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# Design of Application Protocols for a Transforming Powder Dressing in Common Chronic Wounds

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## Introduction

Most primary wound dressings have multiple indications for use in chronic wounds. In many cases, clinical data to support healing claims is focused on a narrow type of wound in a specific condition to facilitate scientific endpoints in clinical trial design. The disconnect between clinical data obtained for efficacy and best clinical practice can inhibit basic use and application of products designed to help patients. We present three techniques of clinical application for a novel transforming powder dressing used in the treatment of common chronic wounds.

## Methodology

A transforming powder dressing (TPD) was tested in the treatment regimens of three types of chronic wounds:

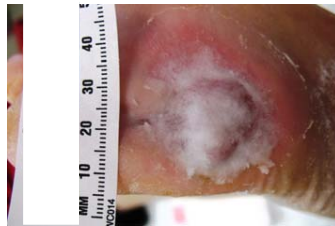
- 1) Diabetic foot ulcers combined with total contact cast offloading
- 2) Venous ulcers with compression dressings
- 3) Pressure ulcers with depth

In each wound type, an application technique was developed for the specific anatomical location common for the wound. The dressing was evaluated for the capability to remain in place. Secondary dressings and offloading or compression devices were evaluated in conjunction with the TPD to develop simple protocols for applying the products in clinical practice.

## Results:

Application protocols have been developed with stepwise instructions for the treatment of three common chronic wound categories using TPD in conjunction with secondary devices such as dressings, total contact casts or compression wraps

### DFU with Offloading



Step 1-Application of TPD over DFU allowing TPD to fully aggregate



Steps 2 and 3-Application of secondary, breathable membrane, and foam over aggregated TPD



Step 4-Immobilization with total contact cast system

Photos Courtesy of Gregory Bohn, MD, FACS

### Venous Ulcer



Step 1-Application of TPD over Venous Ulcer and Graft allowing TPD to fully aggregate



Steps 2 and 3-Application of 4-Layer Compression Dressing over aggregated TPD



Step 4-completion of wrapping with 4-layer compression wrap

Photos Courtesy of Kim Eldridge, RN, CNOR, CNFA, CFCN, WCC

### Pressure Ulcer with Depth



Step 1-Transfer of TPD into deep wound using "funnel technique"



Steps 2 and 3-Packing of wound with TPD and repeated applications using funnel and protecting periwound



Step 4-Application of adhesive border dressing with breathable foam pad

Photos Courtesy of Jodie Harper, MD

## Techniques

For all wounds shown, proper wound prep including techniques such as debridement, grafting, and treating contamination or infection are essential components of wound management prior to using the transforming powder dressing.

### A-DFU with Offloading

- 1-Plantar surface DFU's requiring offloading can be treated by applying the TPD<sup>1</sup> and allowing the product to fully aggregate forming a complete, intact dressing. This process can take 3-5 minutes after application of the powder.
- 2-A non-adherent, porous contact layer<sup>2</sup> is applied over the aggregated TPD and fixed in place using tape adhered to the periwound.
- 3-The wound and foot are wrapped in cotton gauze and foam pads are put into place at the heel and over the offloaded ulcer secured with adhesive tape all supplied with the TCC system<sup>3</sup>.
- 4-The TCC system is applied with the foot held to fix the ulcer in an offloaded position
- 5-Typical cast and dressing change interval is weekly

### B-Venous ulcer with compression

- 1-Venous ulcers requiring compression can be treated by applying the TPD and allowing the product to fully aggregate forming a complete, intact dressing. This process can take 3-5 minutes after application of the powder.
- 2-The non-adherent porous membrane material (wound contact layer) supplied with the compression dressing<sup>4</sup> is applied directly to the aggregated powder dressing and held in place without adhesion.
- 3-The leg is wrapped with the compression dressing, first applying the adsorbent padding layer, then the woven cotton gauze, then the elastic compression dressing and finally the cohesive retaining bandage.
- 4-Typical compression dressing and TPD change interval is weekly

### C-Pressure ulcer with depth

- 1-Pressure ulcers with depth can be treated by packing the wound with TPD. This is typically accomplished using a modified funnel and packing the TPD with a sterile probe between applications as the powder aggregates.
- 2-The periwound is cleaned and treated with a protective skin barrier<sup>5</sup>.
- 3-An adhesive border dressing<sup>6</sup> is applied over the wound insuring that the adhesive does not contact the aggregated TPD
- 4-Typical dressing changes including TPD is weekly

## Products

- <sup>1</sup>-Atazael™ Transforming Powder Dressing-ULURU, Inc.
- <sup>2</sup>-Wound Veil-Smith and Nephew, Inc.
- <sup>3</sup>-TCC-E™-Medefficiency, Inc.
- <sup>4</sup>-Profore™ 4-Layer Compression Dressing-Smith and Nephew, Inc.
- <sup>5</sup>-Prep Protective Skin Barrier-Coloplast, Inc.
- <sup>6</sup>-Mepilex™ Border-Molnlycke Healthcare