

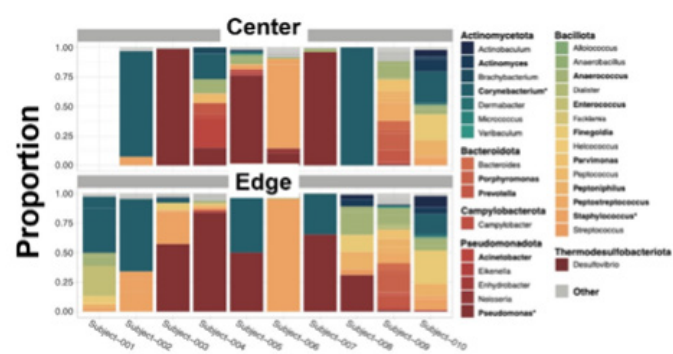
## Urgo Medical Sponsored Learning:

# What is Slough And What To Do About It?

Presenters: Dr. Lindsay Kalan PhD and Christie Cowan RN NSWOC WOCC(C)

### What is Slough?

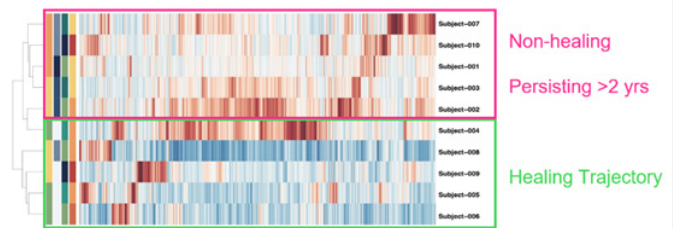
Slough is devitalized tissue commonly found in acute, and especially hard-to-heal/chronic wounds.<sup>1,2</sup> It is a, “complex mixture of exudate proteins, degraded extracellular matrix proteins, white blood cells and multiple species of organisms in planktonic and biofilm phenotypes”.<sup>3</sup> The clinical appearance of slough is highly variable and can range in consistency, colour, odour, and attachment to the wound bed.<sup>1</sup> The presence of slough does not necessarily indicate healing trajectory.<sup>2</sup>



Kalan et al. collected samples of “yellow” tissue from ten wounds and evaluated the appearance of the slough, microbial burden, microbial taxonomic composition and host protein composition.<sup>2</sup> They found that the slough samples had high bioburden and were polymicrobial.<sup>2</sup> They also discovered approximately 1,500 types of proteins in the samples, including an abundance of bacterial proteins indicative of metabolic activity.<sup>2</sup> The slough protein profiles were different depending on the healing outcome: Samples from persistent, non-healing (>2 years) wounds demonstrated a greater amount of proteins related to immune activation, inflammation and cell motility.<sup>2</sup> Whereas in healing wound samples, a greater proportion of proteins related to

skin growth, gene expression and metabolic and biosynthetic processes were observed.<sup>2</sup>

1,447 proteins identified



### Why Do We Care So Much About Slough?

Slough in the wound is like weeds in the garden – it takes up space and saps nutrients from the wound, and stalls healing. Slough contributes to wound bioburden and facilitates biofilm formation.<sup>3</sup> It also contains a high concentration of pro-inflammatory regulatory proteins which causes excessive or prolonged inflammation.<sup>3</sup>

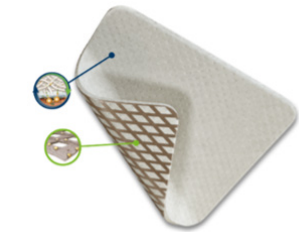
Regular weed removal is essential to a healthy garden; Similarly, slough must be continuously removed (i.e., debrided) for proper wound healing to occur. Wound debridement can reduce microbial and non-microbial components; promote new tissue growth; reduce inflammation; and improve effectiveness of topical treatments.<sup>3</sup> In essence, regular debridement removes the barriers that stall, or delay wound healing.

### The Concept Of Integral Debridement:

Conservative sharp wound debridement (CSWD) is long considered the ‘gold standard’. However, CSWD requires practitioner expertise, and is not always indicated. It can be painful for the patient and must be performed regularly (weekly or more) to promote wound healing.<sup>4</sup> Moreover, studies have shown that biofilm and associated wound debris begin to reform

in 24 hours after sharp debridement.<sup>5-7</sup> Enzymatic debridement is costly and requires frequent dressing changes. Mechanical debridement can be painful. Autolytic debridement is slow and can be costly and wasteful. Standalone debridement is simply not enough to combat bacterial growth and biofilm formation. Integral debridement is the use of different methods of debridement on the same wound (e.g., CWSD with autolytic debridement).<sup>3</sup> It emphasizes a holistic, patient-centered approach to wound healing. The choice of debridement must be effective, accessible to patients and caregivers, easy to perform by practitioners and comfortable for the patients.<sup>6</sup>

#### UrgoClean Ag



**Charged fibers support the continuous debridement of slough**  
Fibers, microorganisms, and wound residue attach to the negatively charged fibers to continuously clean the wound bed.<sup>11</sup>  
Fibers form a gel to promote moist wound healing.<sup>11</sup>

**Antimicrobial (Ag)**  
Fast, broad-spectrum, antimicrobial-killing efficacy.<sup>8</sup>  
TLC-Ag matrix with silver promotes healing and atraumatic, pain-free removal.<sup>7</sup>

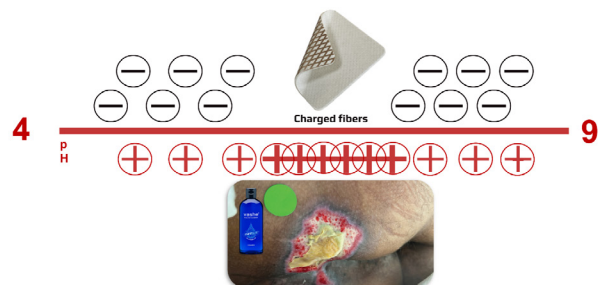
UrgoClean Ag™ is a dressing that contains charged fibres that can support continuous debridement of slough. The negatively charged fibres interact with the positively charged necrotic debris (i.e., slough) via electrostatic attraction.<sup>8-10</sup> UrgoClean Ag™ has a higher density of negatively charged

particles compared to other alginate and hydrofibre dressings on the market,<sup>11</sup> rendering it more effective in slough removal. UrgoClean Ag™ also consists of a technology lipidocolloid (TLC) matrix which creates a bio-friendly gel that promotes healing and atraumatic, pain-free removal while maintaining its integrity up to seven days.<sup>8-10</sup> UrgoClean Ag™ is

infused with silver and has been found to reduce 99.99% of biofilm in just 24 hours and blocks biofilm reattachment for up to 7 days.<sup>8-10</sup> It has also been found to improve wound healing after two weeks, reduce exudate level and increase healthy granulation tissue and reduce slough and necrotic tissue in three weeks.<sup>10</sup>

As part of wound hygiene, wound cleansing should be performed prior to (and after) wound debridement. Wound cleansing can minimize bioburden and eliminate surface contaminants.<sup>12</sup> Vashe®, a pure hypochlorous acid (pHA) wound cleanser, can be used to amplify various standalone debridement. Vashe®-soaked gauze can be applied to soften necrotic tissue. At a pH of 5.5, Vashe® can create a more acidic wound environment, “supercharging” the positively charged slough, making it easier to remove by negatively charged dressings (e.g., UrgoClean Ag™).

#### How pH & charge play into slough removal



#### References available on request

To access the full presentation, click here:  
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**Dr. Lindsay Kalan PhD** has always been interested in microbial interactions. During part of her PhD work, she studied how antibiotics are made in the environment. She first got exposed to the field of microbiology as an undergraduate student at the University of Alberta in Canada.

**Christie Cowan RN NSWOC WOCC(C)** has over 15 years of nursing experience. She has been an NSWOC since 2017 and has been a RN since 2009. Her career blends both community and acute care settings, providing her with a comprehensive understanding of patient needs across various environments

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