Skin Failure: A Revised View

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Financial Disclosures

Industry disclosures - None
Expert testimony- yes

Although I am a member of the Board of Directors of the NPUAP, opinions expressed are mine and not to be considered as those of the NPUAP
“Skin Failure”

- Has been in the literature for last 2 decades
- Came to the forefront with the work of Langemo & Brown. ASWC. 2006;19(4): 206-211.
- Primary pathophysiology related to hypoperfusion
- Still no universally agreed upon definition
### Clinical Manifestations of Skin Failure as Described in the Literature

<table>
<thead>
<tr>
<th>Clinical Features</th>
<th>References</th>
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</thead>
<tbody>
<tr>
<td>Skin failure includes dermatologic conditions such as Stevens-Johnson Syndrome; no mention of pressure ulcers.</td>
<td>Irvine C (1991), Inamadar AC, Palit A (2005)</td>
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<tr>
<td>Skin failure is a separate entity from pressure ulcers.</td>
<td>White-Chu EF, Langemo D (2012)</td>
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<tr>
<td>Pressure ulcers are a manifestation of skin failure in the setting of multiple organ system failure.</td>
<td>Witkowski JA, Parish LC (2000)</td>
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Skin Failure:
A Working Definition

Skin failure is the state in which tissue tolerance is so compromised that cells can no longer survive in zones of physiological impairment that includes hypoxia, local mechanical stresses, impaired delivery of nutrients, and buildup of toxic metabolic byproducts. This includes pressure injuries, wounds that occur at life’s end, and in the setting of multi-system organ failure.

Why I am advocating this terminology/concept

- Rapidly changing healthcare environment shifting from FFS to value based reimbursement
- Mandated EMRs that require standardized terms
- Pressure injuries linked to quality measurement
- Growing doubts among experts that this should be the case
Why I am advocating this terminology/concept

• High-tech life support technology applied to an increasingly vulnerable population

• Changing epidemiology of pressure injuries with increasing numbers from critical care environments

• Lack of universally recognized terminology for wounds (i.e. pressure injuries) that are unavoidable, and mixed messages from authorities and regulators.
Why I am advocating this terminology/concept

A number of classifications and names for overlapping clinical syndromes:

- Decubitus ominosus (19th Century)
- KTU
- SCALE
- TB-TTI
- Skin Failure
- Unavoidable pressure injuries
Why I am advocating this terminology/concept

- Need to recognize and legitimize the unavoidable pressure injury, whatever its cause.
- Need to develop algorithms and identify biomarkers to determine unavoidability.
- Need to recognize common terminology that covers KTU, SCALE, TB-TTI and unavoidable PrI that occur in critical care settings.
Why I am advocating this terminology/concept

- Technologies for life support have become more sophisticated
- The best clinicians are poor at predicting death
- Is it appropriate for “impending death” to be a requirement for a diagnosis when we are unsure when patients will die and some actually survive and go on to heal?

What is the Evidence Supporting a Revised View of Skin Failure?
PrU Before Death

**Figure 3.** Proportion of Nursing Home Residents Who Had Distressing Symptoms at Various Intervals before Death.

Seventeen international studies published between 2000 and 2011 reported pressure injury rates in critically ill patients. Incidence ranged between 3.3% and 53.4%. Prevalence ranged between 25.1% and 45.5%.

SKIN: A Complex Multifunctional Organ

- Largest organ in the body
- Protective mechanical barrier
- Regulates temperature, prevents H2O loss
- Sensory perception
- Vit D, testosterone metabolism

Has not been included in studies of organ failure!

Scoring systems to assess multiple organ dysfunction, do not include skin!

- **APACHE** - Acute Physiologic and Chronic Health Evaluation
- **SOFA** - Sepsis-related Organ Failure Assessment
- **MODS** - Multiple Organ Dysfunction Score
- **LODS** - Logistic Organ Dysfunction Score
- **MPM** - Mortality Probability Model
- **SAPS** - Simplified Acute Physiology Score
- **MPM** - Mortality Prediction Model
- **ICOM** - ICU Outcome Model

What’s stopping us from recognizing Skin Failure?

- Multiple stakeholders with different interests and opinions
- Lack of a specific biochemical marker
- Limited evidence for common underlying mechanisms
- Lack of a universally accepted definition

What are the benefits & consequences of this terminology

• Unify vocabulary to accommodate realities of EMR requirements, the need for uniform terminology, QMs, coding

• New research focus on common mechanisms of skin failure shared with other organ systems, such as oxidative stress, endothelial dysfunction, mitochondrial dysfunction

• Common vision of unavoidable skin pressure injury that is includes terminal ulceration
What are the benefits & consequences of this terminology

- Unify a variety of terminologies

- Once skin failure is defined and recognized as a medical diagnosis, it will open the door for entry into the medical curriculum

- Medical doctors will become more knowledgeable and conversant with issues of skin assessment

- Once skin failure become properly coded the door is opened to add a modifier to pressure injury when used for quality measurement