



**VARILITE®**

## Understanding Pressure Ulcers

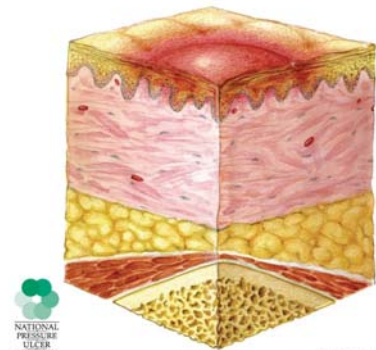
Wheelchair users are trained to do some form of pressure relief to prevent pressure ulcers, and taught the importance of avoiding the complications of having a pressure ulcer. A pressure ulcer, depending on the severity, can impact a wheelchair user's ability to participate in ADLs (activities of daily living) as well as have psychological and social implications. So exactly what is a pressure ulcer and what does it mean for the user?

A pressure ulcer is an injury to the skin or the tissue underneath it that is caused by pressure or pressure combined with shear and/or friction. The pressure is created by the downward force of body weight on the seated surface or a bed. An example of pressure combined with pressure or shear can be when the user slides down in the wheelchair. Usually pressure ulcers tend to develop over the bony areas such as the ischial tuberosities, also known as the "sit bones" and the sacrum or the tail bone.

A big misconception about a pressure ulcer development is that they only occur because the individual had too much pressure from sitting too long on the wrong cushion. This is not always the case because there are many factors that can contribute to the development of the pressure ulcer. A pressure ulcer can develop in as short as 30 minutes if there is very high pressure in a small area. Age, nutrition, hydration, level of mobility, amount of atrophy, incontinence, along with the friction, shear, temperature and moisture at the seated surface, all play a part in the development of a pressure ulcer. Some of these factors can be controlled or corrected and others cannot. This is why a wheelchair user who is compliant with pressure reliefs and has never had any problems with their skin in 15 years may suddenly develop a pressure ulcer for no known reason. As people age skin thins and muscle mass is lost. Positioning in bed, transfers, and other seating surfaces such as a shower chair can also be overlooked as culprits contributing to pressure ulcer development.

A pressure ulcer can be a very serious problem that can be painful, involve serious infection or even lead to death and it is important that it be treated correctly. For chronic or infected wounds and higher risk individuals, the best treatment approach involves a multidisciplinary team that may consist of a wound care specialist and several other specialists to address all aspects involved. A staging system was developed to provide information about the pressure ulcer to the team and help them make appropriate decisions with the treatment.

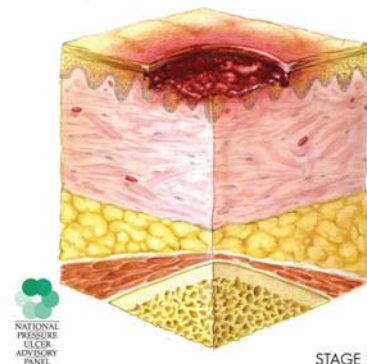
### Stage I



STAGE 1

*Intact skin with non-blanchable redness of localized area usually over a bony prominence. Dark pigmented skin may not have visible blanching; its color may differ from the surrounding area.*

### Stage II



STAGE 2

*Partial thickness loss of dermis presented as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum filled blister.*

*Photos courtesy of the NPUAP*



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### Pressure Ulcer Stages

A *Stage I* pressure ulcer is an area of redness that does not blanch or turn white when pressure is applied to it. Normally when healthy skin has pressure applied to it, it turns white and then the normal color quickly returns once the pressure is removed. The skin in a Stage I pressure ulcer is not broken but the area may be painful and feel warmer or colder than the surrounding skin. It might even feel soft and boggy or even more firm than normal.

In the next stage, or a *Stage II* pressure ulcer, the top layer of skin is actually broken. It may look like a shallow pink crater. Another form of a Stage II pressure ulcer is a blister. The blister may be intact or could have ruptured but it will not have any blood in it.

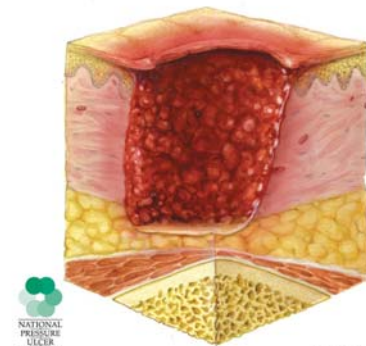
A *Stage III* wound involves more loss of tissue. Both layers of the skin are broken and it may be possible to see the layer of fat underneath the skin. There may be a yellow, tan, green or gray glutinous or slimy tissue in the wound called slough but it won't cover the entire wound. Sometimes undermining occurs which is a crater formed under the peripheral edge of the pressure ulcer.

A *Stage IV* pressure ulcer is very serious because it involves so much tissue loss. The area of tissue that is broken down may go down so deep that muscle, tendon and sometime bone can be seen. More frequently in a Stage IV pressure ulcer you will see undermining, dead tissue and drainage present. Due to the amount of tissue loss at this stage, surgery is frequently recommended to heal the ulcer.

Another newer category for a pressure ulcer is called Suspected Deep Tissue Injury. This is a localized area of purple or maroon tissue with the skin intact. The danger with this stage is that there may be tissue damage deeper underneath the skin. As that deeper tissue dies the pressure ulcer can quickly turn into a Stage III or IV wound and it must be treated carefully. If a blood blister is present this is also considered a Suspected Deep Tissue Injury because a blister with blood in it represents a more serious injury than a regular serum filled blister as in Stage II.

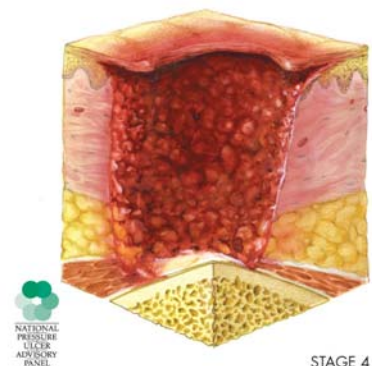
Sometimes a pressure ulcer has so much yellowish slough or eschar in it that the true depth of the ulcer can't be determined. Eschar is a thin, hard black or olive green necrotic or dead tissue. In this case the pressure ulcer is not staged since the amount of

#### Stage III



*Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle is not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling.*

#### Stage IV



*Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling.*

*Photos courtesy of the NPUAP*



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tissue loss can't be determined and it is called "Unstageable". If enough of the slough or eschar is removed to determine the depth then the pressure ulcer may be staged.

Unfortunately when a pressure ulcer heals, it is not "reverse staged" because it heals with scar tissue which is not the same as the normal tissue that was once there and became damaged. A Stage III pressure ulcer cannot be reversed or upgraded to a Stage II. After it heals it will then be called a "healed Stage III pressure ulcer".

### Wheelchair Cushion Choice

While the staging system can be a valuable tool for the wound care team to communicate and determine the appropriate treatment, it sometimes causes a bit of misconception in the world of rehab and seating. When the wound care team determines the client is ready for controlled sitting, they need to make the decision of what type of cushion or other equipment is appropriate as part of that treatment plan. There have been many times when I am asked, "What model wheelchair cushion should I use to treat a Stage III pressure ulcer?" There is not a magical formula that correlates a certain type or model of cushion to a particular stage pressure ulcer or healing.

A cushion should address the individual's skin protection needs but there are many other aspects that are important to consider when choosing one. The wheelchair cushion must also address the individual needs for pressure redistribution, postural alignment, weight distribution, balance, and stability in addition to the friction, shear, moisture, and temperature. Each one of these needs must be evaluated and prioritized. After the evaluation certain cushions can be determined to be more appropriate for the individual because they are better able to address some of these issues than others. No one cushion can address every single need and be considered the best overall cushion for everyone.

For more information regarding pressure ulcers please visit:

National Pressure Ulcer Advisory Panel

[www.npuap.org](http://www.npuap.org)

Wound, Ostomy and Continence Nurses Society

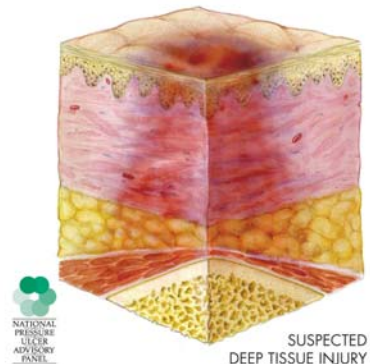
[www.wocn.org](http://www.wocn.org)

### Unstageable



*Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed.*

### Suspected Deep Tissue Injury



*Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.*

*Photos courtesy of the NPUAP*