

Wound Model for Debridement Education and Training

An anatomically realistic chronic wound model that can be used as a tool for trainee clinicians to safely practice sharp debridement

Reference: Wound Model



Contrail, stock.adobe.com

IP Status

Provisional patent

Seeking

Licensing, Commercial partner

About **University of Huddersfield**

The University of Huddersfield understand how crucial research can be in staying ahead of the competition and growing – or maintaining – your market position, and that’s why they’re committed to ensuring the highest standards of research throughout the university.

Background

The need for a realistic chronic wound model for training clinicians was identified during client discussions with surgeons who had been using as a substitute pig skin, belly and a better more realistic model was needed to create a suture model.

Tech Overview

University of Huddersfield researchers have developed an anatomically realistic chronic wound model affectionately named SID (Safe Innovative Debridement), that can be used as a tool for trainee clinicians to safely practice sharp debridement (**Figure 1**).

- The model is disposable and produced using sustainable natural materials that are biodegradable.
- It consists of a skin mimic base which is made within a 3D printed mould and contains a wound void.
- The base layer is made of biopolymer and can be modified to match a range of different skin colours, pigments, tones, and textures.
- It features a smooth, skin-like appearance at the surface that surrounds a wound void, with red, rough granulation tissue lining the wound bed.
- Above the granulation tissue is a layer of loosely adherent yellow slough that can be removed using mechanical debridement.
- The uppermost layer of the wound region exhibits leathery black necrotic eschar that requires a scalpel to facilitate removal.
- Each layered component within this interactive model carefully recapitulates the visual and physical characteristics found in chronic wounds providing realistic tactile and haptic feedback, creating a platform conducive to training a range of debridement techniques.

The model has successfully been through the Lean Launch Programme; from this, feedback from end users was acquired and a landing page website <https://woundmodels.com/> and promotional video <https://f.io/4FeeBy7B> were developed. The product is now in production in small scales, and has been interest and discussions with potential licensees, commercial investors and end users.

Benefits

- Provides users with a realistic tool to experience the haptic feedback similar to what debriding practitioners would experience when debriding real-life wounds.
- Allows students and trainees to identify different wound aetiologies, make decisions on how to best debride, what tools to use and to perform the necessary treatment.
- Increases the number of training opportunities for debriding practitioners.

- Improves the confidence of trainee debriders before facing patients in the clinic.
- Provides teachers and education providers with a suitable model to teach sharp debridement.
- Enables wound dressing salespersons and providers to demonstrate how to dress wounds appropriately and effectively using their product.
- Improves quality of training and education.
- All of the above will subsequently lead to improved and enhanced patient clinical outcomes, potentially reducing wound healing timelines and reducing the number of patient visits and associated costs

Applications

- Health care professionals i.e nurses, physicians, dermatologists, podiatrists, and surgeons, can use the model to demonstrate correct debridement practice and therefore would be used as a realistic training tool for such professionals.
- They can be used within the NHS for training sharp debridement or used in university classes for nursing students in training.
- Can be used by medical device stockists that would be able to use the model to demonstrate how their products work.
- Wound care companies can use the model as a realistic artificial wound when developing new wound dressings.

Opportunity

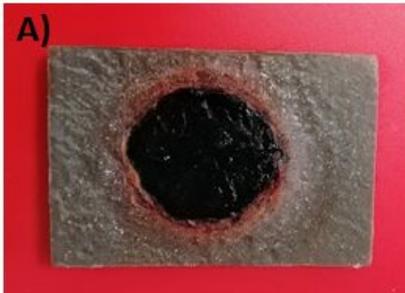
The researchers have developed an SOP to produce the models in a batch manufacture process and to date we have supplied Accelerate with 50 models (**Figure 2**) which they have used in their courses they also provided feedback from nurses enrolled on the course that we have since used to develop the model further. The researchers have also had 25 models used on a course at Pinderfields hospital and have had a request for 35 models.

The process of producing the models is simple and does not require an advanced technical understanding. No details of the materials or manufacturing process have been disclosed.

Appendix 1

Figure 1

Wound models **A)** showing the top layer necrotic eschar **B)** sloughy layer underneath the eschar and **C)** the lower granulation tissue following successful debridement.



Appendix 2

Figure 2

Batch manufacture of Wound Models and Packaged product for shipping

