Diabetic Foot Screen*

*performed every primary care visit (for complete foot exam details, see page 2 of 4)

<table>
<thead>
<tr>
<th>Condition</th>
<th>NO</th>
<th>YES</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute swelling and/or Acute deformity</td>
<td></td>
<td></td>
<td>Page 4–A</td>
</tr>
<tr>
<td>Skin breakdown (ulcer)</td>
<td></td>
<td></td>
<td>Page 4–C</td>
</tr>
<tr>
<td>Callus – with deeper color changes</td>
<td></td>
<td></td>
<td>Page 4–B</td>
</tr>
<tr>
<td>Digital Deformity</td>
<td></td>
<td></td>
<td>Page 3–C</td>
</tr>
<tr>
<td>or chronic midfoot/rearfoot prominence</td>
<td></td>
<td></td>
<td>Page 3</td>
</tr>
<tr>
<td>History of amputation and/or ulceration</td>
<td></td>
<td></td>
<td>Page 3–D</td>
</tr>
<tr>
<td>Dystrophic Nails &amp;/or Dry Skin</td>
<td></td>
<td></td>
<td>Page 3–B</td>
</tr>
<tr>
<td>Neuropathy: using 10-gram nylon monofilament</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>performed yearly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 out of 10 sites imperceptible = “yes”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assign Risk Category:

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Present Risk</td>
<td>0</td>
</tr>
<tr>
<td>Impending Risk</td>
<td>1</td>
</tr>
<tr>
<td>High Risk</td>
<td>2</td>
</tr>
</tbody>
</table>

No loss of protective sensation, no deformity.
No loss of protective sensation. Deformity present.
Loss of protective sensation with or without weakness, deformity, callus, pre-ulcer or history of ulceration.

FOOT PULSES:

<table>
<thead>
<tr>
<th>Side</th>
<th>Pulse</th>
<th>Palpable</th>
<th>Nonpalpable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>Dorsalis Pedis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>Dorsalis Pedis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Posterior Tibialis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ankle Brachial Index (ABI)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See disclaimer at www.tdctoolkit.org/algorithms_and_guidelines.asp

Resources & References:
2. University of Texas Health Science Center-San Antonio Texas-Department of Orthopedics-Division of Podiatry
3. Scott & White Clinic / Texas A&M University System Health Science Center-Department of Surgery, Division of Podiatry
Diabetic Foot Exam**

**Performed Initially at Diagnosis, Annually in Primary Care**

### Foot History
1. **Ulcers**: location, time to heal, wound care necessary for healing
2. **Infections**: type, bacteria involved, medical treatment necessary
3. **Amputations**: type, time to heal, modalities used in healing process
4. **Surgeries/Injuries**: type, location

### Foot Exam

#### Vascular (Vasc)
1. Palpate DP, PT pulses (present or absent)
2. Temperature gradient: from ankle to toes, focal “hot spots”
3. General Color: pink, palor, rubor on dependency
4. Digital Capillary refill time: in seconds
5. ABI: for both DP & PT arteries (abnl if <0.85–0.9)

#### Neurologic (Neuro)
1. 10-gram nylon monofilament: test sites on feet as indicated on page 1
2. Vibratory perception: via 128 Hz tuning fork (>10 secs) or Biothesiometer (>25 volts)—tested at hallux
3. Tactile sensation (light touch): via cotton wool (dorsum of foot)
4. Reflexes: Achilles tendon

#### Dermatologic (Derm)
1. General skin turgor/texture
2. Focal lesions: calluses (debride to fully assess), cracks, pigmentation
3. Interdigital: calluses, maceration
4. Nails: incurvated, nail plate thickness, coloration, inappropriate self-care

#### Musculoskeletal (Msk)
1. General Range of Motion: ankle, subtalar, metatarsal, metatarsophalangeal
2. Foot type: rectus, pes planus, pes cavus, Charcot foot
3. Digits: hammertoes, claw toes, mallet toes, bunion/hallux abductovalgus
4. Bony prominences

#### Footwear
1. Type
2. Wear pattern: outsole and upper counter distortion
3. Insole inspection: foreign bodies, staining, excessive wear
4. Socks: foreign bodies, staining, excessive wear

#### Social
1. Tobacco/alcohol/drug use
2. Work environment/foot demands/footwear requirements
3. Physical activities: footwear used
4. Family support: marital status, spouse/family involvement in health
5. Education: diabetes self-management

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**Diabetic Foot Care/Referral Algorithm**

Complete Diabetic Foot Exam** (see page 2 of 4)

- **Normal (NL) Exam**
  - NL vasc
  - NL neuro
  - NL msk
  - NL derm

- **MD/DO/DPM** (or physician extender)
  - DM FOOT EDUCATION
    - patient/family (Diabetes Self-Management Education)
    - verbal/written
    - websites
    - clinic phone numbers

- **Abnormal (ABNL)**
  - ABNL VASC
    - NL neuro
    - NL msk
    - NL derm
  - VASCULAR CONSULT/TESTING
    - Consider: PVR, Seg. pres., ABI, TCP02
    - intervention as indicated to re-establish blood flow
  - Documentation of vascular disease
    - OR Post intervention with improvement

- **NEURO or PM&R CONSULT**
  - Consider: NCV, PSSD
  - other causes: consider and rule out as indicated
  - if painful consider pharmaceutical vs. surgical treatment

- **COMPLETE BIOMECHANICAL EXAM**
  - (Podiatrist, Orthopedist)
  - discuss clinical significance
  - Treatment options: surgical, non-surgical

- **Dystrophic (thick, discolored) toenails**
  - Dry skin, fissures
  - Ingrown toenail

ABBREVIATIONS:
- **MD** medical doctor
- **DO** doctor of osteopathy
- **DPM** doctor of podiatric medicine (Podiatrist)
- **NL** normal
- **ABNL** abnormal

- **ABI** ankle/brachial index
- **TCP02** transcutaneous oxygen pressure
- **NCV** nerve conduction velocities
- **PSSD** pressure specified sensory device

**REPEAT Diabetic Foot Screen***
- per MD, DO, physician extender visits or DPM exam
  - **REPEAT EVERY VISIT**

- **NORMAL testing-repeat per change in exam or onset symptoms**

**A**
- **ABNL VASC**
  - NL neuro
  - NL msk
  - NL derm

**B**
- **ABNL**
  - **NEURO**
    - NL neuro
    - NL msk
    - NL derm

**C**
- **ABNL**
  - **MSK**
    - NL msk
    - NL derm

**D**
- **ABNL**
  - **DERM**
    - NL derm

- **EDUCATION:** signs/symptoms
- **HIGH RISK** foot status
- Foot screen every MD/DO/DPM, or physician extender visit

- **EDUCATION:** signs/symptoms
- **HIGH RISK** foot status
- Foot screen every MD/DO/DPM, or physician extender visit, PRN

- **EDUCATION:** signs/symptoms
- Intervention: surgery → healed = low risk
- Biomech: shoes, orthoses, phys.medicine
- Follow up DPM per modality needed
- Foot screen: every MD/DO/physician extender visit

- Debride/reduce
- Culture as needed
- Educate on condition management
- Referral as needed (podiatrist, dermatologist)

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High Risk Scenario and Ulcer Management

**A. Peripheral Sensory Neuropathy & Unilateral Swelling / calor**
- x-ray exam
- r/o infection
- Deep venous thrombosis (DVT)

**No skin breakdown or Lesion, no erythema**
- Extremely High Probability of Charcot Arthropathy

**Skin Breakdown**
- Treat as Ulcer 4-C (below)
- CAUTION

**B. Hyperkeratosis**
- With underlying sub-epidermal hemorrhage (no ulceration)

Follow pathways for associated abnl VASC, NEURO as indicated

**C. ULCER**
- assess/document

Once healed = patient remains extremely HIGH RISK—frequent foot exams/education

**Immediate Debridement & Wound Care**

**Grade Ulcer**
- 1. Assess size, depth, tissue levels
- 2. X-ray exam

**Grade 1**
- Superficial full thickness
- not penetrating deeper than dermis

**Grade 2**
- Deep ulcer (below dermis)
- subcutaneous structures (fascia, muscle, tendon)

**Grade 3**
- All subsequent layers involved
- including bone and/or joint
- assess probing to bone/soft tissue tracts

**OFF-LOAD** (relieve pressure)
- non-weightbearing essential
- crutches, walkers, modified shoes/insoles, total contact cast, etc.

**TYPE of Ulcer**
- underlying etiology

**Neuropathic**

**Ischemic**

**Neuro-Ischemic**

**INFECTION**
- Assess: fever, WBC, ESR, erythema, calor, drainage, necrosis, foreign material

**Culture & Sensitivity via**
- tissue at wound base
- aspirating pus
- swab base of wound after debridement
- bone culture if suspect osteomyelitis
- blood if systemic toxicity suspected

**Etiologic Agents**
- Aerobic gram positive cocci most frequent (staphylococcus)
- Gram negative & anaerobes usually part of polymicrobial, chronic necrotic ulcers

**Antibiotics**
- consider:
  - local institutional and community susceptibility data when prescribing
  - published efficacy data

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