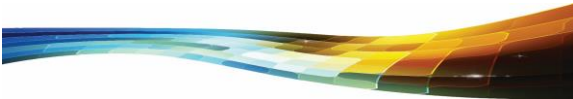


## The Diabetic Foot: First Line Defense for Saving Limbs

Thompson Community Based Program  
Skills Workshop  
March 18<sup>th</sup> 2022



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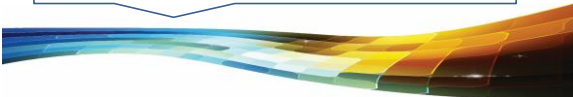
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## Faculty/Presenter Disclosure

- **Faculty:** Dr. Brett Finney, Rhonda Heintz, Kari Mann, Lori McKenzie, Jane McSwiggan, Tara Schmitz-Forsyth
- **Relationships with commercial interests:**
  - Grants/Research Support: None
  - Speakers Bureau/Honoraria: None
  - Consulting Fees: None
  - Other: N/A

EVERY speaker must include and verbally address this slide at the start of their presentation.



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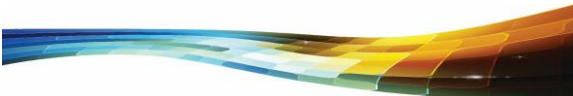
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## Objectives

1. Determine etiology of diabetic foot ulcers (DFUs) recognizing neuropathies, infection & vascular impairment
2. Treat acute Charcot foot as a medical emergency
3. Use 60 second foot screen to assess risk for DFUs & implement prevention strategies
4. Understand role of wound debridement & foot offloading
5. Manage DFUs in collaboration with specialist & local resources



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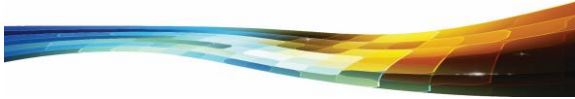
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### Diabetic Foot Ulcer



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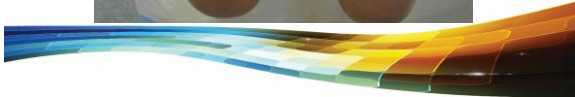
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### Diabetic Foot Ulcer



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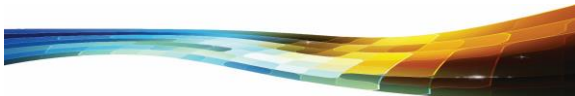
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### Manitoba

- 28% live with diabetes or prediabetes
- 10% live with diagnosed diabetes
- Up to 2,400 have a diabetic foot ulcer
- Estimated increase in diabetes prevalence from 2016 to 2026 = 37%



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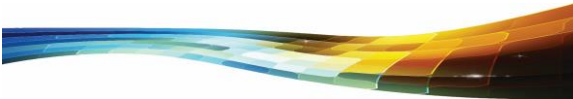
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## Which Leads To...

270 amputations per year

- DFUs precede 85% of non-traumatic amputations
- Patients suffer stress, pain, lost productivity
- \$70,000 per amputation



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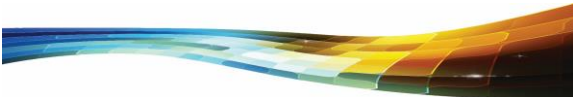
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## Causes of Diabetic Foot Ulcers

- 35% Neuropathy (Sensory, Autonomic, Motor)
- 15% Vascular Disease
- 50% Combination of Neuropathy & Vascular Disease
- 55% Pivotal event, pressure or trauma



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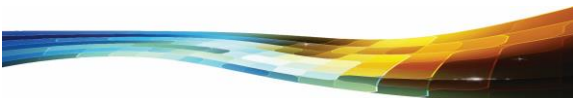
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## Neuropathy

Sensory, Autonomic, Motor



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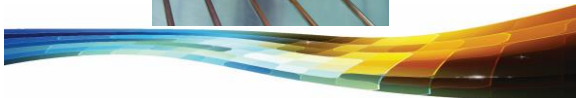
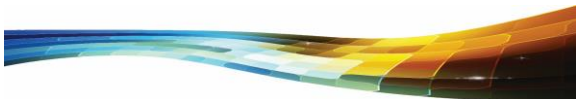
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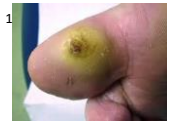
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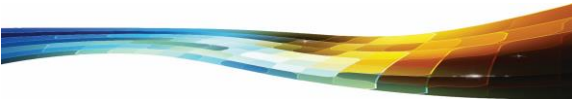
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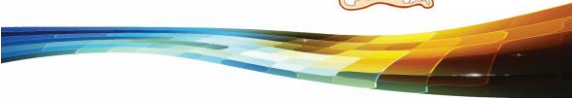
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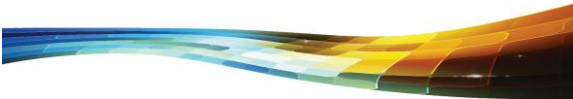
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## Acute & Chronic Charcot Foot



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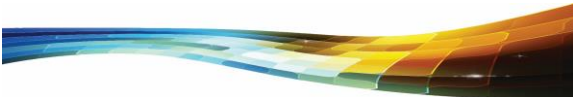
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## Triad of Neuropathy → Charcot Foot

- Small muscle wasting
- Decreased sensation
- Abnormal distribution of weight when standing
- Fractures occur spontaneously/with minimal stress
- Progressive bone disorganization with an increased risk of secondary ulceration



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## Acute Charcot Foot



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### Acute Charcot Foot \*Medical emergency



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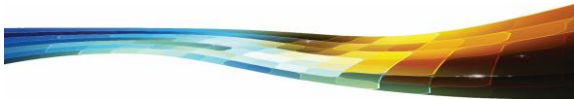
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### Management of Acute Charcot Foot

- Refer to immediately for offloading & casting
- Plain radiographs may be normal in the early stages of the disease
- MRI should be considered with suspicion of Acute Charcot foot



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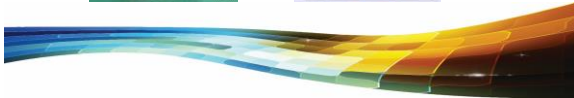
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### Chronic Charcot Foot



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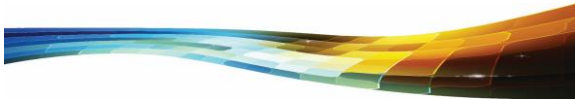
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## Management of Chronic Charcot Foot

- TCC – PRN
- Cast Boot – Rescue situations/transition
- Offloading to accommodate deformity
- Custom molded insoles & shoes
- Leather Lacer/Gauntlet
- CROW Charcot Restraint Orthotic Walker




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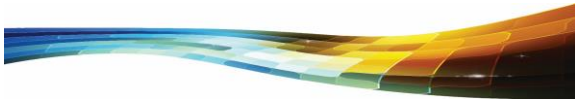
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## Infection

Limb threatening vs.  
Non-limb threatening




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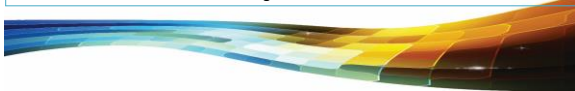
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Non-limb threatening	Limb-threatening	
<p>Superficial infection (NERDS)</p> <ul style="list-style-type: none"> <li>• Non-healing</li> <li>• Exudate increased</li> <li>• Red, friable granulation tissue, bleeds easily</li> <li>• Debris in wound</li> <li>• Smell</li> </ul>	<p>Deep wound infection (STONEES)</p> <ul style="list-style-type: none"> <li>• Size increased</li> <li>• Temp of wound increased</li> <li>• Os: Probes to bone</li> <li>• New satellite areas</li> <li>• Exudate increased</li> <li>• Erythema &gt;2cm wound margin</li> <li>• Edema</li> <li>• Smell</li> </ul> <p><b>PLUS</b></p> <ul style="list-style-type: none"> <li>• Pain</li> <li>• Flu-like symptoms</li> <li>• Erratic glucose control</li> </ul>	<p>Systemic Infection</p> <p>Deep wound infection <b>PLUS</b></p> <ul style="list-style-type: none"> <li>• Fever</li> <li>• Rigour</li> <li>• Chills</li> <li>• Hypotension</li> <li>• Multi-organ failure</li> </ul>




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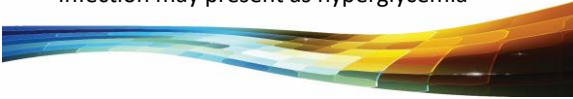
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## Challenges to Identifying Infection

- Normal immune response to infection in a person with diabetes is dampened
- May not have fever, chills, an increased WBC count or erythema
- Infection may present as hyperglycemia



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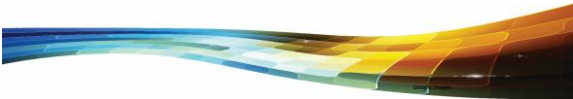
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## Emergency Signs & Symptoms of Deep Tissue Infection in DFU

### THE BIG 3

1. Pain in the neuropathic foot
2. Erratic glucose control
3. Flu-like symptoms



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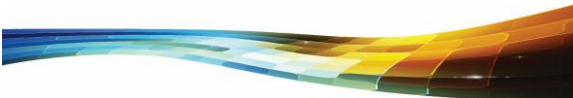
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## Onychomycosis- is it a big deal?



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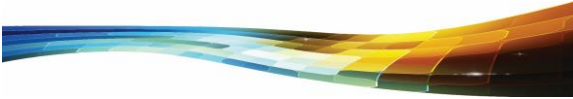
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## Temperature Changes

Acute Charcot Foot  
Deep wound infection



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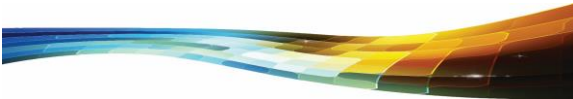
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### Infrared Thermometry: Acute Charcot

- Patients with a high-risk foot should take temperature of plantar aspect of the foot daily to detect localized temperature increases
- A high temperature elevation (4°F-15°F) over the mirror image on the opposite foot in a person without a foot ulcer may indicate an Acute Charcot Foot
- Patients who detect high temperature can restrict ambulation, & decrease the incidence of repetitive trauma-initiated neurotropic foot ulcers



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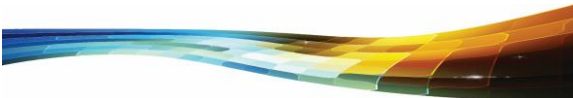
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### Infrared Thermometry: Infection

- A temperature difference of greater than 3°F between a wound & mirror anatomical site, with 2 or more other clinical signs, is highly suggestive of deep infection.



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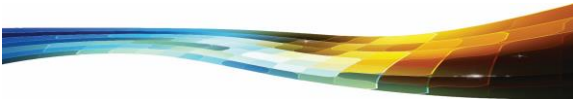
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## Vascular Assessment



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## Clues to Vascular Disease

### Decreased Perfusion

Dependent rubor of leg/pallor on elevation (light skin),  
Dependent purple/black pallor to sole of foot (dark skin)

Cool temperature

Ischemic rest pain: improved when legs dependent

Intermittent claudication

Gangrene

### Skin changes

Hair loss/nail changes

Shiny, taut, thin, dry skin



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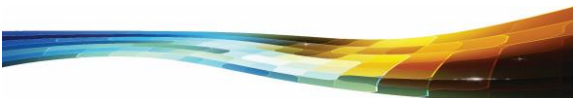
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## 60 Second Foot Examination

Demonstration of 60 second foot examination



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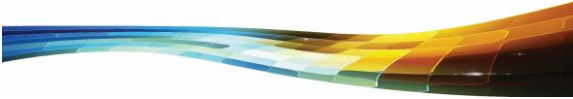
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## Skills Stations

- You will be assigned to break out rooms with one of the presenters
- You will practice a 60 Second Foot Screen with a “patient”
- The goal is to pull together the learning objectives on neuropathies & Charcot Foot




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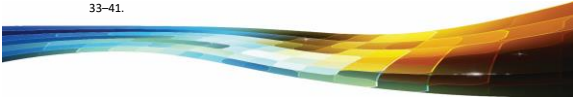
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