

“Healing is a matter of time, but it is sometimes also a matter of opportunity.”

—Hippocrates

As the above quote suggests, conduct regular and systematic wound assessments, and seize every opportunity to improve your patient’s potential to heal. Wound assessment and management is only fractionally addressed by selecting the most effective topical treatment. If you try only to manage the pressure ulcer, you cheat your patient of the collective wisdom of the team and will be unable to ensure the most effective outcomes possible.

There is a theme here that you must embrace: Pressure ulcer prevention and management are multifaceted and cannot be conducted in a bubble. Assessment of wound healing requires the same interdisciplinary approach. Although dimensions are very important descriptors, assessment cannot be conducted by measurement alone. All of the components of assessment outlined in this book are important to your subsequent assessments.

The standard of practice requires *at least* weekly measurement of the wound. In addition, every time you change the dressing, assess peri-wound skin, wound margins, wound tissue, drainage, odor, pain, and any other relevant issues. On a weekly basis, assess those macroscopic (i.e., visible to the naked eye) indices, measure the wound, assess the effectiveness of the treatment, and determine any treatment plan changes.

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Is it healing?

It may be difficult for you to determine whether a wound is improving or whether it needs a change in the topical-treatment approach. As pressure ulcers heal, they may change shape or dimension, making this part of the job even more difficult. For example, what does it mean when one measurement improves and the other declines? An objective tool can help you determine a patient's progress toward healing and eliminate the need for personal opinions or interpretation.

The Pressure Ulcer Scale for Healing (PUSH) Tool (see Figure 9.1) is one such objective—and research-validated—tool. The National Pressure Ulcer Advisory Panel (NPUAP) developed it, and many experts strongly advocate its use—it is easy and reliable. The PUSH Tool is designed to monitor the three parameters that are most indicative of healing:

- Length x width—scored 0 to 10, based on the measurements obtained
- Exudate amount—scored 0 (none) to 3 (heavy)
- Tissue type—scored 0 (closed) to 4 (necrotic tissue)

Each characteristic is assigned a numerical score, and the three subscores are added to obtain the total score. This total score is then placed on a pressure-ulcer–healing graph (part of the tool), which makes it easy to determine whether the wound is progressing, staying the same, or deteriorating over time. If the wound is healing, the score will decrease. If the wound is deteriorating, the score will increase.

The following is an example of how this objective tool can affect your practice. For a patient with a 100% necrotic pressure ulcer that has light drainage and measures 2.1 cm x 2.2 cm, make the following calculations:

- 2.1 cm x 2.2 cm: Multiply the two numbers for a total of 4.62. When correlated with the PUSH tool, it would score as a 7.
- Light drainage is scored as 1.
- 100% necrotic tissue type is scored as 4 (it is scored as 4 if there is any amount of necrotic eschar).
- Total PUSH score = 12.

FIGURE 9.1

PUSH Tool 3.0

Patient name: _____ Patient ID#:: _____
 Ulcer location: _____ Date: _____

DIRECTIONS:

Observe and measure the pressure ulcer. Categorize the ulcer with respect to surface area, exudate, and type of wound tissue. Record a subscore for each of these ulcer characteristics. Add the subscores to obtain the total score. A comparison of total scores measured over time provides an indication of the improvement or deterioration in pressure ulcer healing.

Length	0 0 cm ²	1 < 0.3 cm ²	2 0.3-0.6 cm ²	3 0.7-1.0 cm ²	4 1.1-2.0 cm ²	5 2.1-3.0 cm ²	
x Width		6 3.1- 4.0 cm ²	7 4.1-8.0 cm ²	8 8.1-12.0 cm ²	9 12.1-24.0 cm ²	10 >24.0 cm ²	Subscore
Exudate amount	0 None	1 Light	2 Moderate	3 Heavy			Subscore
Tissue type	0 Closed	1 Epithelial tissue	2 Granulation tissue	3 Slough	4 Necrotic tissue		Subscore
							Total score

Length x width: Measure the greatest length (head to toe) and the greatest width (side to side) using a centimeter ruler. Multiply these two measurements (length x width) to obtain an estimate of surface area in square centimeters (cm²). Caveat: Do not guess! Always use a centimeter ruler, and always use the same method each time the ulcer is measured.

Exudate amount: Estimate the amount of exudate (drainage) present after removal of the dressing and before applying any topical agent to the ulcer. Estimate the exudate (drainage) as none, light, moderate, or heavy.

Tissue type: This refers to the types of tissue that are present in the wound (ulcer) bed. Score as a "4" if there is any necrotic tissue present. Score as a "3" if there is any amount of slough present and necrotic tissue is absent. Score as a "2" if the wound is clean and contains granulation tissue. A superficial wound that is reepithelializing is scored as a "1." When the wound is closed, score as a "0."

- 4 – **Necrotic tissue (Eschar):** black, brown, or tan tissue that adheres firmly to the wound bed or ulcer edges and may be either firmer or softer than surrounding skin.
- 3 – **Slough:** yellow or white tissue that adheres to the ulcer bed in strings or thick clump, or is mucinous.
- 2 – **Granulation tissue:** pink or beefy red tissue with a shiny, moist, granular appearance.
- 1 – **Epithelial tissue:** for superficial ulcers or new pink, or shiny tissue (skin) that grows in from the edges or as islands on the ulcer surface.
- 0 – **Closed/resurfaced:** the wound is completely covered with epithelium (new skin).

FIGURE 9.1

PUSH Tool 3.0 (cont.)

PRESSURE ULCER HEALING CHART
 (To monitor trends in PUSH scores over time)
 (Use a separate page for each pressure ulcer)

Patient name: _____ Patient ID#:: _____
 Ulcer location: _____ Date: _____

DIRECTIONS:

Observe and measure pressure ulcers at regular intervals using the PUSH Tool. Date and record PUSH subscale and total scores on the pressure ulcer healing record below.

PRESSURE ULCER HEALING RECORD													
DATE	.	.	.	.	.	.	.	.	.	.	.	.	.
Length x width	.	.	.	.	.	.	.	.	.	.	.	.	.
Exudate amount	.	.	.	.	.	.	.	.	.	.	.	.	.
Tissue type	.	.	.	.	.	.	.	.	.	.	.	.	.
Total score	.	.	.	.	.	.	.	.	.	.	.	.	.

Graph the PUSH total score on the pressure ulcer healing graph below.

PUSH Total score	PRESSURE ULCER HEALING GRAPH												
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Healed 0
DATE

FIGURE 9.1

PUSH Tool 3.0 (cont.)

Instructions for using the PUSH Tool

To use the PUSH Tool, the pressure ulcer is assessed and scored on the three elements in the tool:

- **Length x width** —————> scored from 0 to 10
- **Exudate amount** —————> scored from 0 (none) to 3 (heavy)
- **Tissue type** —————> scored from 0 (closed) to 4 (necrotic tissue)

In order to ensure consistency in applying the tool to monitor wound healing, definitions for each element are supplied at the bottom of the tool.

Step 1: Using the definition for length x width, a centimeter ruler measurement is made of the greatest head-to-toe diameter. A second measurement is made of the greatest width (left to right). Multiply these two measurements to get square centimeters and then select the corresponding category for size on the scale and record the score.

Step 2: Estimate the amount of exudate after removal of the dressing and before applying any topical agents. Select the corresponding category for amount, and record the score.

Step 3: Identify the type of tissue. Note: If there is ANY necrotic tissue, it is scored as a 4. Or, if there is ANY slough, it is scored as a 3, even though most of the wound is covered with granulation tissue.

Step 4: Sum the scores on the three elements of the tool to derive a total PUSH Score.

Step 5: Transfer the total score to the Pressure Ulcer Healing Graph. Changes in the score over time provide an indication of the changing status of the ulcer. If the score goes down, the wound is healing. If it gets larger, the wound is deteriorating.

PUSH Tool Version 3.0: 9/15/98

Source: Used with permission of the National Pressure Ulcer Advisory Panel. This tool is not to be used for proprietary presentations and courses.

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When you reassess the wound one week later, the necrosis is gone, and there is granulation tissue throughout the wound bed with light drainage—but length x width measurements have increased to 2.7 cm x 2.4 cm. Score as follows:

- 2.7 cm x 2.4 cm: Multiplied, this equals 6.48, and when correlated with the PUSH Tool it is scored as 7.
- Light drainage is scored as 1.
- 100% granulation tissue is scored as 2.
- Total PUSH score = 10.

So, has the wound improved? Yes. Although the length and width measurements have increased, the pressure ulcer has improved because there is now healthy granulation tissue. This is important to understand. Too frequently, nurses document wounds as having deteriorated solely based on measurements.

In the case of wound depth, similar issues arise. If the wound base is covered with slough, for instance, the true depth of the wound is difficult to determine. You can obtain measurements, but expect the depth to increase when you eradicate the slough. As in the previous example, this increase does not represent deterioration even though it may seem to do so.

If your hospital does not use the PUSH Tool or some form of objective measurement, be especially careful about the conclusions you reach regarding pressure ulcer progress.

Monitoring healing

Pressure-ulcer-healing rates are based on so many different factors that it is difficult to predict how long they take to heal. In addition, the age of the wound affects healing rates, and some chronic wounds may never heal. The following is a very general guideline for healing rates:

- Stage I—one day to one week
- Stage II—five days to three months
- Stage III—one month to six months
- Stage IV—six months to one year

Expect chronic wounds to be your biggest challenge—they result from complications that delay wound healing, and disruption of the normal flow of blood is common to all of them. They may only show 0.5 cm improvement in one month, which could be considered satisfactory progress for such a wound. Because chronic wounds are often associated with such miniscule progress, you must use accurate measurement techniques, or you may not detect any progress.

What about wounds that are at a definite standstill? They could be either slow-to-respond chronic wounds or wounds that, despite alternative treatment, have not changed in any way. Pressure ulcers should show movement toward healing within two to four weeks of treatment. If they have not responded at that point, revise your treatment approach. If the wound deteriorates, change the treatment at the time that you detect deterioration. The AHRQ and the Wound, Ostomy and Continence Nurses Society pressure ulcer guidelines advise consideration of a two-week trial of topical antibiotics for pressure ulcers that are not healing or are continuing to produce exudates after two to four weeks of optimal care.

Recalcitrant wounds

Wounds that have been appropriately and comprehensively managed typically show progress within two to four weeks. If they do not progress during that period, they may be labeled “recalcitrant,” or resistant to treatment. The emphasis here is not necessarily on the time factor but rather on the appropriate and comprehensive management, in addition to the time factor. Some believe that all wounds should show improvement in two to four weeks, but do not just go by that time interval—you need to be sure that during that time there was proper overall management as well. A great topical treatment for two weeks may not yield progress without pressure relief.

What does appropriate and comprehensive management look like? It includes many of the factors discussed throughout this book, including the following:

- Correction or alleviation of causative factors
- System support, including management of disease and nutritional support
- Adherence to principles of wound management, including maintenance of a clean, moist wound; control of bioburden of the wound; elimination of necrotic tissue; and filling of dead space

If all of the above factors have been consistently addressed for four weeks, and the pressure ulcer fails to make any progress, consider it recalcitrant. Investigate further to determine why healing has not progressed.

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Perhaps different nutritional support is needed or the bioburden of the wound is heavy (this refers to the heavy “load” of microorganisms in the wound) without showing visible signs of infection. Sometimes you will not be able to determine the reason the wound is recalcitrant, but your documentation should reflect the interventions and your analysis. When managing a recalcitrant wound, adjuvant treatments may be an option.

There is a difference between a recalcitrant wound and one that simply becomes unresponsive to a particular treatment. You will find pressure ulcers that respond to the topical treatment for several weeks and then all of a sudden stop making progress. Often a simple change in type of topical treatment “wakes up” the wound and it begins to respond again. Remember, when making such changes, adhere to the general principles of wound management.

Different treatments (like different shampoos for hair) interact with the wound in distinct manners. They are manufactured differently and may have different surfactants. One is not necessarily better than the other, but because it is different, it may cause the wound to stand up and take notice.

What happens when you close a pressure ulcer?

Proceed with caution with a newly closed pressure ulcer. Although your inclination may be to “resolve” or end the pressure ulcer care plan, doing so would be unwise. A closed wound will never be normal in structure or function. After a year of remodeling, the tissue will only have approximately 75% of its original tensile strength and will remain weakened. Minimizing the risk of recurrence will be a lifelong struggle.

The NPUAP position statement, “The Facts about Reverse Staging in 2000,” states, “If a pressure ulcer reopens in the same anatomical site, the ulcer resumes the previous staging diagnosis (i.e., once a Stage IV, always a Stage IV).” Recurrence rates in adults for pressure ulcers at the same site reportedly range from 13%–56%. Therefore, be vigilant in monitoring for recurrence of pressure ulcers, and maintain strong preventive practices.

Even if you address risk management for patients, also manage the hospital’s risk by educating the patient’s family. In the case of a closed pressure ulcer, inform the patient and the family of the potential for recurrence. Advise them that if the pressure ulcer were to reopen, it would return to its prior stage. No one likes this kind of surprise, and although you hope to prevent recurrence, it may happen. If you provide the patient and family with a thorough explanation, they will be less likely to perceive recurrence as a failure in the care your hospital provided.