Supporting Information

Supplementary material

This appendix was part of the submitted manuscript and has been peer reviewed. It is posted as supplied by the authors.

### Table 1: SINBAD System

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td>Forefoot</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Midfoot and hindfoot</td>
<td>1</td>
</tr>
<tr>
<td>Ischaemia</td>
<td>Pedal blood flow intact: at least one palpable pulse</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Clinical evidence of reduced pedal flow</td>
<td>1</td>
</tr>
<tr>
<td>Neuropathy</td>
<td>Protective sensation intact</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Protective sensation lost</td>
<td>1</td>
</tr>
<tr>
<td>Bacterial Infection</td>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Area</td>
<td>Ulcer &lt;1 cm²</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Ulcer ≥1 cm²</td>
<td>1</td>
</tr>
<tr>
<td>Depth</td>
<td>Ulcer confined to skin and subcutaneous tissue</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Ulcer reaching muscle, tendon or deeper</td>
<td>1</td>
</tr>
<tr>
<td>Total score</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>


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### eTable 2: Wound, ischaemia and foot infection system

#### Wound classification

<table>
<thead>
<tr>
<th>Grade</th>
<th>Ulcer</th>
<th>Gangrene</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No ulcer</td>
<td>No gangrene</td>
</tr>
<tr>
<td>1</td>
<td>Small, shallow ulcer(s) on distal leg or foot; no exposed bone, unless limited to distal phalanx</td>
<td>No gangrene</td>
</tr>
<tr>
<td>2</td>
<td>Deeper ulcer with exposed bone, joint or tendon; generally not involving the heel; shallow heel ulcer, without calcaneal involvement;</td>
<td>Gangrenous changes limited to digits</td>
</tr>
<tr>
<td>3</td>
<td>Extensive, deep ulcer involving forefoot and/or midfoot; deep, full thickness heel ulcer with calcaneal involvement;</td>
<td>Extensive gangrene involving forefoot and/or midfoot; full thickness heel necrotic or calcaneal involvement</td>
</tr>
</tbody>
</table>

### Ischaemia

<table>
<thead>
<tr>
<th>Grade</th>
<th>Ankle-brachial index</th>
<th>Ankle Systolic Pressure (mmHg)</th>
<th>Toe pressure, transcutaneous oxygen pressure (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>≥ 0.80</td>
<td>&gt;100 mmHg</td>
<td>≥ 60 mmHg</td>
</tr>
<tr>
<td>1</td>
<td>0.60 - 0.79</td>
<td>70 - 100 mmHg</td>
<td>40 - 69 mmHg</td>
</tr>
<tr>
<td>2</td>
<td>0.4 - 0.59</td>
<td>60 - 70 mmHg</td>
<td>30 - 38 mmHg</td>
</tr>
<tr>
<td>3</td>
<td>≤ 0.39</td>
<td>&lt; 60 mmHg</td>
<td>&lt; 30 mmHg</td>
</tr>
</tbody>
</table>

### Foot infection

<table>
<thead>
<tr>
<th>Grade</th>
<th>Clinical manifestation of infection</th>
<th>IDSA/NGSDF infection severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No symptoms or signs of infection</td>
<td>Uninfected</td>
</tr>
<tr>
<td>1</td>
<td>Infection present, as defined by the presence of at least two of the following items:</td>
<td>Mild</td>
</tr>
<tr>
<td></td>
<td>• Local swelling or induration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Erythema &gt; 0.5 to ≤ 2 cm around the ulcer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Local tenderness or pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Local warmth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Purulent discharge (thick, opaque to white, or sanguineous secretion)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local infection involving only the skin and the subcutaneous tissue (without systemic signs).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exclude other causes of an inflammatory response of the skin (e.g. trauma, graft, acute Charcot neuro-ostearthropathy, fracture, thrombosis, venous stasis)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Local infection (as described above) with erythema &gt; 2cm, or involving structures deeper than skin and subcutaneous tissues (e.g. abscess, osteomyelitis, septic arthritis, fasciitis)</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
| 3     | Local infection (as described above) with the sings of SIRS as manifested by two or more of the following: | Severe
|       | • Temperature > 38°C or < 36°C     |                               |
|       | • Heart rate > 90 beats/min        |                               |
|       | • Respiratory rate > 20 breaths/min or PaCO2 < 33 mmHg |                               |
|       | • White blood cell count > 12,000 or < 4000 bu/mm or 10% immature (band) forms |                               |

PACO2: Partial pressure of arterial carbon dioxide, SIRS: systemic inflammatory response syndrome  

*Ischaemia may complicate and increase the severity of any infection. Systemic infection may sometimes manifest with other clinical findings, such as hypotension, confusion, vomiting, or evidence of metabolic disturbances, such as acidosis, severe hyperglycaemia, new-onset azotaemia.*


### Source
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eFigure 1: Peripheral artery disease pathways for a person presenting with diabetes

**Peripheral artery disease pathway for a person presenting with diabetes and a diabetes-related foot ulcer**

1. **Perform clinical examination and Doppler**
   - ABI ≤ 0.9
   - Abnormal Doppler waveforms
     - AIB: ≤ 0.9
     - AP: ≤ 0 mmHg
     - TP: ≤ 0 mmHg
     - ABI: 0.6 to 0.9
     - AP: 0.5 to 2 mmHg
     - TP: 0.5 to 2 mmHg

2. **PAD confirmed**
   - ABI ≤ 0.9
   - AP ≤ 0 mmHg
   - TP ≤ 0 mmHg
   - ABI: 0.6 to 0.9
   - AP: 0.5 to 2 mmHg
   - TP: 0.5 to 2 mmHg
   - ABI: 0.9 to 1.3
   - AP: ≥ 0 mmHg
   - TP: 0.5 to 2 mmHg

3. **PAD less likely**
   - Normal Doppler waveforms
     - ABI: 1.3 to 1.5
     - TP: ≥ 0 mmHg
     - ABI: 1.5 to 1.8
     - AP: ≥ 0 mmHg
     - TP: ≥ 0 mmHg
     - ABI: 1.8 to 2
     - AP: ≥ 0 mmHg
     - TP: ≥ 0 mmHg

4. **Medical artery calcification present**
   - Use alternate leg testing
   - TP, ABI, TCPO2

5. **Consider arterial imaging from toe to foot and revascularisation**
   - No significant DFU improvement within 4 to 6 weeks

6. **Consider endovascular, open or hybrid revascularisation procedure based on arterial anatomy, patient co-morbidities and presence of venous conduit**

7. **DFU healing**
   - Consider arterial imaging from toe to foot and revascularisation

8. **Rescreen annually for PAD at minimum**
   - Provide evidence-based NWD/DFS risk screening and prevention management.
   - Refer to Prevention pathway and ulcer risk category below

**Optimise cardiovascular risk management**

- Smoking cessation
- Glycemic control
- Lifestyle intervention: diet and physical activity

**PERIPHERAL ARTERY DISEASE PATHWAYS**

**PERIPHERAL ARTERY DISEASE PATHWAYS**

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**eFigure 2A**: Infection diagnosis pathway for a person with diabetes and suspected foot infection

**Infection diagnosis pathway for a person with diabetes and suspected foot infection**

1. **Tips for collecting diagnostic samples**
   - Wherever possible collect tissue, bone or pus using an aseptic technique for culture
   - Histopathology should also be requested on bone specimens
   - Avoid taking superficial swabs of ulcers as they will more likely identify colonising organisms than infecting pathogens
   - Before collecting a sample, debide and clean using saline the ulcer base
   - Do not sample areas of necrotic or non-viable tissue

2. **IWGDF severity classification scheme for diabetes-related foot infections**
   - **Mild**
     - GRADE 2
     - Infection is not associated with systemic inflammatory response syndrome (SIRS)
   - ** Moderate**
     - GRADE 3
     - Involves only the skin or subcutaneous tissue
     - Erythema extends >5cm from the wound margin
     - No systemic features of infection
   - **Severe**
     - GRADE 4
     - Involves structures deeper than the skin and subcutaneous tissue (e.g. tendon, muscle, plantar bone)
     - Any infection associated with systemic inflammatory response syndrome (SIRS), as manifested by ≥2 of the following:
       - Temperature, >38°C or <36°C
       - Heart rate, >90 beats/min
       - Respiratory rate, >20 breaths/min
       - White blood cell count, >10 × 10⁹/L or <4 × 10⁹/L, or <10% immature (band) forms

**Osteomyelitis** (infection involving bone (add) C1 after grade)

**Legend**
- Infection grade
- Infection type
- Recommended good standard of care
- Suggested standard of care
- Contraindication

**Note**: To be used in conjunction with other guideline pathways from the DC1 Australian Guidelines for diabetes-related foot disease. Please refer to the Australian guideline on management of diabetes-related foot infections for full details about this pathway.

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eFigure 2B: Infection management pathway for a person with diabetes and suspected foot infection

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**eFigure 3:** Offloading pathway for a person presenting with a diabetes-related foot ulcer

![Offloading pathway diagram](attachment:offloading_pathway_diagram.png)

**Non-planter ulcer location**
- Depending on the ulcer type and location, use one of the following:
  - Removable offloading device
  - Medical grade footwear
  - Foam
  - Toe spacers or orthoses

**Planter forefoot or midfoot ulcer location**
- Depending on the person's contraindication(s) and tolerance factors, use the best device that is tolerated and not contraindicated:
  - **No contraindications are present**
    - Use a non-removable low-high offloading device
  - **Mild infection or mild ischaemia**
    - Use a Removable high offloading device during all weight-bearing activity
  - **Moderate infection or moderate ischaemia**
    - Use a Removable high offloading device during all weight-bearing activity

**Plantar heel ulcer location**
- Depending on the person's contraindication(s) and tolerance factors, use one of the following:
  - Knee high offloading device
  - Other offloading intervention that effectively reduces plantar heel pressure

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**Procedure for implementing offloading treatment**
1. Follow the pathway to determine best treatment(s)
2. Discuss benefits, risks, contraindications, tolerance factors for treatment(s) with patient
3. Gain informed consent for treatment
4. Appropriately manage treatment with patient
5. Consider shoe raise for contralateral foot
6. Consider using additional walking aids
7. Consider using planter pressure measures
8. Activate limb weight-bearing activity
9. Advise importance of adhering to treatment
10. Provide patient-friendly instructions on use
11. Monitor ulcer pressure reduction, adverse events and impact on healing regularly (1-2 weeks)
12. Review treatment(s) effective on healing in 6 weeks

**Offloading contraindications to consider**
- Infection presence and severity
- Ischaemia presence and severity
- High falls risk status

**Offloading tolerance factors to consider**
- Occupation and family requirements
- Frequent driving requirements
- Hot climates
- Inherent ability to attend follow-up care
- Cultural practices

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**eFigure 4:** Wound healing interventions pathway for any person presenting with a diabetes-related foot ulcer

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