus)	Linezolid – discuss with Microbiology