Measuring Wounds to Improve Outcomes

Wound healing is a complex process, and it’s often thought of as a steady one with a typical course—until something goes awry or we’re suddenly faced with a long-standing, chronic wound.

Wounds must be assessed and monitored to detect important changes, quantify progress, and guide treatment decisions. Assessment covers a variety of variables, such as the amounts of exudate, necrotic tissue, fibrin slough, and granulation tissue; the presence of undermining, tunneling, and epithelium; and the size of the wound.

PREDICTING WOUND OUTCOMES

Improvement in any of these variables is encouraging and important to document and consider when making decisions about the type of wound-treatment product to choose (which dressing, for instance). But merely assessing and documenting these wound variables and tweaking protocols of care over many weeks (or months), hoping a pressure ulcer, venous ulcer, or foot ulcer is going to heal doesn’t suffice. Only one of these variables—wound size, as measured over time—provides quantifiable data that can be used to help predict wound outcome. The healing trajectory, evidenced by changes in wound size, of every type of chronic wound can help in the prediction of whether or not that wound is going to heal within a reasonable period of time.

Results of studies involving full-thickness (stage III or IV) pressure ulcers, venous ulcers, and foot ulcers in patients with diabetes have all shown that the percentage of a reduction in wound size after two to four weeks of care is a statistically significant, and often independent, predictor of healing.

Perhaps most surprising is that the trends in wound reduction documented in all of these studies were the same regardless of wound type, study design, or measurement methods used, despite the challenges of measuring wounds accurately in daily practice and the minor variations in the actual percentage of wound reduction clinicians observed during the first weeks of care. The Centers for Medicare and Medicaid Services State Operations Manual on long-term care states that pressure ulcer improvement must be documented during the first two to four weeks of care for healing to be considered to be taking place. And content-validated pressure ulcer and wound care guidelines now include the recommendation that all patient and wound care
protocols be reevaluated if a wound doesn’t exhibit a reduction in size (usually 20% to 50%) within that time frame.1,7,8

Measuring wounds. Because wound measurement in most health care settings is routine, implementing these evidence-based recommendations—and improving patient outcomes—is relatively easy.

Few wound-measurement methods provide an accurate number. All two-dimensional measurement techniques provide only an estimate of the actual wound area. But because it is the change—not the actual area—that’s important in clinical practice, it’s essential to measure a wound consistently. Therefore, when deciding which measurement technique to use, it’s better to choose one that will be used consistently than one that may provide the most accurate dimensions. For example, multiplying the greatest overall wound length by the greatest length perpendicular to it is more accurate than using the “clock method” (the length along the 12:00-to-6:00 [head-to-toe] plane multiplied by the length along the 9:00-to-3:00 [side-to-side] plane),9 but the clock method may be used more consistently and would therefore be a better choice.

In most facilities, disposable rulers with millimeter and centimeter markings are readily available for wound measurement. Transparent measuring guides with a measurement grid and disposable backings (to keep them sterile) can also be used. Regardless of which is adopted, the method used should always be documented, as should the patient’s position at the time of measurement.

Once the wound area has been calculated, that value can be used to calculate the change in wound size and, consequently, objectively evaluate progress. Because the initial size of the wound also affects the time to healing (large wounds take more time to heal than small ones do), current recommendations are to use the percentage change, calculated as follows:

baseline wound area − current wound area × 100, baseline wound area

The measurements are performed weekly, and progress in the wound’s healing (or the lack thereof) will emerge after two to four weeks. A wound that’s on the road to healing will show signs of the later stages of healing (contraction and epithelialization). If the goal of care is healing and the numbers are low (50% or less), the care team should reevaluate all patient and wound variables that may be responsible for the lack of progress. By heeding this early sign

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