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April 2022 Education

Clinical Practice Disease-Specific Guidelines
Diabetic Foot Ulcer (DFU)

Agenda

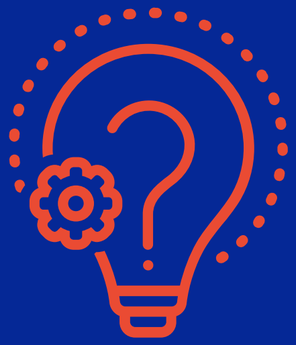
SerenaGroup Clinical Guidelines
Diabetic Foot Ulcer (DFU)

- Definition
- Cause
- Assessment
- Diagnosis
- Testing
- Prevention/Treatment
- Risk Factors
- Dressing Options
- Ordering Tests
- Appropriate Follow-Up
- Codes Related
- Reference
- Quiz

Defination

Diabetic foot ulcers occur in approximately 34% of patients with diabetes during their lifetime and 50% of DFUs become infected.1 DFU’s are commonly found on the plantar aspect of the foot but may occur anywhere on the foot.

Cause



DFUs develop due to compromised biology: sensory neuropathy leading to the loss of protective sensation, motor neuropathy with the loss of muscular tone in the intrinsic muscles of the foot, causing structural deformities; autonomic neuropathy resulting in dry cracked feet; hyperglycemia-induced peripheral arterial disease; glycosylation of ligaments decreasing mobility; and decreased white blood cell function, immunopathy.

Assessment

DFU’s are graded by severity. The Wagner grading system is the most used acuity scale. It is also essential for reimbursement.

Wagner Scale

- Wagner I: partial or full thickness not down to any underlying structure
- Wagner II: The ulcer extends down to deeper structure
- Wagner III: The ulcer extends into deep tissues such as the joint with abscess, infection and or osteomyelitis
- Wagner IV: localized gangrene in the foot
- Wagner V: extensive gangrene in the foot

Diagnosis

- Screen all patients for arterial disease.
- Test for sensory neuropathy using 5.07 Semmes-Weinstein monofilament on nine locations on the foot. Patients who cannot sense the 10 grams of pressure exerted by the monofilament have lost protective sensation in their feet.

Testing

- Hemoglobin A1C
- 2 View Plain X-Ray
- MRI if osteomyelitis is suspected
- Consider fluorescence imaging

Prevention/Treatment

- Prevention
  - Control Blood glucose
  - Smoking cessation
  - Protective footwear
  - Regular exercise
  - Adherence to diabetic diet
  - Routine foot care
  - Patient education
  - Inspect feet daily
  - Ensure appropriate moisturization of the skin.
- Nutritional Evaluation

Prevention/Treatment

- <u>Treatment:</u> Offloading
  - Total contact casting (TCC) is the gold standard for offloading plantar diabetic foot ulcers. Contraindications to TCC include arterial insufficiency, infection, and highly exudative wounds.
  - In patients who cannot tolerate TCC, a fixed ankle walker is acceptable.
- Infection Control: ISDA Guidelines for the treatment of diabetic foot infection.

Prevention/Treatment

Pedis 1: No sign of infection.
Pedis 2: Superficial tissue lesion with at least 2 of the following signs: local warmth, erythema >0.2-2cm around the ulcer, local tenderness/pain, local swelling/induration, purulent drainage. *other causes of inflammation of the skin must be excluded.
Pedis 3*: Erythema >2cm and one of the findings above or: infection involving structures beneath the skin/subcutaneous tissues (eg: deep abscess, lymphangitis, osteomyelitis, septic arthritis or fasciitis) or No systemic inflammatory response (see Pedis 4).
***Patients with Pedis 3 grade or higher should be admitted for intravenous antibiotic.**
Pedis 4: Presence of systematic signs with at least 2 of the following: temperature >39^0 C or <36^0 C, pulse >90bpm, respiratory rate >20/min, $PaCO_2$ <32mmHG, white cell count: 12,000mm^3 or <4,000mm^3, 10% immature leukocytes.

Prevention/Treatment

- Treatment - Debridement
  - Remove necrotic, devitalized tissue via surgical debridement.
  - If infection is suspected in a debrided ulcer or if epithelialization from the margin is not progressing within two weeks of debridement and initiation of offloading therapy, determine type and level of infection by MolecuLight procedure or punch biopsy for quantitative tissue culture of molecular diagnostic (PCR testing).
- Treatment - Maintain appropriate moisture balance
  - Use clinical judgement to select a dressing that maintain the proper moisture balance. Wound Source is a good resource for dressing selection (www.woundsource.com).
  - Do not order wet-to-dry dressings.
  - Select dressings that will stay in place, minimize shear/friction and will not cause additional tissue damage

Prevention/Treatment

- Hyperbaric Oxygen Therapy (HBOT)
  - HBOT is indicated for Wagner III or higher DFUs that have not shown signs of improvement after 30 days of standard wound care (The literature defines lack of improvement as less than 40% reduction in wound area in 4 weeks).
  - Consider HBOT for all limb preservation and amputation minimization efforts.
- Cellular or Tissue-based Products for Wound Care (CTPs)
- Consider CTPs for DFU's Wagner II or lower which have failed to heal by 40% in 30 days of standard wound therapy. Surgical Intervention:
- Achilles tendon lengthening improves healing of diabetic forefoot wounds. Lengthening the Achilles tendon reduces pressure on forefoot plantar ulcers in patients with limited dorsiflexion and may be of benefit in healing certain diabetic foot ulcers.
- Patients with Ischemia should be considered for a revascularization procedure.

Risk Factors

- Osteomyelitis
- Sepsis
- Amputation
- Death

Dressing Options

Refer to www.woundsource.com

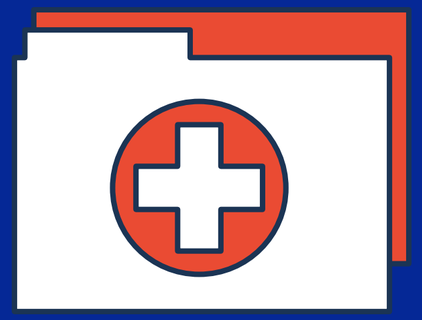
Order Tests

- Fasting blood glucose
- Hemoglobin A1C
- CBC
- Vascular Screening
- Plain X-ray
- MRI if osteomyelitis is suspected

Follow–up

Weekly wound visits, twice weekly visits for initial total contact casting (TCC)

Codes Related



- E11.621
- E10.621

Reference

NJM Lifetime risk 1. Armstrong D et al., Diabetic foot Ulcers and their recurrence. N Engl J Med 2017; 376:2367-2375.DOI: 10.1056/NEJMra1615439


QUIZ TIME
Diabetic Foot Ulcer (DFU)
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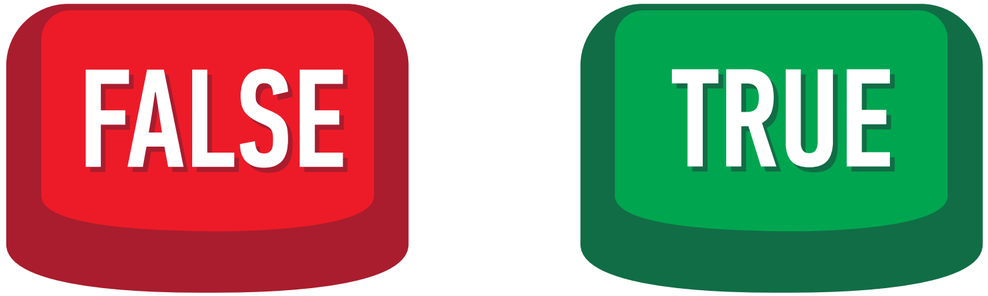
Question 1

Diabetic Foot Ulcer (DFU)

Diabetic foot ulcers occur in approximately 65% of patients with diabetes during their lifetime and 90% of DFUs become infected.



Answer 1

Diabetic Foot Ulcer (DFU)

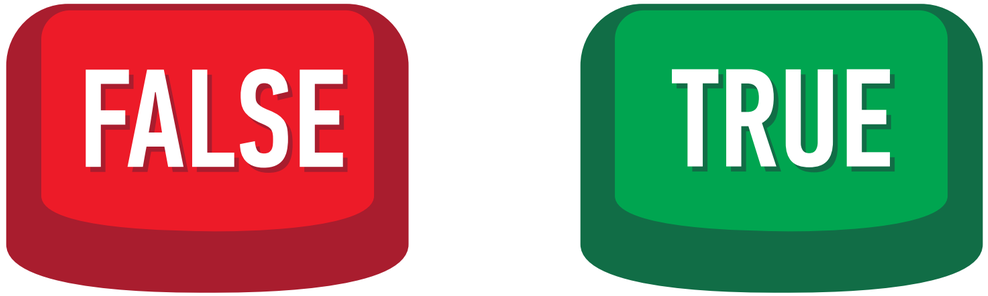
Diabetic foot ulcers occur in approximately **65%** of patients with diabetes during their lifetime and **90%** of DFUs become infected.

34%, 50%

Question 2

Diabetic Foot Ulcer (DFU)

DFUs are graded by severity. The Wagner Grading System is the most used acuity scale. It is also essential for reimbursement.



Answer 2

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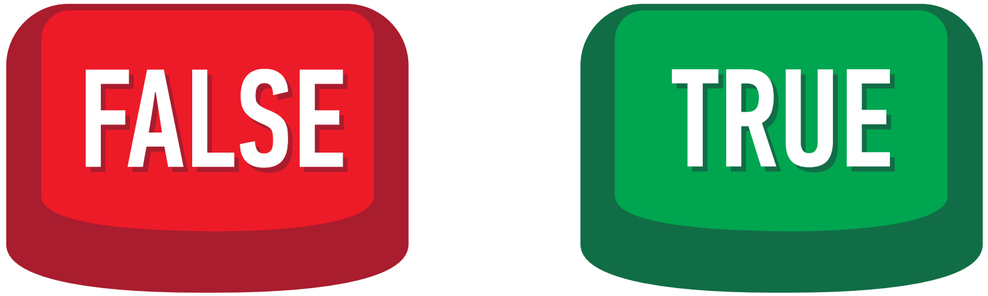
DFUs are graded by severity. The Wagner Grading System is the most used acuity scale. It is also essential for reimbursement.

Question 3

Diabetic Foot Ulcer (DFU)

Patients who cannot sense the 50 grams of pressure exerted by the monofilament have lost protective sensation in their feet.



Answer 3

Diabetic Foot Ulcer (DFU)

Patients who cannot sense the **50** grams of pressure exerted by the monofilament have lost protective sensation in their feet.

10 grams

Question 4

Diabetic Foot Ulcer (DFU)

Risks of a DFU are osteomyelitis, sepsis, amputation and death.

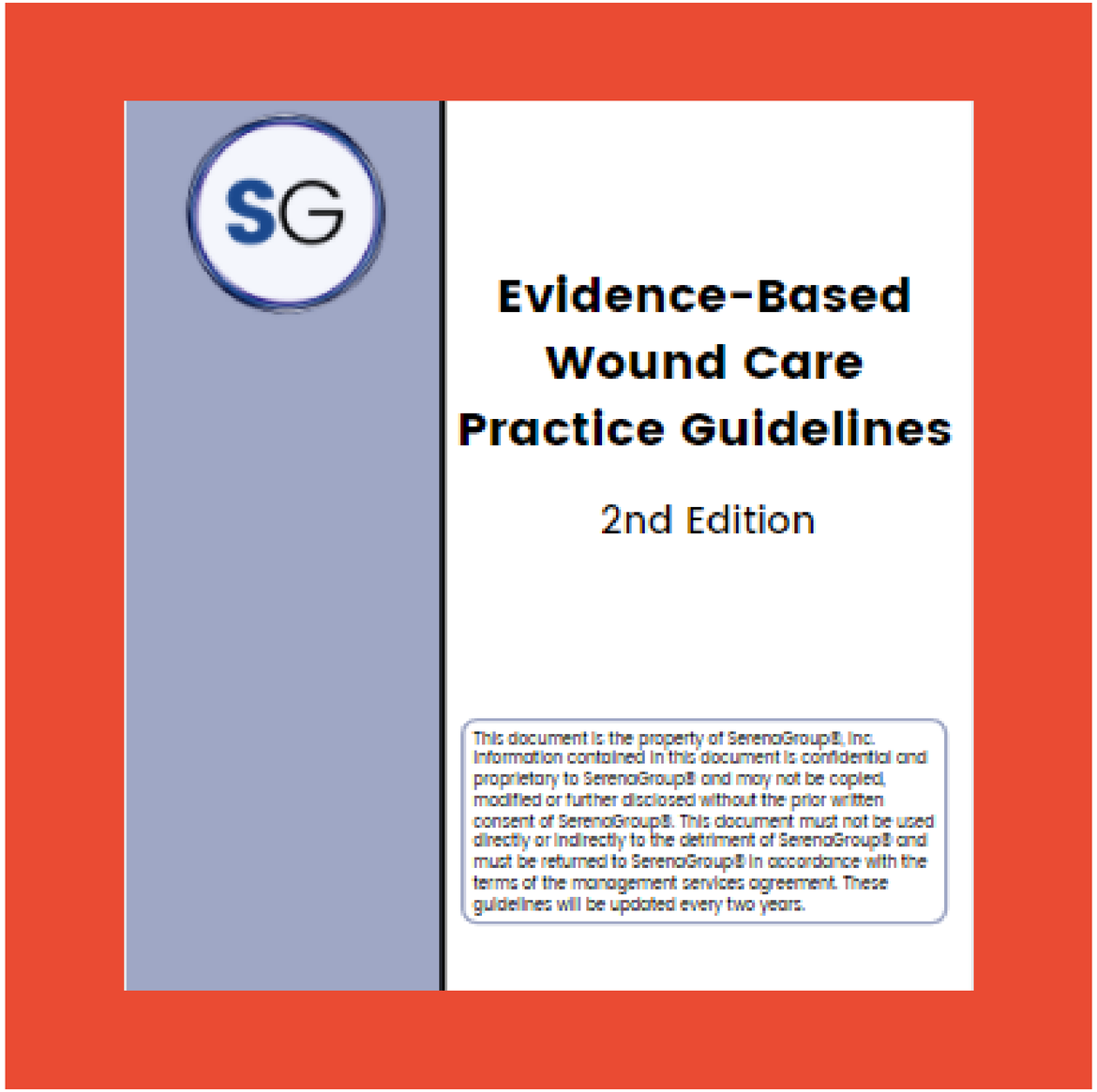
Answer 4

Diabetic Foot Ulcer (DFU)

Risks of a DFU are osteomyelitis, sepsis, amputation and death.

Reference

To view the SerenaGroup Clinical Practice Disease-Specific Guildelines -- go to www.serenagroupinc.com in the Member's Portal



Thank you!