**Research evidence underpinning sub-epidermal moisture measurement for early pressure ulcer detection**

The early detection of pressure ulcers is a challenge for practitioners, in that current grading systems are reliant on visual assessment of the skin. Given that many pressure ulcers develop first in the deeper layers of the tissues, emerging outwards towards the surface of the skin, it is evident that the challenge lies in the inability of visual assessment to detect damage until it is already too late. Sub-epidermal moisture (SEM) is related to the quantity of skin and tissue water. Tissues have capacitive and conductive properties that are dependent on water content, with the uppermost layer being mainly capacitive and the deeper layers being mainly conductive. Thus SEM can be measured through the use of surface electrical capacitance. Surface electrical capacitance (which is related to the capacity of tissue to hold/store energy, in this case an electrical charge) of the skin is determined by the impedance (resistance/opposition) of the skin to electrical forces, and thus can reflect oedema and water content of the epidermal and sub-epidermal tissues. Considering that SEM is related to skin and tissue water, this can be measured through the use of surface electrical capacitance. This presentation will explore the research evidence pertaining to SEM, and will address the potential role of SEM in early detection of pressure ulcers. Further, this presentation will identify future areas for clinical research in this field.

Reference

Oliveira AL, Moore Z, O’Connor T, Patton D. Accuracy of ultrasound, thermography and subepidermal moisture in predicting pressure ulcers: a systematic review. J Wound Care. 2017; 26(5):199-215.