

Montana Chapter Meeting
September 28-30, 2017
St. Patrick Hospital, Missoula



THE DIABETIC FOOT



Alpine Foot & Ankle Clinic
FOOT & ANKLE CARE FOR THE WHOLE FAMILY
Dr. Gregg Neibauer DPM

Why am I here?











MY EYES ARE UP HERE



MC

memecenter.com/remcrazy

Objectives

- Examine the prevalence of diabetic foot complications and the impact on the patient as well as the economic impact on the healthcare system.
- Describe the Comprehensive Diabetic Foot Exam (CDFE) and review abbreviated foot exams to identify “at risk” feet.
- Understand the pathogenesis of diabetic foot ulcerations (DFU’s).
- Examine standards of care in regards to diabetic foot care.
- Define preventative strategies to reduce the risk of diabetic foot ulcerations (DFU’s) and amputations.
- Empower all physicians who treat diabetic patients to collaborate to reduce diabetic foot complications and amputations.

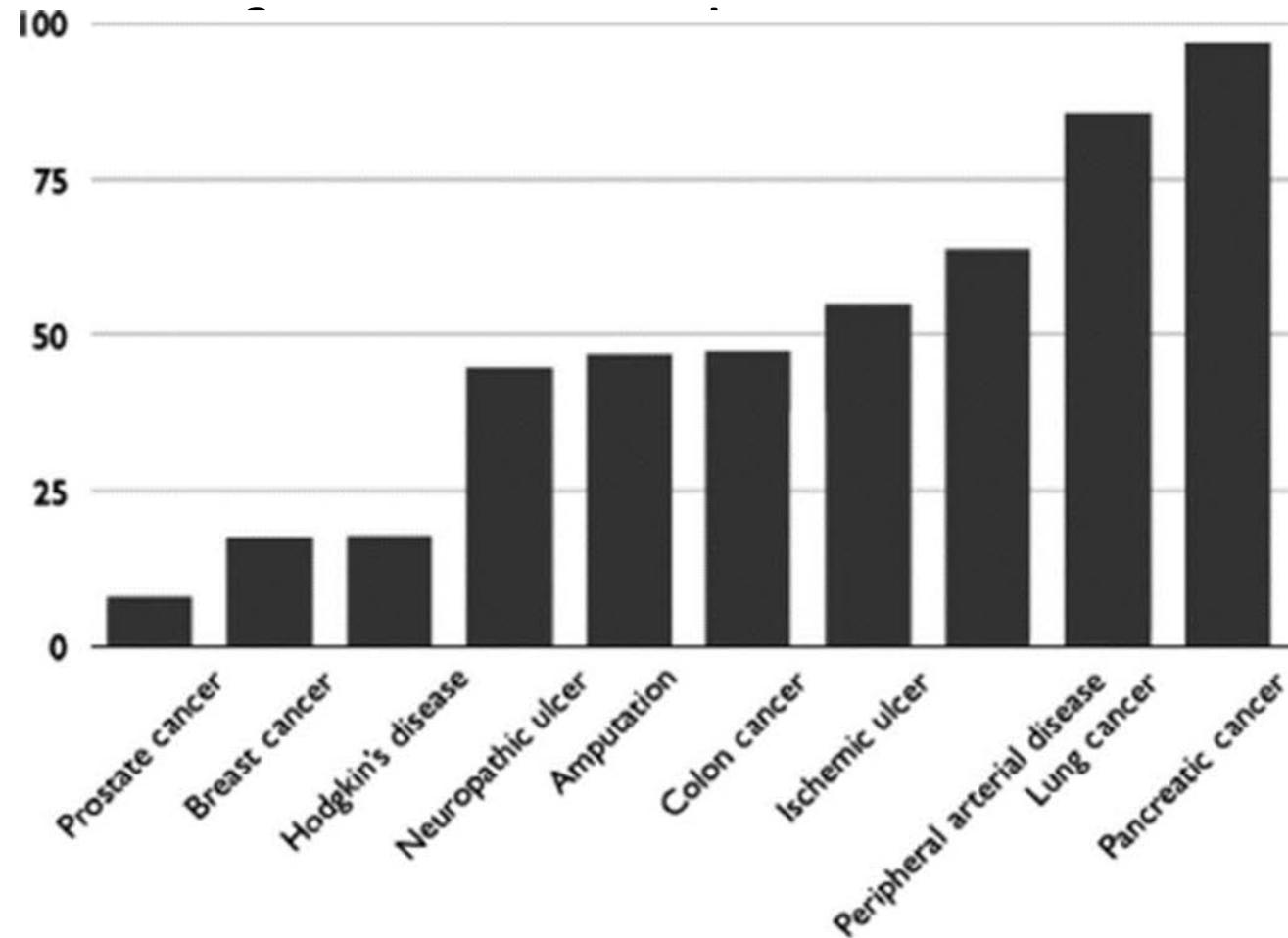
Diabetic Foot Statistics

- Diabetic foot ulcerations are one of the most common complications associated w/ diabetes with a global annual incidence of 6.3%.
- The lifetime incidence of foot ulcers in diabetic patients is 19-34%.
- More than 50% of diabetic ulcers become infected and 20% of those w/ moderate-severe infection result in amputation.
- Nearly 85% of diabetes-related amputations are preceded by an ulceration.
- **Regular foot exams can reduce amputation rates 45-85%.**
- Annual diabetes care costs \$176B, 1/3 of which was related to lower extremity care.

Is diabetes a malignant disease?

- **Malignant disease**-A disease that does harm, inflicts suffering, causes distress, is highly injurious, is virulent, and tends to produce death.

5 year mortality rates associated with diabetic





Podiatry 101

Comprehensive Diabetic Foot Exam (CDFE)

Inside-out approach

- Shoe gear

- Are the shoes wide & deep enough to accommodate the feet/deformities; shoes should have a non-constricting toebox.

- Do the shoes show excessive wear?

- Are the shoes too short (hint, pull the insoles out and look @ the imprint of the longest toe-there should be a finger length of space to the end of the insole).

- Socks

- Are they present? Are they worn out? Are they too constricting?

- Insoles

- Frequently worn out, typically plantar metatarsal head region and toes, thus resulting in overload of pressure and frictional forces @ these locations.

- Sometimes insoles completely absent.

CDFE-Dermatological assessment

- Xerosis
- Maceration
- Blisters
- Tinea pedis
- Interdigital pathology
- Nail pathology
- Callus(es)
- Pre-ulcerative lesion(s)***
- Ulceration(s)

CDFE-Neurological assessment

- Loss of Protective Sensation (LOPS)-10g (5.07) Semmes-Weinstein monofilament.
 - ***Presence of LOPS is a high risk factor for ulceration.***
- Vibratory perception-128 Hz tuning fork or Electronic tuning fork.
- Achilles reflex.

CDFE-Vascular assessment

- Pedal pulses: Dorsalis pedis, posterior tibial, perforating peroneal.
- Color: Rubor or cyanosis.
- Capillary refill time (CFT).
- Peripheral edema: Vascular, MSK, or systemic cause.
- Temperature comparison between feet.
- Diagnostic pearl: Order toe pressures/TBI with the ABI.

CDFE-Musculoskeletal assessment

- Pedal deformities-Bunions, hammertoes, bone spurs, plantarflexed metatarsals, pes cavus foot type.
- Biomechanical abnormalities-Hallux limitus, Achilles/gastro equinus, over-pronation.
- Charcot neuropathic osteoarthropathy.
 - Neuropathy is the common denominator, deformity typically is plantar midfoot osseous prominence or collapse, “rocker-bottom appearance.”
 - Erythema/edema/warmth commonly present, if no open wound then most likely acute Charcot.

Copyright 2004 by Randy Glasbergen.
www.glasbergen.com

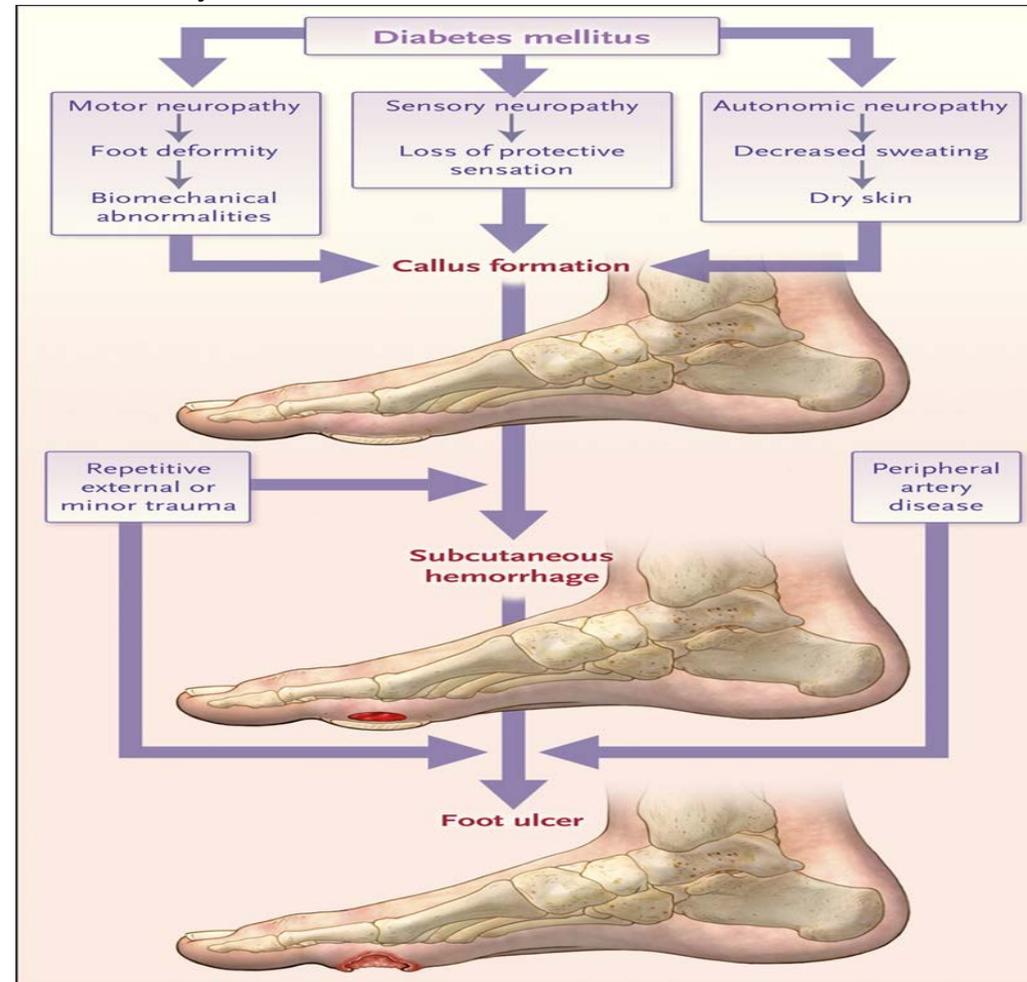


“Vigorous activity is very good for diabetics. If stomping on a chocolate cake makes you feel better, that’s fine.”

Pathogenesis of ulceration

- The most common pathway to ulceration: **Neuropathy** (key precipitating factor) → **Pedal deformity** → **Trauma** (typically repetitive microtrauma: pressure, friction, and shearing forces on soft tissue).
- Other risk factors
 - Previous ulcer/amputation.
 - PVD/PAD.
 - Poor glycemic control.
 - Visual impairment.
 - Nephropathy.
 - Smoking.

Pathway to diabetic foot ulceration



International Working Group on the Diabetic Foot (IWGDF)

• **Cornerstones of Prevention**

1. Identification of the at-risk foot.
2. Regular inspection and examination of the at-risk foot.
3. Education of patient, family, and healthcare providers.
4. Routine wearing of appropriate footwear.
5. Treatment of pre-ulcerative signs.

IWGDF 2015 Risk Classification

<u>Category</u>	<u>Characteristics</u>	<u>Frequency</u>
0	No peripheral neuropathy	Once a year
1	Peripheral neuropathy	Once every 6 months
2	Peripheral neuropathy + PAD and/or foot deformity	Once every 3-6 months
3	Peripheral neuropathy & history of ulceration or amputation.	Once every 1-3 months



"This is what you call diabetic foot care?"

ADA Standards of Medical Care in Diabetes 2017-Footcare Recommendations

- Perform a comprehensive foot exam @ least annually to identify risk factors for ulceration and amputation.
- **All patients with diabetes should have their feet inspected @ every visit.**
- Obtain history of prior ulceration, amputation, Charcot, vascular surgery, smoking status, retinopathy, & nephropathy, and assess current symptoms of neuropathy (numbness, burning) and vasculopathy (claudication).
- Exam should consist of Derm, Neuro, Vascular, and Musculoskeletal.
 - Specific to Neuro, 10g SWMF and another (vibratory).

ADA Standards of Medical Care in Diabetes 2017-Footcare Recommendations

- Patients >50 years old and any patients with decreased/absent pulses or claudication symptoms should have a vascular exam.
- A multidisciplinary approach is recommended for patients with foot ulcers or high-risk feet.
- Refer patients who smoke or who have histories of prior lower extremity complications, LOPS, musculoskeletal deformities, or PAD to footcare specialists for ongoing preventative care and lifelong surveillance.
- Provide preventative footcare education to all diabetic patients.

ADA Standards of Medical Care in Diabetes 2017-Footcare Recommendations

- The use of therapeutic footwear is recommended for high-risk patients with diabetes including those with severe neuropathy, foot deformities, or history of amputation (should be history of ulceration or amputation).
- Contradictory statements within the text: The routine prescription of therapeutic footwear is not generally recommended vs. Use of custom therapeutic footwear can help reduce the risk of future foot ulcers in high-risk patients.

The Amputation Prevention Initiative

- Massachusetts study to examine the components of the diabetic foot examination routinely performed by general practitioners.
 - Evidence suggests annual visits for diabetic patients do not routinely include foot exams.
 - The mean # of comprehensive diabetic foot exam components was 1.8 out of 4.
 - Only 2% of physicians performed all 4 components of the exam.
 - 29% of physicians routinely did not include any components of the comprehensive diabetic foot exam.

The Amputation Prevention Initiative

- By necessity, the Comprehensive Diabetic Foot Examination (CDFE) may be placed as a lower priority unless there are active problems. Similar to using ophthalmologists and optometrists to conduct dilated annual eye examinations, it may be beneficial for some primary-care physicians to integrate podiatric physician services to assist with comprehensive foot examinations, amputation risk stratification, and the provision of preventive lower extremity care. **This survey found that the most common reason for referral to a foot specialist was for a foot ulcer.** Movement toward a multicomponent interdisciplinary environment based on guidelines and risk stratification would promote the prevention of foot ulcers, thereby resulting in fewer amputations, and at the same time allow physicians more time to attend to other diabetes-related health problems.

IWGDF 2015 Risk Classification

<u>Category</u>	<u>Characteristics</u>	<u>Frequency</u>
0	No peripheral neuropathy	Once a year
1	Peripheral neuropathy	Once every 6 months
2	Peripheral neuropathy + PAD and/or foot deformity	Once every 3-6 months
3	Peripheral neuropathy & history of ulceration or amputation.	Once every 1-3 months

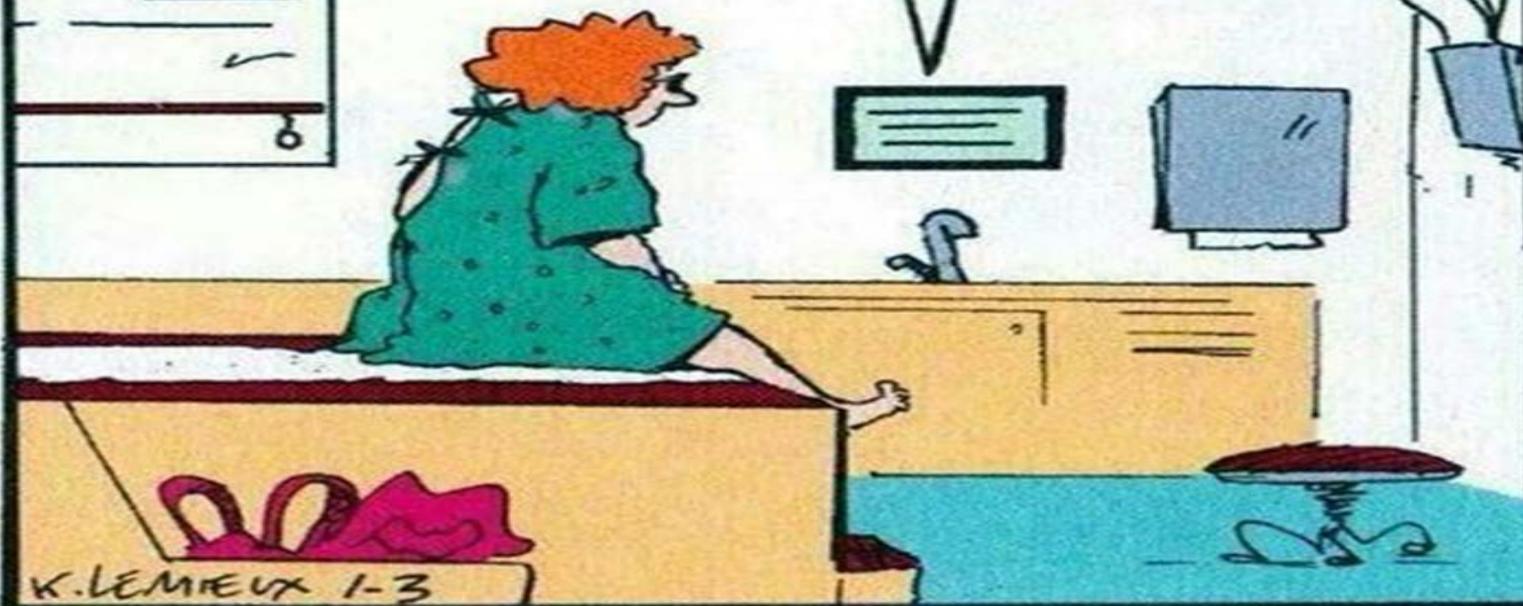
Prevention Recommendations

- Comprehensive Diabetic Foot Examination (CDFE).
- Use risk classification to make appropriate referrals and frequency of visits/exams.
- At the very least, a visual foot inspection should be performed @ every physician visit.
- Minimal exam (visual inspection + LOPS screening) can provide a generalized risk level, referral may then be made for the CDFE.
- Utilization of diabetic shoes/insoles to prevent ulcerations and subsequently amputations.

Prevention Recommendations

- This is the status quo we must conquer: *A greater emphasis is often placed on addressing a foot ulcer once it occurs rather than on preventing its occurrence.*
- To prevent diabetic foot complications, **we must be proactive rather than reactive.**
- Multidisciplinary management with an emphasis on preventative care results in less diabetic foot complications. Data says most diabetic foot ulcers are preventable; let's make that data a reality, as it should be.

WARNING: Patient will be charged extra for annoying the doctor with any self-diagnosis gotten off the Internet.



K. LEMIEUX 1-3

© K. Lemieux 2012

Thank You!

www.alpinefoot.com



Alpine Foot & Ankle Clinic

FOOT & ANKLE CARE FOR THE WHOLE FAMILY

Dr. Gregg Neibauer DPM