## Diabetic Foot Infection – Empirical Antibiotic Management

- This protocol is intended for use before pathogens are isolated. Ongoing treatment decisions should be based on Microbiology results where available
- Antibiotics alone are unlikely to cure diabetic foot infection. Adequate debridement and good wound care is required
- Do not use antibiotics to treat wounds without evidence of infection
- Adhere to stated durations. **If evidence of infection has resolved, antibiotic therapy should not be continued whilst a wound heals**
- **IF THERE IS EVIDENCE OF NECROTISING FASCIITIS, CONTACT SURGICAL TEAM THEN MICROBIOLOGY URGENTLY**

### Severity

<table>
<thead>
<tr>
<th>Severity</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Osteomyelitis</th>
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</thead>
</table>
| **Definition** | 2 or more of:  
- Erythema  
- Warmth  
- Induration  
- Pain  
- Tenderness  
OR Cellulitis < 2cm from ulcer edge  
OR Presence of pus  
No evidence of systemic infection | Any from:  
- Cellulitis > 2cm from ulcer edge  
- Lymphatic streaking  
- Deep infection involving  
- Bone – see Osteomyelitis  
- Subcutaneous tissue  
- Tendon  
- Fascia  
- Abscess  
No evidence of systemic infection | As per Mild or Moderate PLUS  
Evidence of systemic infection  
SIRS = 2 or more of  
- Temp > 38 or < 36  
- RR > 20  
- HR > 90  
- WCC >12 or <4  
Confusion, vomiting, metabolic instability and shock may be seen  
More likely if critical limb ischaemia is present | **X-ray may reveal osteomyelitis; if negative, and ongoing concern about bony infection, 3-phase scintigraphy +/- MRI may be indicated**  
**Avoid empirical antibiotics in chronic, stable disease. Biopsies (culture & histology) should be taken before Abx wherever possible.**  
**If systemically unwell: ADMIT** and treat as below  
A stable patient may not need admission: there may be an oral option based on culture.  
Discuss ongoing treatment in all cases with Microbiology |

### Sampling

Wherever possible, take samples **before** antibiotics are given  
- Biopsy or curettage after adequate debridement (preferred)  
- Aspirated pus or extruded bone  
- Blood cultures if systemically unwell  
Swabs are less likely to detect underlying pathogens  
In mild infection only, with no recent antibiotics, culture may not be required. Always culture if initial treatment fails

### Treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Osteomyelitis</th>
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| **Definition** | Gentamicin & Vancomycin: dosage calculator available on the Antibiotics Guideline page ([http://microguide.horizonsp.co.uk/viewer/fife/adult](http://microguide.horizonsp.co.uk/viewer/fife/adult))  
Vancomycin trough levels = 15-20mg/L. Gentamicin and Vancomycin levels MUST be monitored as instructed | **Superficial infection**  
Flucloxacillin 1g QDS (oral)  
PLUS  
Metronidazole 400mg TDS (oral)  
**Deep infection (see definition above)**  
Flucloxacillin 2g QDS (IV)  
PLUS  
Metronidazole 500mg TDS (IV) | Flucloxacillin 2g QDS (IV)  
PLUS  
Metronidazole 500mg TDS (IV)  
PLUS  
Gentamicin IV | Flucloxacillin 2g QDS (IV)  
**If not improving, consider adding Gentamicin and/or Metronidazole as per Severe infection** |

**First-line**

- **Flucloxacillin 1g QDS (oral)**  
  - **If eGFR is <10, reduce dose of Flucloxacillin by HALF**  
- **Flucloxacillin 1g QDS (oral)**  
  PLUS  
  Metronidazole 400mg TDS (oral)  
- **Flucloxacillin 2g QDS (IV)**  
  PLUS  
  Metronidazole 500mg TDS (IV)  
  **If not improving, consider adding Gentamicin and/or Metronidazole as per Severe infection**
<table>
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<tr>
<th>Second-line (recent antibiotics, or worsening on current antibiotics)</th>
<th>Consider adding Gentamicin IV if no response at 24-48h</th>
</tr>
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<tbody>
<tr>
<td><strong>Superficial infection</strong></td>
<td><strong>Deep infection (see definition above)</strong></td>
</tr>
<tr>
<td>Doxycycline 100mg BD (oral) OR Cotrimoxazole 960mg BD (oral)</td>
<td>Cotrimoxazole 960mg BD (IV) PLUS Metronidazole 500mg TDS (IV)</td>
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<tr>
<td><strong>Penicillin allergy OR Known MRSA</strong></td>
<td>Consider adding Gentamicin IV if more seriously unwell (e.g. if shock present)</td>
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<tr>
<td><strong>Second-line (recent antibiotics, or worsening on current antibiotics)</strong></td>
<td>Consider using Vancomycin IV instead of Cotrimoxazole IV if known or suspected MRSA – check sensitivities</td>
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<tr>
<td><strong>Duration</strong></td>
<td><strong>Vancomycin IV (target trough level 15-20mg/l)</strong></td>
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<tr>
<td>7 days and review</td>
<td>If not improving, consider adding Gentamicin and/or Metronidazole as per <strong>Severe infection</strong></td>
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<tr>
<td><strong>Antibiotic choices</strong></td>
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<td>Superficial infection - 7 days and review</td>
<td>14 days and review</td>
</tr>
<tr>
<td>Deep infection - 14 days and review</td>
<td>4-6 weeks if infected bone is retained</td>
</tr>
<tr>
<td>Switch to oral therapy when stable. If no sensitivities are available: Cotrimoxazole 960mg BD (oral) PLUS Metronidazole 400mg TDS (oral)</td>
<td>If bone is debrided but there is concern that infected soft tissue remains, continue antibiotics for 14 days then review</td>
</tr>
<tr>
<td><strong>References</strong></td>
<td>If all infected bone and soft tissue is debrided, a short course of antibiotics (2-5 days) may be appropriate</td>
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</table>


2) NHS Tayside Diabetic Foot Ulcer empirical antibiotic guideline

Author: NHS Fife Antimicrobial Management Team Published August 2017 Next revision August 2019