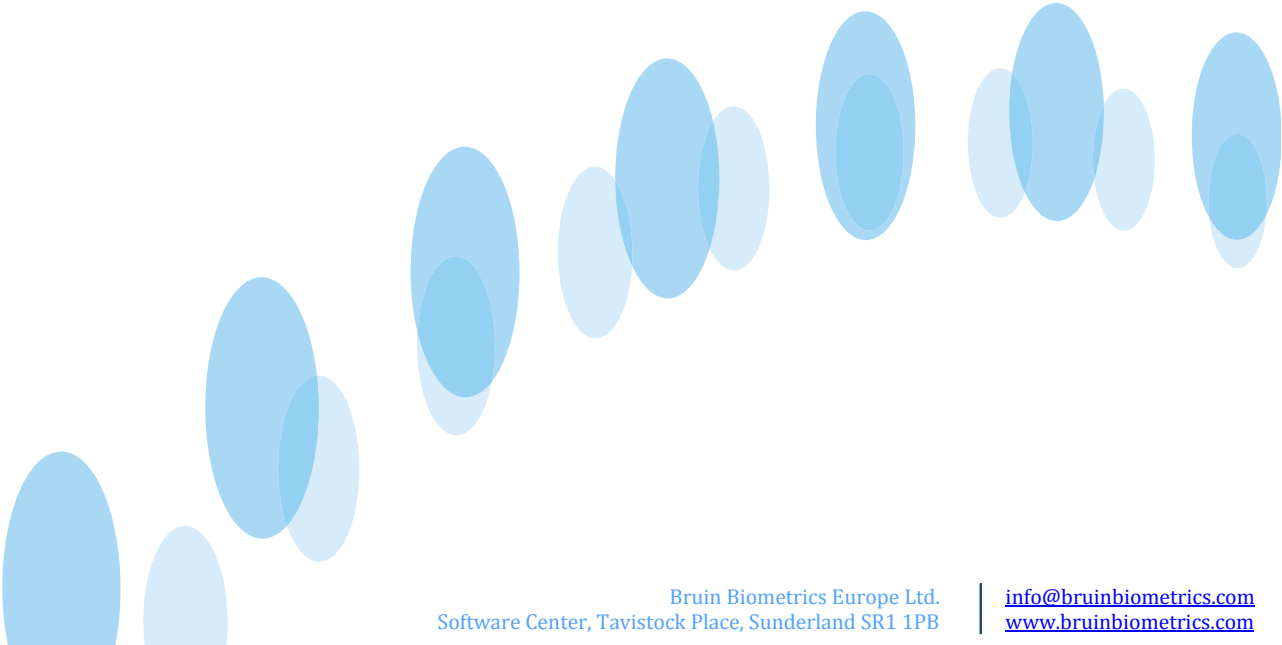


SEM Scanner™:
Making Pressure Ulcer Prevention Possible



The SEM Scanner™: Making Pressure Ulcer Prevention Possible

The SEM Scanner™, is a hand-held, portable, wound assessment device that detects early, pressure-induced tissue damage – including pressure ulcers and DTIs – through interrogation of changes in sub-epidermal moisture (SEM), a biophysical marker associated with localized edema in the inflammatory phase. SEM has been found to indicate tissue damage 3-10 days before visual skin damage or pressure ulcer formation.



Early detection, has previously been an elusive goal for practitioners. SEM Scanner™ has been successfully used in practice to generate real-time insight to confirm detection on admission and to target interventions, leading to lower incidence, reduced severity and lower costs of care.

Pressure Ulcers are an Urgent, Clinical Problem

Across Europe, pressure ulcer prevalence estimates range between 18% and 23%⁽¹⁾ in nursing homes and hospitals. Hospital patients are often particularly vulnerable because of restricted mobility and poor health.



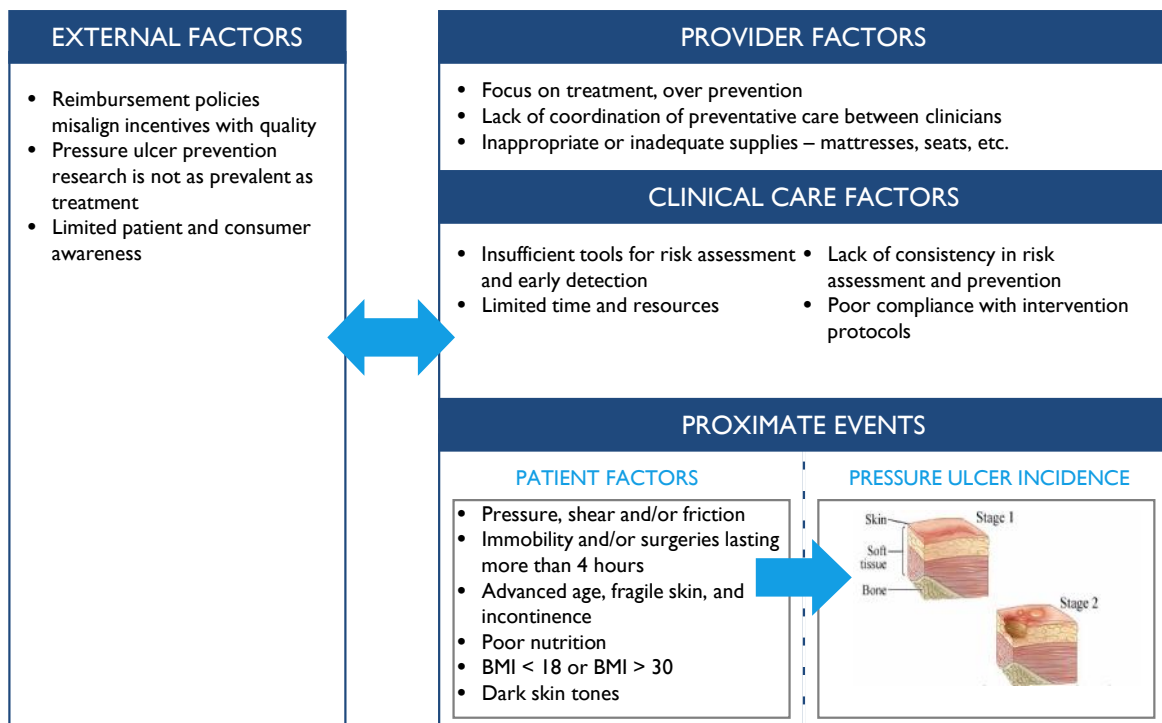
Pressure ulcers are a common and critical medical problem. Also known as bedsores, pressure ulcers are localized injuries to the skin that result from pressure, shear, and/or friction.

Associated complications can include serious infections (sepsis, cellulitis, MRSA), cancer and death, and it is common for hospital stays to be extended 28-154 days. Dark skin patients are 4 times more likely to die from PU-related causes than light skin patients because of missed early stage diagnosis.

In the UK alone, pressure ulcers cost the healthcare system €2.1 billion annually⁽²⁾.

Pressure Ulcer Incidence is the Result of Systemic Failure

Multiple interrelated factors contribute to the onset of a pressure ulcer.



(1) Vanderwee, K. et al, 2007. Pressure ulcer prevalence in Europe: a pilot study. Journal of Evaluation in Clinical Practice, 13(2), p.227-235

(2) Cost includes nursing time, treatment, and duration of hospital stay.

The Standard of Care in Pressure Ulcer Prevention is Insufficient

The current standard of care in pressure ulcer prevention is based on risk assessment and visual assessment of skin in areas prone to pressure ulcers. This poses some well-accepted challenges:

1. Differentiating between epidermal irritation and sub-epidermal injury **lacks evidence-based** measures;
2. Surface discoloration associated with Stage I pressure ulcers is **less evident** in patients with dark skin tones;
3. Pressure ulcers often occur suddenly **without visual cues** appearing in time to prevent them;
4. It is particularly **difficult** to detect Deep Tissue Injury that develops according to the “Bottom-Up” pressure ulcer formation model.

By the time damage is visually evident, significant tissue damage has already occurred.

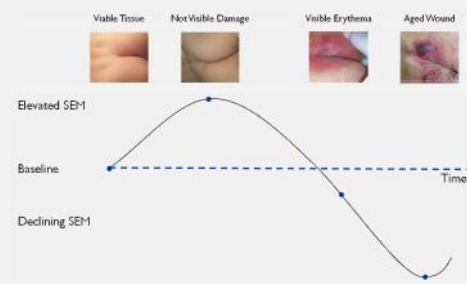
Subepidermal Moisture: A Clinical Breakthrough

Sub-epidermal moisture (SEM) – sometimes referred to as interstitial edema – is **a biophysical marker** associated with localized edema in the inflammatory phase, the body’s first response to tissue damage, indicative of impending skin damage and pressure ulcer formation.

In studies, SEM has been found to:

- Indicate symptoms of “subclinical disease” such as inflammation, 3-10 days before pressure ulcer formation or related symptoms are visible on the skin’s surface
- Differentiate between healthy skin and skin with pressure-induced tissue damage, even in patients with dark skin tones

SEM Values as Tissue Becomes Afflicted



SEM Scanner detects changes in SEM Values between healthy and afflicted tissue

Photos: NPUAP, copyright & used with permission

How it Works: The Most Innovative Technology in Pressure Ulcer Detection

The SEM Scanner™ uses principles of bioimpedance technology to interrogate the SEM within the skin and tissue to provide real-time assessment of skin and tissue health.

Measuring the dielectric properties of the tissue, the SEM Scanner™ can directly interrogate SEM below the stratum corneum. The SEM Scanner™ employs a capacitive sensor that emits low amplitude signal to measure the relative tissue capacitance. This measure of capacitance is translated into a calibrated SEM value. Thus, an increase in the presence of moisture (such as in the case of localized tissue edema) is reflected as an increase in tissue capacitance and thereby a higher SEM value.

The SEM Scanner™ was designed by one of the world’s leading wound care experts.

SEM Scanner™: Making Pressure Ulcer Prevention Possible

The device is a low-cost solution that fits seamlessly into the current workflow of clinicians when used in conjunction with current skin assessment modalities. Advantages of the SEM Scanner™ include:

1 Empowering New Best Practice

The SEM Scanner raises the bar - nearly doubling the accuracy of detecting early pressure ulcers, and speeding the time to detection.

2 Better Information, Better Care

SEM Scanner has been successfully used to generate real-time insight for targeted interventions leading to lower incidence, reduced severity and lower costs of care.

3 Easy to Learn, Easy to Use

Designed by a clinician for clinicians, the hand-held device received high-ratings for ease of use and implementation into workflow to promote coordination of care.

4 Cost-Saving Solution

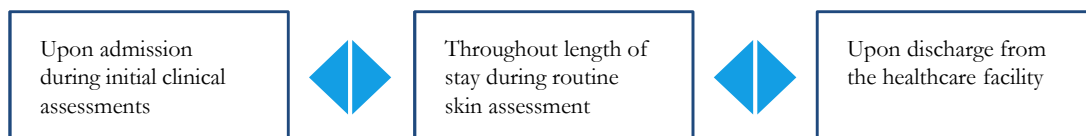
Immediate ROI - SEM Scanner pays for itself by preventing just a few pressure ulcers.

Product Features

- Objective, **evidence-based** measurements
- Non-invasive, rapid results
- Relative **low cost** to other diagnostic and treatment modalities
- Applicability across all skin colors
- Clear risk assessment **documentation**
- Usable by nurse technicians and medical assistants
- Minimal technical skills for operation: 94% of nurses are able to accurately use the device with only **10 minutes of training**

Introduction of the SEM Scanner into Clinical Workflow

The SEM Scanner fits seamlessly into existing habits and rituals of clinical workflows. Optimal use of the SEM Scanner is accomplished in the following manner:



SEM Scanner's Potential Realized

"Few disease states ever present themselves to an attainable and near-term solution as pressure ulcers. Pressure ulcer incidence can and should be reduced.With newly available technology [SEM Scanner™] and collective, systemic action, this is a disease state whose persistent incidence is tantalizingly close to becoming a "never event"

- Pete Mooney, Global Managing Director, Life Sciences & Health Care, Deloitte Touche Tohmatsu