# THE HEALING ADVANTAGE NEWSLETTER

Advantage® WOUND CARE

THE DEEP TISSUE PRESSURE INJURY: WILL IT RESOLVE OR WILL IT EVOLVE?

One type of pressure injury that can be particularly puzzling is the Deep Tissue Pressure Injury (DTPI). In some cases, they resolve with early intervention. In others, they evolve and develop tissue necrosis or tissue loss. A common question among clinicians is, "When do I restage the wound?" In this month's newsletter, we will discuss the definition of the DTPI, how DTPIs may evolve and when to update the staging, share research on the evolution of DTPIs, and understand how to give the DTPI the best chance of resolution with effective interventions.

DEEP TISSUE PRESSURE INJURY DEFINITION
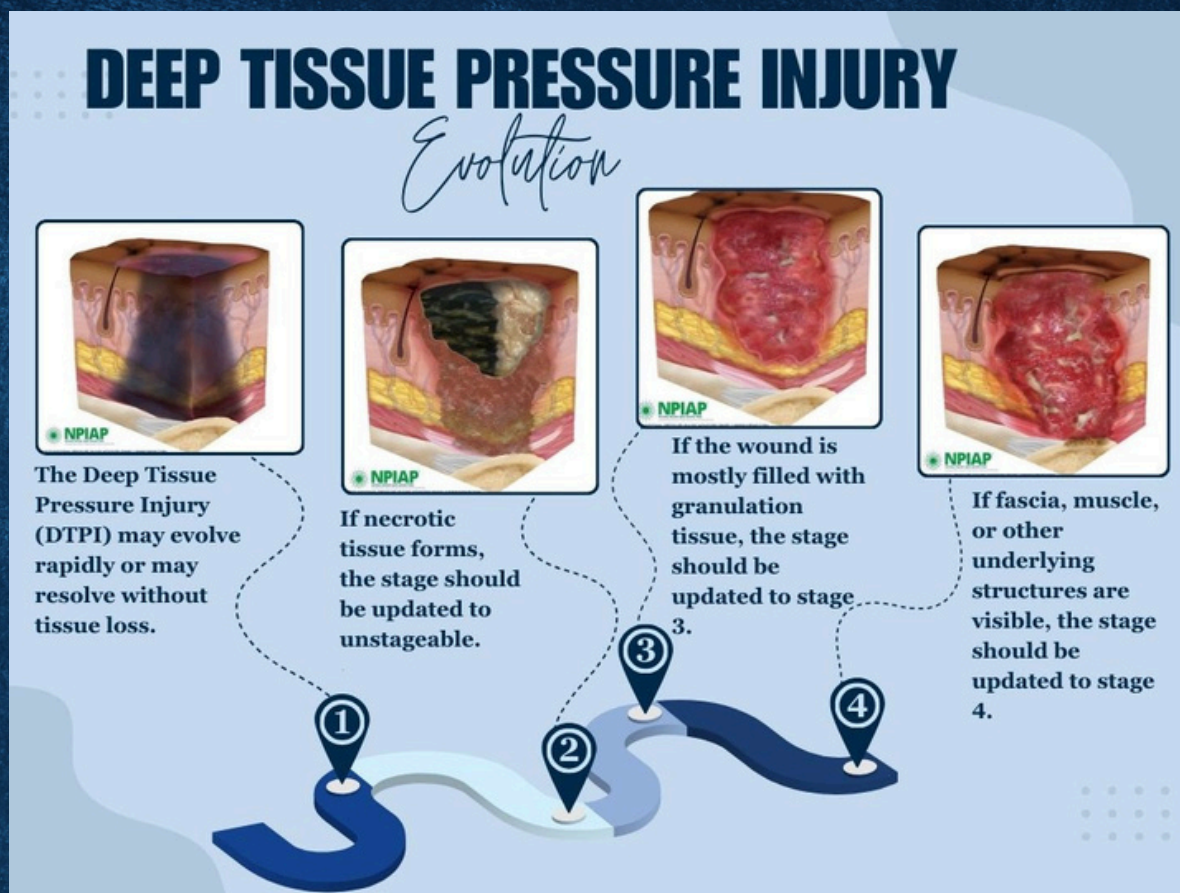
Deep Tissue Pressure Injury
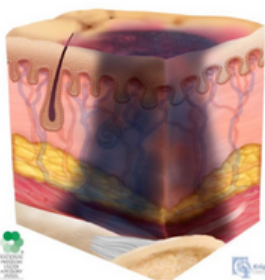
The Deep Tissue Pressure Injury (DTPI) is intact or non-intact skin with a localized area of persistent non-blanchable deep red, maroon, purple discoloration or epidermal separation revealing a dark wound bed or blood filled blister. Pain and temperature changes often precede skin color changes. Discoloration may appear differently in darkly pigmented skin. This injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface. (NPIAP, 2019)

Long before the NPIAP developed their pressure injury staging system in 2007, some description of DTPIs can be found as early as 1874 when reviewing Dr. Paget's and other's work. These wounds were described as purple or yellow which distinguishes them from other pressure injury stages.

Deep Tissue Pressure Injury Historical Mentions

PAGET 1874
"ULCERS COULD ERUPT FROM INTACT SKIN"

PAGET 1874
"MAY BE PURPLE OR YELLOW FROM EXTRAVASATION OF BLOOD"

GROTH 1942
"ULCERS THAT STARTED IN MUSCLE WERE MALIGNANT"

SHEA 1975
"CLOSED PRESSURE ULCERS"

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DEEP TISSUE PRESSURE INJURY
Evolution

NPIAP

NPIAP

NPIAP

NPIAP

The Deep Tissue Pressure Injury (DTPI) may evolve rapidly or may resolve without tissue loss.

If necrotic tissue forms, the stage should be updated to unstageable.

If the wound is mostly filled with granulation tissue, the stage should be updated to stage 3.

If fascia, muscle, or other underlying structures are visible, the stage should be updated to stage 4.

① ② ③ ④

When to Restage Non-Intact Skin

DAY 1 DTPI

DAY 3 DTPI

DAY 10 UNSTAGEABLE

Intact, deep-red, maroon, purple discoloration should be classified as a Deep Tissue Pressure Injury.

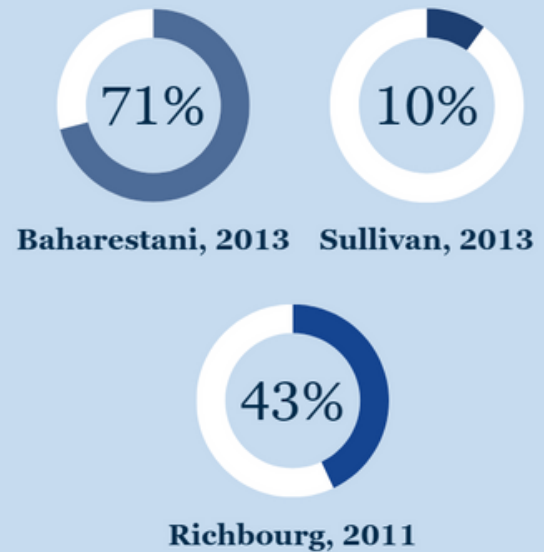Classify deep-red, maroon, purple discolored skin with epidermal separation as a Deep Tissue Pressure Injury.

If the Deep Tissue Pressure Injury becomes necrotic, reclassify it as an unstageable pressure injury.

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HOW MANY DEEP TISSUE PRESSURE INJURIES EVOLVE?

Several research studies have been conducted to determine what percentage of DTPIs will evolve to develop necrotic tissue or full-thickness tissue loss. Baharestani (2013), found that 71% of DTIs evolved to become full thickness. Sullivan (2013), however, found that only 10% of the DTPIs developed into full-thickness tissue loss. Richbourg (2011), revealed that 43% of the DTPIs became full thickness. While the results may vary in these studies, the main discovery is that not all DTPIs will evolve into a more complex or full-thickness wound, and that timely intervention may prevent deterioration.

71%
Baharestani, 2013

10%
Sullivan, 2013

43%
Richbourg, 2011

OPTIMIZING HEALING FOR DEEP TISSUE PRESSURE INJURIES

NPIAP — NATIONAL PRESSURE INJURY ADVISORY PANEL. *Improving Patient Outcomes Through Education, Research and Public Policy*

OFFLOADING HEELS EFFECTIVELY IN ADULTS TO PREVENT PRESSURE INJURIES

BEFORE
TYPICAL POSITIONING

INTERVENTIONS

Place a pillow vertically under each lower leg **between the knees and ankles** so that the heels are offloaded in such a way as to distribute the weight of the leg along the calf without pressure to the popliteal space or Achilles tendon.*

Place pillow horizontally on top of vertical pillows.

Heel suspension devices can be used instead of a pillow to offload the heels. Follow the manufacturer guidelines and consider the Implementation Considerations in the Guideline* when using these devices.

AFTER
CBPM¹ - GUIDED POSITIONING HEEL PRESSURE REDUCED WITH FLOATING

*European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel, & Pan Pacific Pressure Injury Alliance. (2019). Heel Pressure Injuries. In E. Haesler (Ed.), Prevention and Treatment of Pressure Ulcers/Pressure Injuries: Clinical Practice Guideline: The International Guideline 2019 (pp. 145–154). European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance.

¹Continuous bedside pressure mapping Images courtesy of Wellsense/VU

Despite our best efforts, some DTPIs may evolve into more complex wounds due to the extent of the initial injury. However, prompt identification and intervention can reduce the risk of further decline. Interventions are focused on total offloading, maintaining perfusion, and optimizing nutrition. Routine turning, repositioning and support surfaces are key components to every pressure injury care plan. Heels are the most common area affected by DTPIS. The use of heel suspension devices can help achieve pressure relief and protection from shear. Take a look at the NPIAP's guidelines on how to properly offload heels.

Scan here to see our references page.

Scan here to let us know which topic you're interested in next!

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