



This fact sheet was developed by the WOCN Clinical Practice Committee. Publications produced by the WOCN are reviewed for scientific accuracy, appropriateness of content and readability. This publication is not copyrighted and the WOCN encourages users of the fact sheet to duplicate as many copies of the fact sheets as desired.

DEFINITION: Altered nerve function in lower extremities — may involve diminished or absent sensation to touch, pain or temperature, absence of sweating, foot deformities, and altered gait/weight bearing.

EXPECTED OUTCOMES:

- ◆ Patient attains/maintains intact skin.
- ◆ Patient and significant other participate in goal setting, methods of prevention and individual management.
- ◆ Patient is free of preventable complications.

NOTE: Peripheral neuropathy may coexist with arterial insufficiency, therefore the clinician must assess vascular status carefully. Refer to Arterial Insufficiency fact sheet for assessment and treatment if arterial disease is present.

ETIOLOGY:

- ◆ damage to sensory, motor, and autonomic nerves of lower extremities

RISK FACTORS:

- ◆ diabetes
- ◆ smoking
- ◆ advanced age
- ◆ Hansen's disease
- ◆ spinal cord lesion

TYPICAL ASSESSMENT:

History

- ◆ diabetes (duration, extent of control)
- ◆ smoking (amount and duration)
- ◆ presence of Hansen's disease
- ◆ relief of pain with ambulation
- ◆ paresthesia of extremities

Physical exam

- ◆ peripheral pulses palpable
- ◆ temperature of skin warm
- ◆ color of skin normal
- ◆ capillary refill normal (less than 3 seconds)
- ◆ motor neuropathy
 - diminished reflexes
 - orthopedic deformities (hammer toes, hallux deformity)
 - altered gait
- ◆ sensory neuropathy
 - diminished sensitivity to touch
 - reduced response to pin prick/monofilament testing
- ◆ autonomic neuropathy
 - xerosis (fissures common)
 - charcot's foot (pathologic fractures)

ULCER CHARACTERISTICS/DATA TO COLLECT:

History

- ◆ event that precipitated ulcer
- ◆ length of time ulcer present
- ◆ type of treatments used

Location

- ◆ plantar aspect of foot
- ◆ metatarsal heads
- ◆ heels
- ◆ altered pressure points
- ◆ site of painless and/or repetitive trauma

Wound appearance

- ◆ even, well defined wound margins
- ◆ variable depth, with or without undermining
- ◆ extent of necrotic tissue variable
- ◆ exudate variable
- ◆ granulation frequently present

Surrounding skin

- ◆ erythema
- ◆ possible induration
- ◆ cellulitis (frequently infected with or without osteomyelitis)
- ◆ callous frequently present

Pain

- ◆ usually painless

NURSING MANAGEMENT:

Prevention:

Patient education

- ◆ no smoking
- ◆ compliance with medications
- ◆ control diabetes
- ◆ avoidance of exposure to cold, friction, moisture between toes, going barefoot



Patient education (continued)

- ◆ routine professional foot care for toenails, corns, callouses
- ◆ use of well-fitting footwear (leather is best)
- ◆ pressure reduction for heels and other bony prominences
- ◆ avoidance of external use of heat (heat pad, hot water bottle, hydrotherapy)
- ◆ daily foot care which includes skin inspection, wash and dry well especially between toes, keep skin moisturized, clean socks
- ◆ avoidance of over the counter medications for corns and callouses
- ◆ avoidance of temperature extremes
- ◆ follow up with health care provider
- ◆ refer for orthotic footwear if altered gait or orthopedic deformity

- ◆ shallow ulcers with minimal drainage:
 - film, hydrocolloid, hydrogel, moist gauze, medicated cream or ointments
- ◆ protect surrounding skin
 - solvent may be used to protect fragile skin when removing adhesives
 - friction may increase size of wound if maceration present
 - scalants or ointments may be used to prevent maceration of surrounding skin

Referrals

- ◆ MD consult if patient has suspected or demonstrated bone involvement or signs/symptoms of wound infection or failure to respond to comprehensive management after 2-4 weeks.

Treatment:

Control underlying medical and nutritional disorders

Patient education (See Prevention)

Stop smoking

Well controlled diabetes

Non-weight bearing on affected area

Topical therapy

- ◆ promote favorable environment for healing by removing/preventing impediments (necrosis, infection, excessive or pooled exudate)
- ◆ wound cleansing with saline or noncytotoxic commercial cleanser
- ◆ non-viable/necrotic tissue:
 - surgical consult for sharp debridement
 - enzymatic agents
 - autolysis using film, hydrogel, hydrocolloids, other moisture-retentive dressings
 - mechanical debridement using wet to dry dressing
- ◆ non-necrotic wound with crater formation or pooled exudate:
 - absorption dressing (e.g. alginate, foam, damp gauze)

COMPLICATIONS:

- ◆ infection
- ◆ gangrene (may result in amputation)
- ◆ osteomyelitis (may result in amputation)

REFERENCES:

- ◆ Standards of Care: Patient with Dermal Wounds: Lower Extremity Ulcers. WOCN 1993.
- ◆ Bryant, R. (ed): Acute and Chronic Wounds: Nursing Management. Mosby Year Book, St. Louis 1992.
- ◆ Morris, J., Dowlen, S., Cullen, B. 1994, JWOCN "Early clinical experiences with topical collagen in vascular wound care" 21,6, pp. 247-250.

This fact sheet is provided by:

- ◆ Name _____
- Title _____
- Phone _____
- Fax _____

The ET Nurse is a graduate of an educational program accredited by the Wound, Ostomy and Continence Nurses Society (WOCN). ET Nurses specialize in the care of patients with selected disorders of the gastrointestinal, genitourinary and integumentary systems, such as: stomas; draining wounds; fistulas/tubes; vascular ulcers; pressure ulcers; neuropathic ulcers; and incontinence.

The Wound, Ostomy and Continence Nurses Society, an association of ET Nurses, is the largest international organization of professionals devoted to improving quality of care for person with wounds, ostomies and incontinence. The WOCN supports its members by promoting educational, clinical and research opportunities to guide the delivery of expert health care to individuals with wounds, ostomies and incontinence.

For more information about the services provided by WOCN, ET Nursing, education, membership, or for an ET Nurse referral, please write to the address listed below or call (888) 224-WOCN. Thank you.