

## PRIMARY CARE ANTIMICROBIAL ESCALATION GUIDANCE FOR USE IN COMMUNITY HOSPITALS AND UNITS BY MEDICAL AND NON MEDICAL PRESCRIBERS

This guidance supplements the primary care antimicrobial prescribing guidance which is in use within the Trust to promote appropriate treatment of infections within community hospitals/units. The escalation options provided set out to build on options contained within the primary care guidance and promote the rational, effective and safe use of antimicrobials for adult community hospital/unit patients and are particularly important in the frail elderly population who are at increased risk of adverse effects of antimicrobials, healthcare associated infections and infections due to resistant micro-organisms.

### Key Points

#### 1. Before starting an antimicrobial agent consider:

- The clinical benefit of treatment versus the risk.
- The nature and severity of the infection and whether referral to secondary care is indicated. Remember, the optimum management of sepsis requires more than antibiotics alone.
- Patient co-morbidities, polypharmacy, allergy status and other concomitant health issues.
- When 'end of life' care or an anticipatory/advanced care plan is in place, the relative clinical benefits/risks of antimicrobial therapy should be considered to avoid inappropriate escalation of antimicrobial therapy.





#### 2. When choosing an antimicrobial, consider the following:

- Check patient's microbiology history to inform choice within antibiotic sensitivities and also prescribing guidance; seek advice from Consultant Microbiologist if required.
- Where possible, avoid antimicrobials with a high risk of *Clostridium difficile* infection (cephalosporins, co-amoxiclav, clindamycin, ciprofloxacin and other quinolones) unless recommended for specific infections or patient groups e.g. penicillin allergy.
- Check for potential drug interactions e.g. clarithromycin can interact with simvastatin and warfarin (most antibiotics affect INR). Check [BNF weblink](#) for individual drugs.
- The severity of community acquired pneumonia is assessed by CURB-65 score and this has an impact on the preferred treatment. **Determine CURB-65 score by scoring one** point for each of the following: New mental Confusion Urea >7 mmol/L Respiratory rate ≥ 30 breaths/minute Blood pressure <90 mm Hg systolic or ≤60 mm Hg diastolic Age ≥65 years.
- It is important to exclude Urinary Tract Infections (UTIs) in patients with a clinical diagnosis of 'chest infection' but no infiltrates on chest X-ray. 'Crackles' on auscultation are a non-specific finding.
- The risk of adverse events is increased in older people due to low body weight, impaired absorption and reduced clearance. Adjust antimicrobial dosage accordingly to avoid adverse effects. Elderly patients often become dehydrated, especially when unwell, and this should be considered when interpreting eGFR or serum creatinine results.
- Prescribe the correct length of treatment to ensure effective treatment and minimise resistance. Stop dates and review processes should be agreed on commencement of treatment; intravenous antibiotics should be reviewed within 72 hours of initiation. Consider can antibiotics be switched to oral or stopped?

#### 3. Monitoring of antimicrobial treatment

- Review microbiology results when available to ensure that empirical antimicrobial therapy is suitable and change to a narrow spectrum antimicrobial if appropriate.
- Assess resolution of symptoms e.g. temperature, respiratory and heart rate returned to normal, energy, alertness, mobility and appetite improved. Consider monitoring biomarkers such as WCC and CRP.
- Identify any adverse effects such as nausea and vomiting, diarrhoea, skin rash etc.

### Summary of key messages

-  Before starting an antimicrobial, consider all the clinical risk factors for a patient (concurrent medication, co-morbidities, allergy status, previous infections/microbiology).
-  Prescribe the appropriate choice of antibiotic for the appropriate length of course.
-  Monitor the patient for response to treatment, change antibiotic in line with clinical need or sensitivities.
-  Ensure reason for antimicrobial is documented on drug chart on prescribing is compliant with BSAC NICHE guidance with need, indication, choice of agent, how long and evaluation of outcome recorded.

### References

British Society of Antimicrobial Chemoprophylaxis NICHE guidance [Web Link](#)  
Scottish Medicines Consortium (2015) Good Practice Recommendations for Antimicrobial Use in Frail Elderly Patients in NHS Scotland. [Web Link](#)  
Worcestershire Primary Care Antimicrobial Prescribing Guidance available on [www.worcestershirehealth.nhs.uk](http://www.worcestershirehealth.nhs.uk) under infection control and policies

**SUPPLEMENTARY GUIDANCE TO BE USED IN SUPPORT OF CURRENT VERSION OF PRIMARY CARE  
ANTIMICROBIAL PRESCRIBING GUIDANCE FOR COMMUNITY HOSPITAL/UNIT ADULT INPATIENTS**

<b>Patients with sepsis will require management in secondary care.</b>		<b>RECOMMENDED CHOICE</b>	<b>PATIENTS WITH A PENICILLIN ALLERGY</b>
<b>URINARY TRACT INFECTION (UTI)</b> Wherever possible sensitivity data must be reviewed to ensure appropriate agent used. If catheter in situ remove or change.	<b>ESCALATION OPTION</b> Piperacillin-tazobactam 4.5g by intravenous infusion over 30 minutes every 8 hours <b>OR</b> Ertapenem 1g IV once daily (ertapenem option is used by community IV Team).	<b>ESCALATION OPTIONS</b> <b>ORAL</b> Ciprofloxacin 500mg orally twice a day for 7 days (excellent oral absorption of this agent) <b>or</b> <b>IV</b> Ciprofloxacin 400mg intravenous infusion over 60 minutes every 12 hours.	
<b>CELLULITIS</b> Where microbiological results are known antibiotics must be tailored to this. Note 14 days treatment if lymphoedema present.	<b>ESCALATION OPTION</b> <b>IV</b> Flucloxacillin 1g in 20ml of water for injection via intravenous injection over 3-4 minutes every 6 hours for 7-14 days.	<b>ESCALATION OPTIONS BASED ON CLINICAL JUDGEMENT</b> <b>IV</b> Teicoplanin 400mg slow intravenous injection over 3 to 5 minutes every 24 hours. <b>ORAL</b> Doxycycline 200mg single dose stat then Doxycycline 100mg orally once a day for total of 7 days.	
<b>CHEST INFECTION</b>	<b>COMMUNITY ACQUIRED PNEUMONIA (CAP) OR SEVERE INFECTIVE EXACERBATIONS OF COPD (NOTE CURB-65 SCORE)</b>	<b>CURB 65 SCORE 0-2</b> Refer to Primary Care Prescribing Guidance.  Based on definition of community acquired pneumonia (onset within 48 hours of admission from community) patients requiring further treatment escalation (CURB-65 score ≥3) should be referred to secondary care.	<b>CURB 65 SCORE 2</b> <b>ESCALATION OPTION</b> <b>ORAL</b> Levofloxacin 500mg orally once a day for 7 days.
	<b>HOSPITAL ACQUIRED PNEUMONIA (HAP)</b> Hospital acquired pneumonia is defined as the onset of infection more than 48 hours after admission (excluding that which was incubating/developing at admission).  Always check sensitivity data to ensure agent of choice is appropriate.  Consider need for referral to secondary care.	<b>MILD TO MODERATE INFECTION</b> <b>ORAL OPTION</b> Co-amoxiclav 625mg orally every 8 hours for 7 days (if risk of <i>Clostridium difficile</i> causes concern consider use of Doxycycline).  <b>SEVERE IV ESCALATION</b> Piperacillin-tazobactam 4.5g by intravenous infusion over 30 minutes every 8 hours. <b>If received more than 3 days piperacillin /tazobactam and/or ceftazidime on this hospital admission consider Meropenem 1g by intravenous injection over 5 minutes every 8 hours for 5 to 7 days.</b>	<b>MILD TO MODERATE INFECTION</b> <b>ORAL OPTION</b> Doxycycline 200mg single dose stat then Doxycycline 100mg orally once a day for total of 7 days.  <b>SEVERE IV ESCALATION</b> Levofloxacin 500mg intravenous infusion over 60 minutes twice a day for 7 days.  Contact Microbiologist if known to be colonised with quinolone resistant organisms.
	<b>ASPIRATION PNEUMONIA</b>	<b>IV OPTION</b> Benzylpenicillin 1.2g slow intravenous injection over 5 minutes every 6 hours for 7 days <b>AND</b> Metronidazole 500mg intravenous infusion over 20 to 30 minutes three times a day for 7 days. <b>IV to ORAL SWITCH</b> Amoxicillin 1g <b>AND</b> Metronidazole 400mg every 8 hours.	<b>IV OPTION</b> Clarithromycin 500mg intravenous infusion in 250 ml sodium chloride 0.9% over 60 minutes twice a day for 7 days <b>AND</b> Metronidazole 500mg intravenous infusion over 20 to 30 minutes three times a day for 7 days. <b>IV to ORAL SWITCH</b> Clarithromycin 500mg orally twice a day <b>AND</b> Metronidazole 400mg orally three times a day.
<p align="center"><b>Always check sensitivity data to ensure use of most appropriate agent.</b> <b>Send samples as indicated and review treatment on receipt of results.</b> <b>When managing patients who require IV to PEG/NG Switch please check options with pharmacy team.</b></p>			
<p align="center">Advice is available from Consultant Microbiologists at Worcestershire Acute Hospitals NHS Trust; contact extension 30673 during working hours; out of hours advice is available from the on call Medical Microbiologist via switchboard.</p>			