

# First Results from Application of an Absorbable Synthetic Membrane to Superficial and Deep Second Degree Wounds.

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# First Results from Application of an Absorbable Synthetic Membrane to Superficial and Deep Second Degree Wounds

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## BACKGROUND / INTRODUCTION

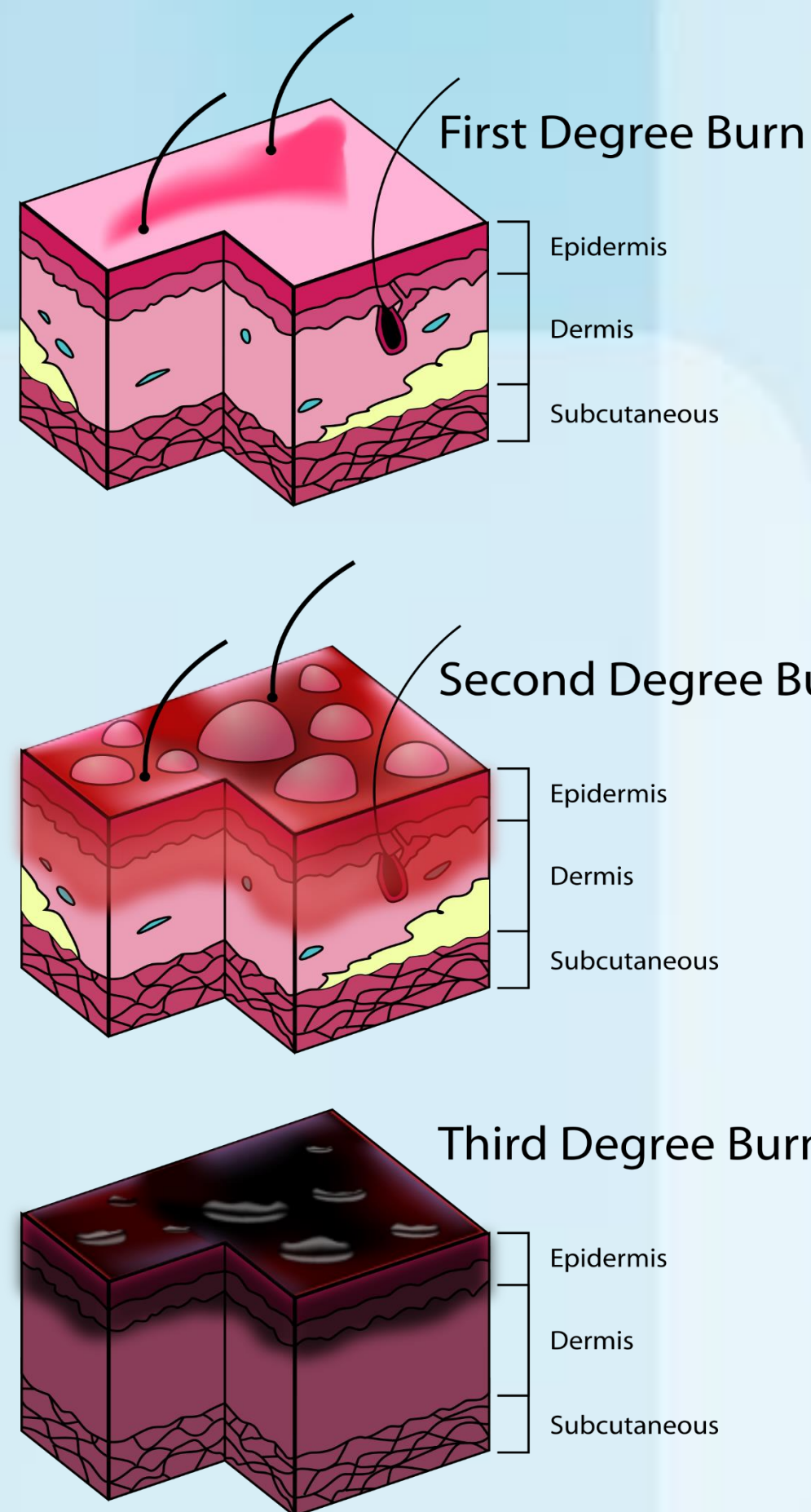
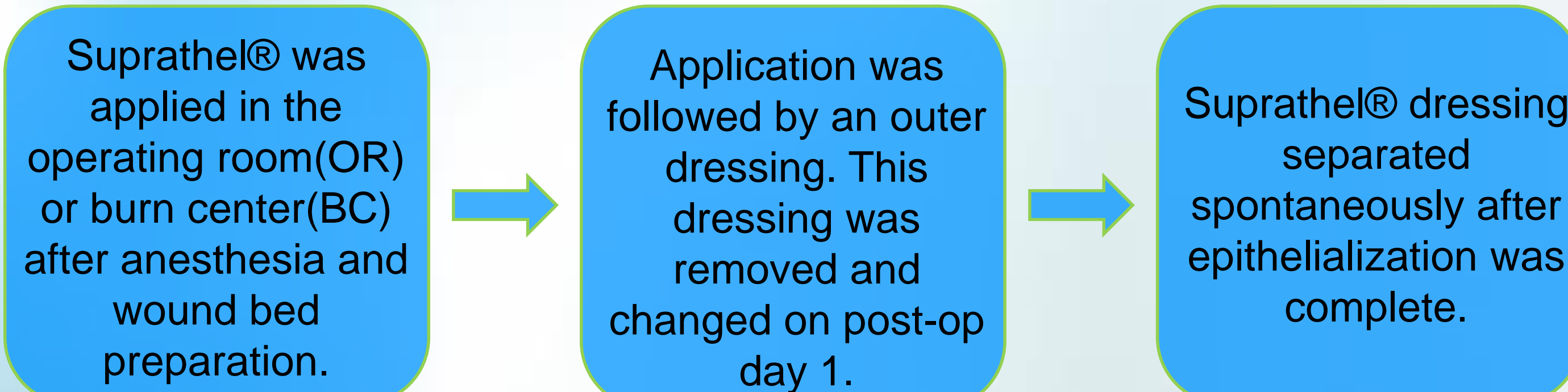


Figure 1: Burn Degree Diagram<sup>1</sup>

- Second degree burns require unique treatment due to pain during daily dressing changes, unpredictability of healing time, and scarring.
- The ideal treatment of second degree burns would be to:
  - Decrease pain, limit dressing changes, allow assessment of healing progress, prevent infection, accelerate healing, improve long term outcome, save treatment cost.
- Second degree burns are typically treated with cream dressings and antibiotic ointment that require painful daily dressing changes to avoid bacteria growth.
- Skin substitutes attempt to limit the amount of painful dressings and accelerate healing. Infection and integration have been the major drawbacks in past studies<sup>2</sup>.
- **Suprathel®** is a porous, fully synthetic biodegradable copolymer membrane made of DL-lactide which is FDA registered.
- Our objective was to review the use of Suprathel® in the LVHN Burn Center.

## METHODS

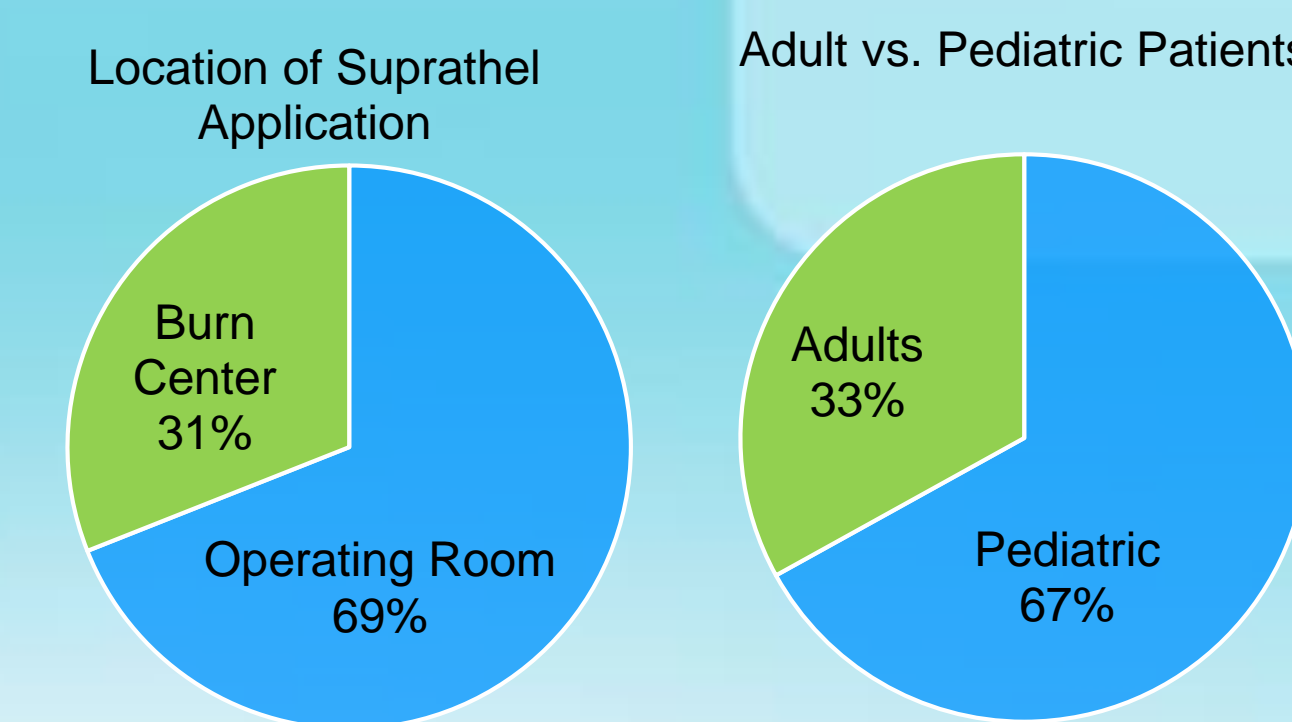
- A retrospective chart review of 229 patients was performed by collecting:
  - Extraneous data: Length of Stay, Age, Gender, Date of Surgery
  - Dependent data: Depth of Burn, %Total Burn Surface Area (TBSA), Number of Consumed Units, Where Applied, Time to Healing, Pain Level through Healing, Wound Infection, Failure of Suprathel, Hypertrophic Scars (HTS)
- The study included all burn service patients who received the synthetic Suprathel® membrane between September 1, 2013 and December 31, 2016.



## RESULTS

- 229 patients (141 male, 88 female, 138 pediatric).
- 158 OR applications, 71 BC applications.
- Time to healing: 12.4 days pediatric vs. 16.4 days adults, 11.0 days BC application vs. 15.2 days OR application.
- Pain level: 0.6 pediatric vs. 2.7 adults, 0.5 BC application vs. 1.9 OR application.
- HTS: 10.1% pediatric vs. 14.29% adults, 4.23% BC application vs. 15.19% OR application.

Data Point	Value
Infection Rate	3.49%
Pain	1.5/10
Hypertrophic Scarring	11.79%
Failure of Suprathel®	5.24%
Avg. Time to Healing	13.98 days



## DISCUSSION

- Pediatric patients and those who had Suprathel® application in BC had less pain, shorter time to healing, lower infection rate, and lower rate of HTS than adults or OR applications. This could be explained by the deeper burns that were generally treated in the OR, due to requiring additional procedures on other burn sites such as Split Thickness Skin Grafts (STSG).
- The ability of Suprathel® to create an undisturbed location for healing contributed to a reduced time to healing as well as provided a translucent dressing to assess wound healing in progress.
- 211 out of 229 patients did not acquire infections due to Suprathel's® ability to create an optimal environment for healing by providing a pH that prevents bacteria from surviving in the wound.

## CONCLUSION

- The application of this new skin substitute to second degree wounds offers a new simple option of treatment with better outcomes and less pain.
- Suprathel® requires less frequent dressing changes, less pain medication and a lower infection rate as compared to cream dressing changes with antibiotic ointment.

## OUTCOMES



Figure 2: A positive outcome from the application of Suprathel®, containing no signs of HTS.



Figure 3: A scar resulting from a deep second degree wound after the placement of Suprathel®.



Figure 4: A wound covered in the Suprathel® dressing.

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### References:

1. Aainsqatsi, K. (2007) Burn Degree Diagram [Digital Image]. Retrieved from Wikimedia Commons website: [https://commons.wikimedia.org/wiki/File:Burn\\_Degree\\_Diagram.svg#](https://commons.wikimedia.org/wiki/File:Burn_Degree_Diagram.svg#). Public Domain.
2. Pham C, Greenwood J, Cleland H, et al. Bioengineered skin substitutes for the management of burns: a systematic review. Burns. 2007 Dec;33(8):946-57.