

Most complete.
Retains all native layers.

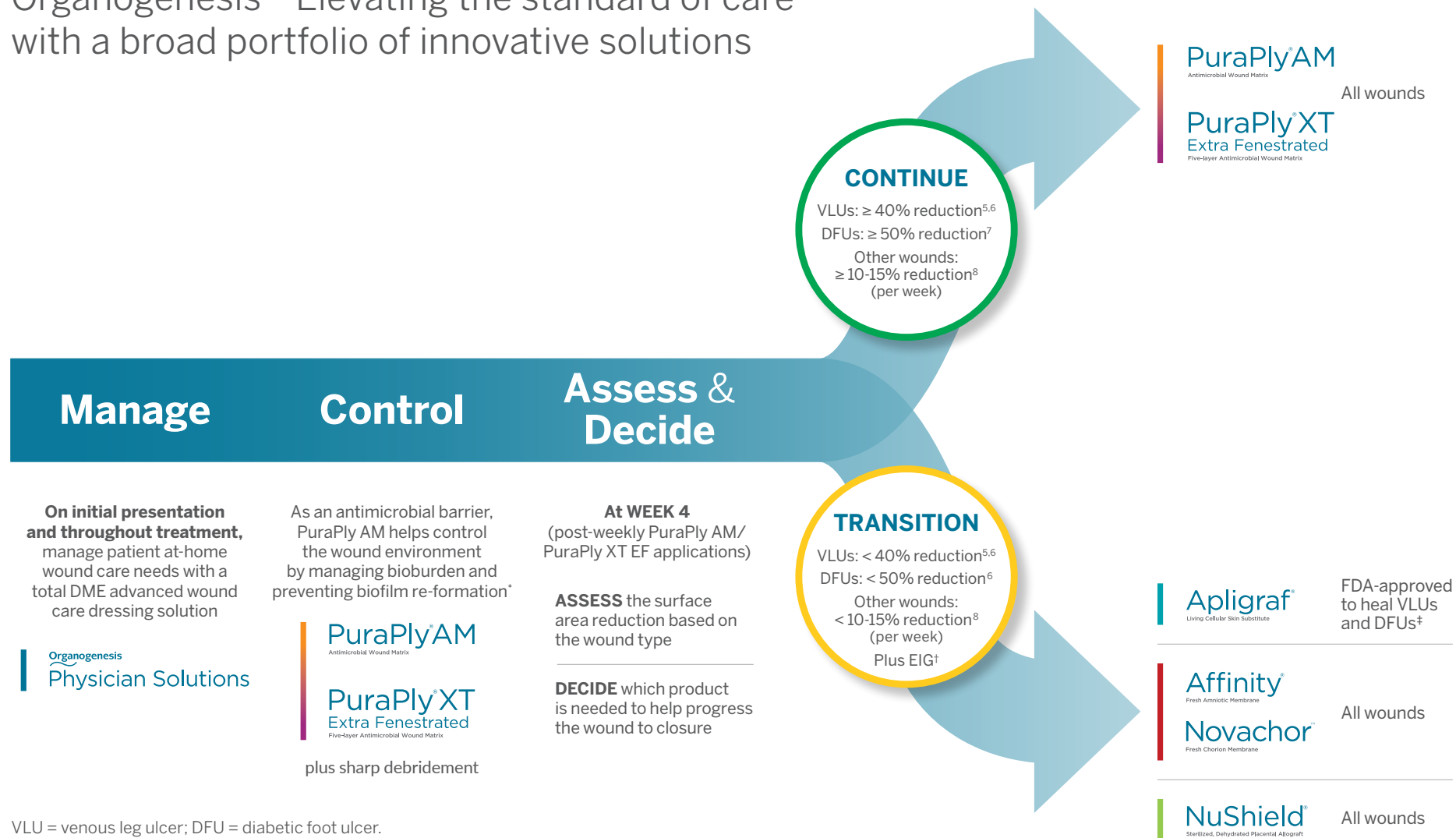
Good as

Nu

Support healing
without compromise with
the most complete
dehydrated placental
allograft wound covering.¹⁻⁴

Treatment Algorithm

Organogenesis—Elevating the standard of care with a broad portfolio of innovative solutions



VLU = venous leg ulcer; DFU = diabetic foot ulcer.

* PuraPly AM is an effective barrier to resist microbial colonization within the device and reduce microbes penetrating through the device.

† E = **Exudate** well-controlled; I = No signs of clinical **Infection**; G = Healthy **Granulation** tissue present.

‡ Please refer to the Apligraf Package Insert for complete prescribing information and contraindications.

Affinity, Novachor, and NuShield are intended to be used as wound coverings and barriers

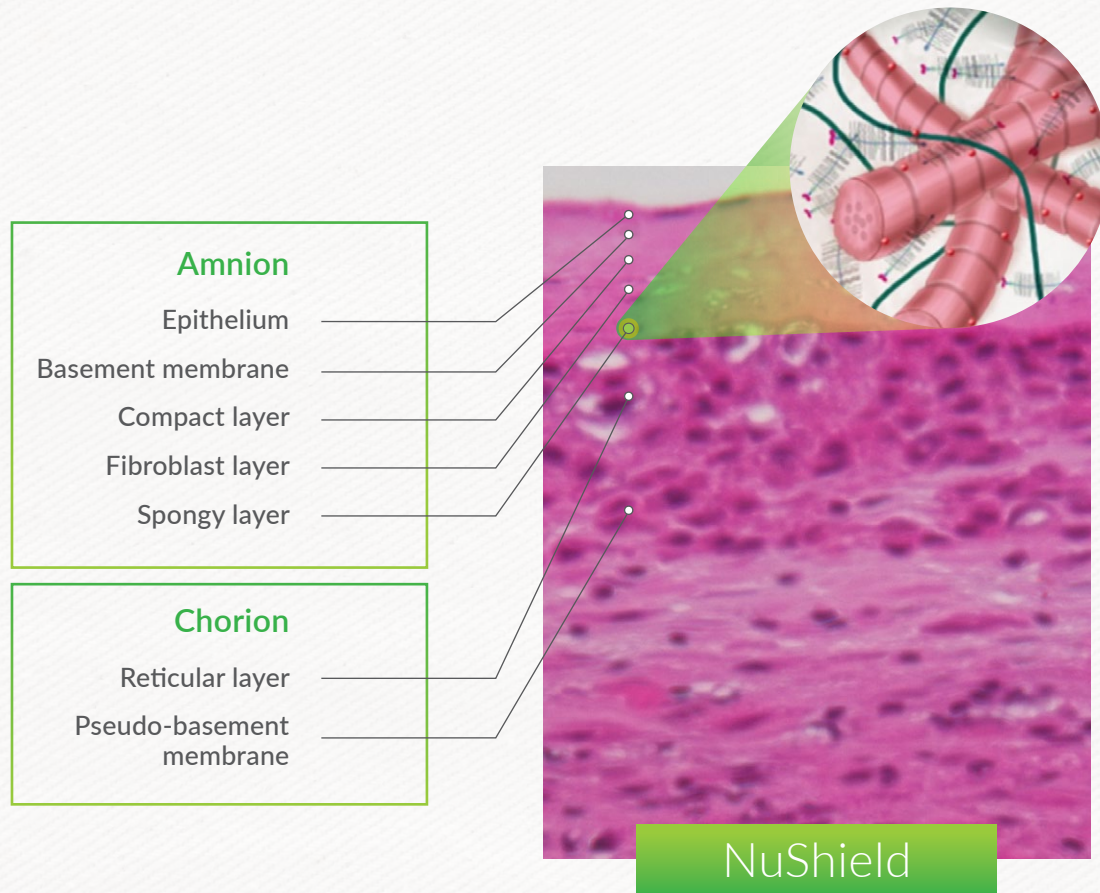
Table of Contents

NuShield®: The most complete dehydrated placental allograft wound covering	2
NuShield contains more growth factors, cytokines, and hyaluronic acid	3
Overview of case studies	4
CASE 1 DFU resulting from a surgical dehiscence with PuraPly® AM transitioning to NuShield	5
CASE 2 VLU with PuraPly AM transitioning to NuShield	6
CASE 3 Pressure injury of long duration with NuShield	7
CASE 4 Trauma wound with NuShield	8
CASE 5 Trauma wound with PuraPly AM transitioning to NuShield	9
CASE 6 Soft tissue necrosis with NuShield	10
CASE 7 Three VLUs in one patient with NuShield	11 - 13

DFU = diabetic foot ulcer; VLU = venous leg ulcer

NuShield[®]: The most complete dehydrated placental allograft wound covering

Unique preservation method retains all native layers, including the spongy layer²⁻⁴



In an analytical study, the spongy layer of NuShield contained^{3,9}:

Growth factor, matrix protein*

Hyaluronic acid
(HA)

Transforming growth factor beta 1
(TGF- β 1)

Hepatocyte growth factor
(HGF)

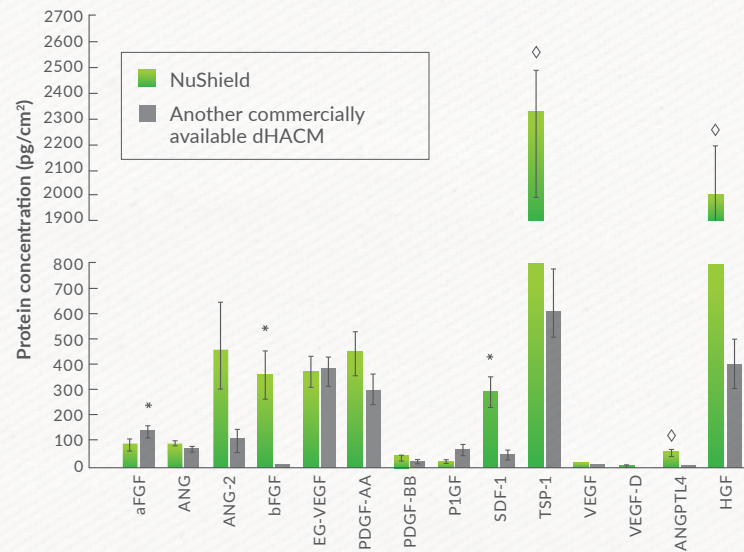
Interleukin-1 receptor antagonist
(IL-1ra)

*The clinical activity of these factors has not been demonstrated in NuShield.

NuShield® contains more growth factors, cytokines, and hyaluronic acid

Compared to another commercially available dehydrated human amnion/chorion membrane (dHACM)

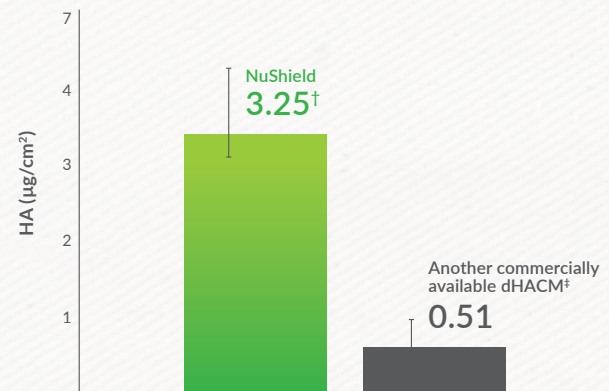
NuShield contains 42% higher concentrations of growth factors and cytokines⁹



* $P < 0.05$; $\diamond P < 0.01$.

A broad evaluation of proteins found that NuShield, compared to another commercially available dHACM, retained statistically significant higher concentrations of many growth factors and cytokines.

NuShield contains, on average, over 6x more hyaluronic acid (HA)⁹



[†] Indicates significance where $P < 0.05$.

[‡] Preservation method used by this dHACM removes most of the spongy layer, making it, on average, thinner than NuShield.

In this evaluation, HA levels were significantly higher in NuShield than in another commercially available dHACM, with an average of 3.25 µg/cm² HA in NuShield compared to 0.51 µg/cm² HA in the other commercially available dHACM.

Overview of case studies

Wound specifics (N=9)

- Types of wounds
 - Diabetic foot ulcer (n=1)
 - Pressure injury (n=1)
 - Soft tissue necrosis (n=1)
 - Trauma wound (n=2)
 - Venous leg ulcer (n=4)*
- Baseline wound duration
 - 16.1 weeks (mean)
 - 13.0 weeks (median)
 - 2 to 39 weeks (range)
- Baseline wound area
 - 16.1 cm² (mean)
 - 11.7 cm² (median)
 - 0.4 to 45.0 cm² (range)

Patients (N=7)

- 4 females; 3 males
- Mean patient age: 73 years (range, 40 to 96 years)



*One patient had three VLU's.

PuraPly[®] AM, an antimicrobial barrier, transitioning to NuShield[®], a complete dehydrated placental allograft wound covering, supported healing of a DFU at 16 weeks

68-year-old female with a DFU at the site of transmetatarsal amputation (TMA)

WOUND SPECIFICS

- Initial wound area:
 - 45.0 cm² at the time of PuraPly AM initiation
 - 16.0 cm² at the time of NuShield initiation
- Wound was present for 13 weeks prior to PuraPly AM initiation

PATIENT HISTORY


- ESKD (on hemodialysis), COPD, PVD, hypertension, diabetes, venous insufficiency, HIV, hepatitis C, and current smoker
- Additional medical and surgical history included:
 - 6/19/17: Revascularization of the left leg
 - 7/14/17: Patient presented with a necrotic left foot
 - 7/19/17: TMA of left foot, which subsequently dehisced
- Patient faced the possibility of BKA if wound did not move to closure

PREVIOUS TREATMENTS

- Debridement, Santyl[®], and Xeroform[™]
- PuraPly AM was used for 9 weeks to control bioburden and prevent biofilm re-formation

APPLICATION SCHEDULES

- PuraPly AM: 7 applications over 9 weeks
- NuShield: Weekly applications for 5 weeks
- Compression: One layer ACE wrap
- Other actions taken: Wound VAC for weeks 3 through 13

PuraPly AM			NuShield	
1 st PuraPly AM application	4 th PuraPly AM application	7 th PuraPly AM application	Transition to NuShield ¹	2 nd NuShield application
				
WEEK 1	WEEK 5	WEEK 9	WEEK 10	WEEK 11
Pre-debridement Date: 10/25/17 Wound size: 4.5 x 10.0 x 3.8 cm Wound area: 45.0 cm ²	Pre-debridement Date: 11/22/17 Wound size: 4.0 x 9.7 x 0.4 cm Wound area: 38.8 cm ²	Pre-debridement Date: 12/20/17 Wound size: 2.5 x 8.5 x 0.5 cm Wound area: 21.2 cm ²	Pre-debridement Date: 12/27/17 Wound size: 2.0 x 8.0 x 0.5 cm Wound area: 16.0 cm ²	Pre-debridement Date: 1/3/18 Wound size: 1.7 x 7.5 x 0.5 cm Wound area: 12.8 cm ²
			*Bioburden well-managed with healthy granulation tissue and moderate exudate. Clinician transitioned to NuShield.	
NuShield				
3 rd NuShield application	4 th NuShield application	5 th NuShield application	Wound closed ²	Wound remained closed & prosthesis walking boot received
				
WEEK 12	WEEK 13	WEEK 14	WEEK 16	WEEK 21
Pre-debridement Date: 1/10/18 Wound size: 1.5 x 7.5 x 0.2 cm Wound area: 11.2 cm ²	Pre-debridement Date: 1/17/18 Wound size: 1.2 x 7.0 x 0.2 cm Wound area: 8.4 cm ²	Pre-debridement Date: 1/24/18 Wound size: 0.9 x 4.2 x 0.2 cm Wound area: 3.8 cm ²	Date: 2/7/18 Wound size: 0.3 x 0.3 x 0.1 cm Wound area: 0.09 cm ²	Date: 3/14/18
			¹ With no exudate. Patient was seen at week 15 and clinician decided no further NuShield applications were needed.	

BKA = below knee amputation; COPD = chronic obstructive pulmonary disease; ESKD = end-stage kidney disease; HIV = human immunodeficiency virus; PVD = peripheral vascular disease; VAC = vacuum-assisted closure

PuraPly[®] AM, an antimicrobial barrier, transitioning to NuShield[®], a complete dehydrated placental allograft wound covering, supported healing of a VLU at 8 weeks

96-year-old male with a VLU on the left anterior shin

WOUND SPECIFICS

- Initial wound area:
 - 5.7 cm² at the time of PuraPly AM initiation
 - 3.2 cm² at the time of NuShield initiation
- Wound was present for 17 weeks (4 months) prior to PuraPly AM initiation

PATIENT HISTORY

Diabetes, hypertension, neuropathy, and venous insufficiency

PREVIOUS TREATMENTS

- Santyl[®], Medihoney[®], and Promogran Prisma[®]
- PuraPly AM was used for 3 weeks to control bioburden and prevent biofilm re-formation

APPLICATION SCHEDULES

- PuraPly AM: Weekly applications for 3 weeks
- NuShield: Weekly applications for 4 weeks
- Compression was not utilized; patient was asked to elevate

PuraPly AM			NuShield	
1 st PuraPly AM application	2 nd PuraPly AM application	3 rd PuraPly AM application	Transition to NuShield*	2 nd NuShield application
				
WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5
Post-debridement Wound size: 2.7 x 2.1 x 0.1 cm Wound area: 5.7 cm ²	Post-debridement Wound size: 2.7 x 2.1 x 0.1 cm Wound area: 5.7 cm ²	Post-debridement Wound size: 2.5 x 1.9 x 0.1 cm Wound area: 4.8 cm ²	Post-debridement Wound size: 2.1 x 1.5 x 0.1 cm Wound area: 3.2 cm ²	Post-debridement Wound size: 2.0 x 1.4 x 0.1 cm Wound area: 2.8 cm ²

*Bioburden well-managed with an increase in granulation tissue. Clinician transitioned to NuShield.

NuShield			
3 rd NuShield Application	4 th NuShield Application	Complete wound closure	Wound remained closed
			
WEEK 6	WEEK 7	WEEK 8	WEEK 11
Post-debridement Wound size: 1.9 x 1.4 x 0.1 cm Wound area: 2.7 cm ²	Post-debridement Wound size: 1.0 x 0.8 x 0.1 cm Wound area: 0.8 cm ²	Complete wound closure	Wound remained closed

Dates of treatment have been omitted due to hospital regulations.

NuShield[®], a complete dehydrated placental allograft wound covering, supported healing of a pressure injury at 6 weeks following 5 applications

65-year-old male with a pressure injury on the left ischium

WOUND SPECIFICS

- Wound area was 5.3 cm² at the time of NuShield initiation
- Wound was present for 39 weeks (9 months)

PATIENT HISTORY

- Paraplegia, hypertension, diabetes, and obesity
- Surgical history included placement of Harrington rod and rotator cuff repair
- Patient was wheelchair bound and compliant with pressure reliefs

PREVIOUS TREATMENTS

Santyl[®], Manuka honey, and collagen

NuSHIELD APPLICATION SCHEDULE

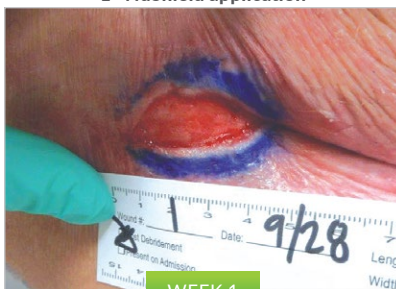
- Weekly applications for 5 weeks
- Off-loading: Complete bed rest, ROHO[®] cushion, and ALAL mattress
- Other: Patient was instructed to remain in bed for the entire week with the exception of clinic visits

One week prior to NuShield



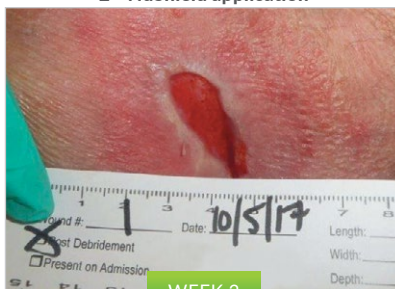
Post-debridement
Date: 9/21/17
Wound size: 3.3 x 1.6 x 0.1 cm
Wound area: 5.3 cm²

1st NuShield application



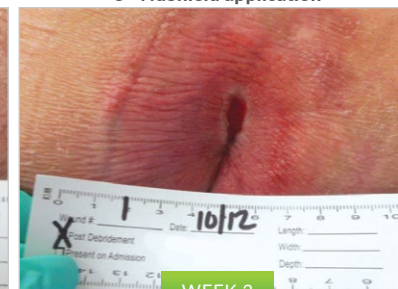
Post-debridement
Date: 9/28/17
Wound size: 3.3 x 1.6 x 0.1 cm
Wound area: 5.3 cm²

2nd NuShield application



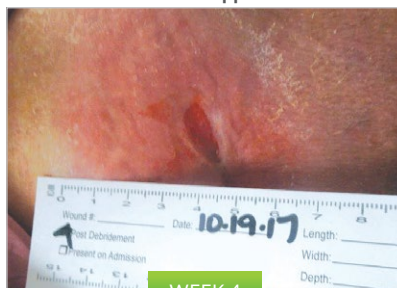
Post-debridement
Date: 10/5/17
Wound size: 3.0 x 1.5 x 0.2 cm
Wound area: 4.5 cm²

3rd NuShield application



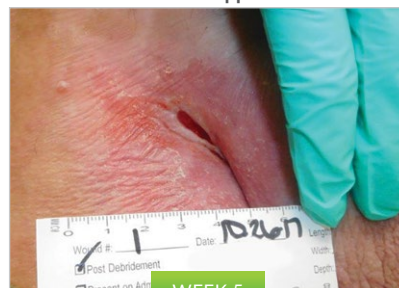
Post-debridement
Date: 10/12/17
Wound size: 2.1 x 0.6 x 0.1 cm
Wound area: 1.3 cm²

4th NuShield application



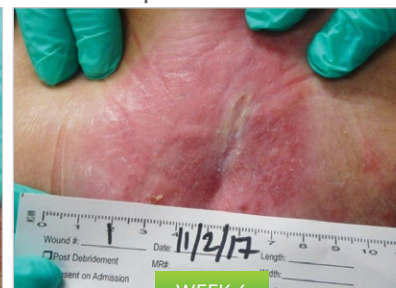
Post-debridement
Date: 10/19/17
Wound size: 1.8 x 0.6 x 0.1 cm
Wound area: 1.1 cm²

5th NuShield application



Post-debridement
Date: 10/26/17
Wound size: 1.4 x 0.4 x 0.1 cm
Wound area: 0.6 cm²

Complete wound closure



Date: 11/2/17

NuShield[®], a complete dehydrated placental allograft wound covering, supported healing of a trauma wound at 11 weeks following 9 applications

93-year-old female with a trauma wound on the left lateral lower leg

WOUND SPECIFICS

- Initial wound area was 11.7 cm²
- Wound was present for 8 weeks
- Wound was caused by a car door

PATIENT HISTORY

- Hypertension, thyroid disease, and atrial fibrillation
- Prior wound complication included cellulitis, which caused significant pain to patient

PREVIOUS TREATMENTS

NPWT, collagen, and compression to address moderate edema

NuSHIELD APPLICATION SCHEDULE

- 9 applications over 10 weeks
- Compression: Three layer compression wrap
- Other: Protein supplements and wound vitamins (multi-vitamin, vitamin C, and zinc) encouraged

1st NuShield application



WEEK 1

Post-debridement
Date: 8/25/17
Wound size: 5.3 x 2.2 x 0.3 cm
Wound area: 11.7 cm²

2nd NuShield application



WEEK 2

Post-debridement
Date: 9/1/17
Wound size: 4.3 x 2.2 x 0.3 cm
Wound area: 9.5 cm²

3rd NuShield application



WEEK 3

Post-debridement
Date: 9/7/17
Wound size: 4.3 x 2.2 x 0.3 cm
Wound area: 9.5 cm²

4th NuShield application*



WEEK 5

Post-debridement
Date: 9/22/17
Wound size: 3.5 x 1.5 x 0.2 cm
Wound area: 5.2 cm²

5th NuShield application



WEEK 6

Post-debridement
Date: 9/29/17
Wound size: 2.4 x 0.9 x 0.1 cm
Wound area: 2.2 cm²

6th NuShield application



WEEK 7

Post-debridement
Date: 10/6/17
Wound size: 2.3 x 0.7 x 0.2 cm
Wound area: 1.6 cm²

7th NuShield application



WEEK 8

Post-debridement
Date: 10/13/17
Wound size: 1.6 x 0.8 x 0.3 cm
Wound area: 1.3 cm²

8th NuShield application



WEEK 9

Post-debridement
Date: 10/20/17
Wound size: 1.0 x 0.2 x 0.1 cm
Wound area: 0.2 cm²

9th NuShield application



WEEK 10

Post-debridement
Date: 10/26/17
Wound size: 0.8 x 0.2 x 0.1 cm
Wound area: 0.2 cm²

Complete wound closure



WEEK 11

Date: 11/3/17

*NuShield was not applied on week 4 (9/15/17) due to the presence of hypergranulation tissue. Silver nitrate was applied.

PuraPly[®] AM, an antimicrobial barrier, transitioning to NuShield[®], a complete dehydrated placental allograft wound covering, supported healing of a trauma wound at 16 weeks

69-year-old female with a trauma wound on the right lateral leg complicated by immunosuppressive therapy

WOUND SPECIFICS

- Wound was initially caused by trauma, was sutured but dehiscenced and became infected
- Initial wound area:
 - 25.5 cm² at the time of PuraPly AM initiation
 - 15.5 cm² at the time of NuShield initiation
- Wound was present for 4 weeks prior to PuraPly AM initiation

PATIENT HISTORY

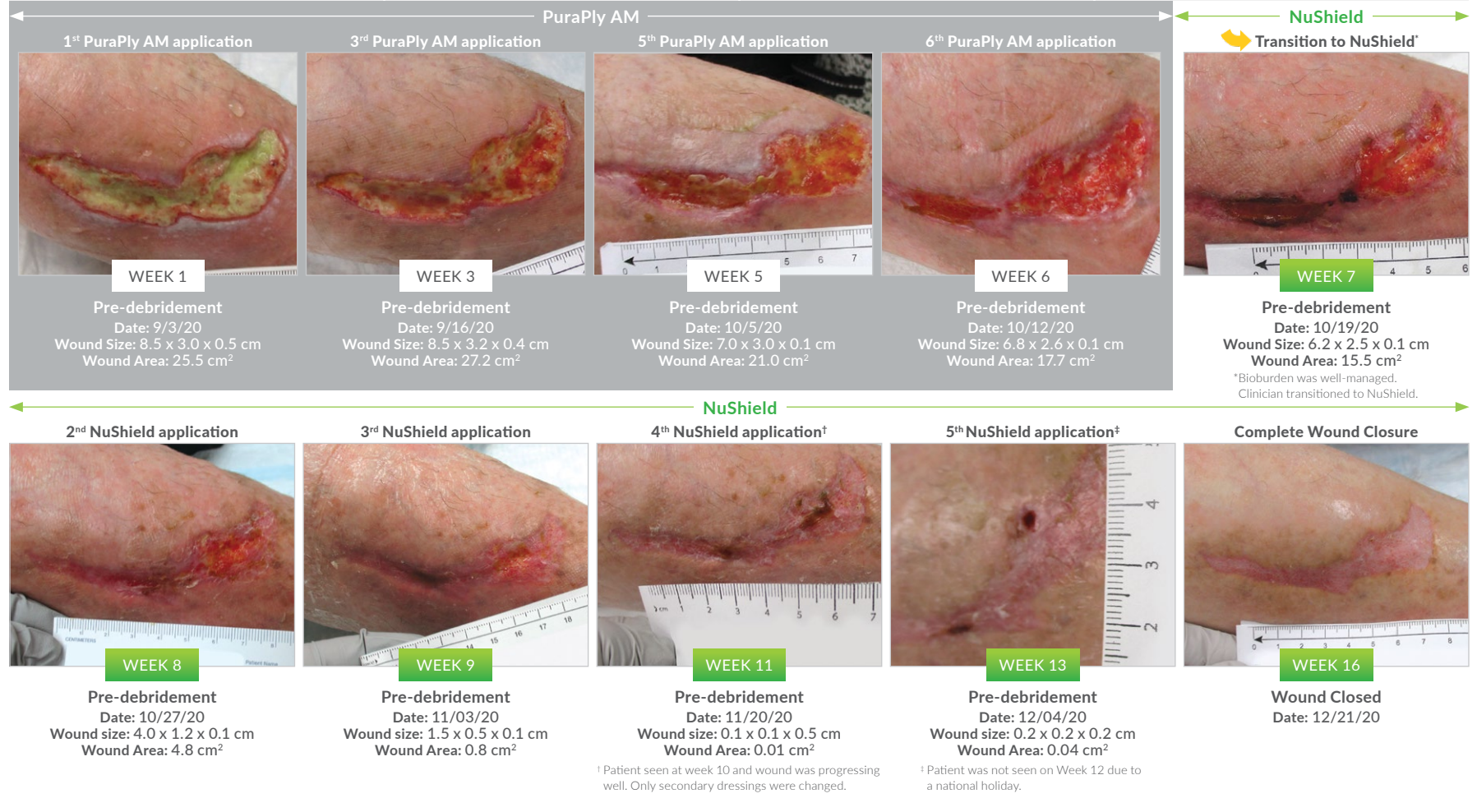
- Wound healing was complicated by immunosuppressive therapy and venous insufficiency
- Patient was on several medications to treat rheumatoid arthritis including etanercept, leflunomide, and prednisone
- Hypertension, hyperthyroidism, and GERD

PREVIOUS TREATMENTS

- Enzymatic debridement
- Oral antibiotics were used to treat the wound infection prior to PuraPly AM initiation

APPLICATION SCHEDULES

- PuraPly AM was applied weekly, post-debridement for 6 weeks
- NuShield was applied, post-debridement, 5 times over 7 weeks
- Compression with Tubigrip was used during PuraPly AM applications



NuShield[®], a complete dehydrated placental allograft wound covering, supported healing of a soft tissue necrosis at 4 weeks following 3 applications

40-year-old female with soft tissue necrosis on the inferior aspect of the left breast

WOUND SPECIFICS

- Initial wound area was 2.6 cm²
- Wound was present for 2 weeks
- Wound was likely due to the toxic effect of an unspecified spider venom

PATIENT HISTORY



Patient was healthy with no relevant medical history

PREVIOUS TREATMENTS



Aggressive debridement and daily application of collagenase

NuSHIELD APPLICATION SCHEDULE

Weekly applications for 3 weeks

<p>One week prior to NuShield</p>  <p>EXPOSED ADIPOSE TISSUE</p> <p>Post-debridement Date: 9/29/17 Wound size: 2.1 x 1.4 x 0.1 cm Wound area: 2.9 cm²</p>	<p>1st NuShield application</p>  <p>WEEK 1</p> <p>Post-debridement Date: 10/5/17 Wound size: 2.0 x 1.3 x 0.1 cm Wound area: 2.6 cm²</p>	<p>2nd NuShield application*</p>  <p>WEEK 2</p> <p>Post-debridement Date: 10/12/17 Wound size: 1.6 x 2.6 x 0.2 cm Wound area: 4.2 cm²</p>
--	--	---

*Adipose breast tissue no longer exposed.

<p>3rd NuShield application</p>  <p>WEEK 3</p> <p>Post-debridement Date: 10/19/17 Wound size: 0.8 x 1.0 x 0.1 cm Wound area: 0.8 cm²</p>	<p>Complete wound closure</p>  <p>WEEK 4</p> <p>Date: 10/26/17</p>
---	--

NuShield[®], a complete dehydrated placental allograft wound covering, supported healing of three VLU's in one patient

79-year-old male with three VLUs located on the right lower leg

WOUND SPECIFICS

- Wounds were present for 30 weeks (7 months)
- Location of wounds:
 - #6 Right medial lower leg (superior wound)
 - #1 Right lateral lower leg
 - #4 Right medial lower leg (inferior wound)

PATIENT HISTORY

- PVD, venous insufficiency, diabetes, hypertension, prostate cancer, mild cognitive impairment, hyperlipidemia, arthritis, and PAD
- Surgical history included revascularization/atherectomy to address right tibial vessel disease (July 2017)
- Prior wound complication included cellulitis

PREVIOUS TREATMENTS

NPWT, collagen, Mesalt[®], and Manuka honey

NuSHIELD APPLICATION SCHEDULE

- Wound #6: Weekly applications for 4 weeks
- Wounds #1 and #4: Weekly applications for 7 weeks
- Compression: Four layer compression wrap

WOUND #6 | Closed at 5 weeks following 4 applications of NuShield

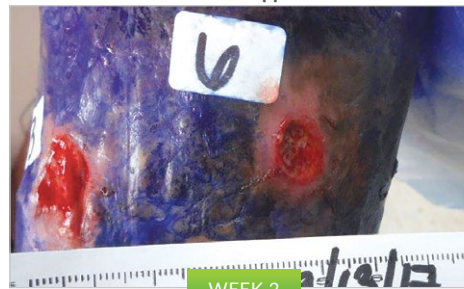
1st NuShield application



WEEK 1

Post-debridement
Date: 9/6/17
Wound size: 0.7 x 0.5 x 0.1 cm
Wound area: 0.4 cm²

2nd NuShield application



WEEK 2

Post-debridement
Date: 9/13/17
Wound size: 0.7 x 0.7 x 0.2 cm
Wound area: 0.5 cm²

3rd NuShield application



WEEK 3

Post-debridement
Date: 9/20/17
Wound size: 0.5 x 0.5 x 0.1 cm
Wound area: 0.25 cm²

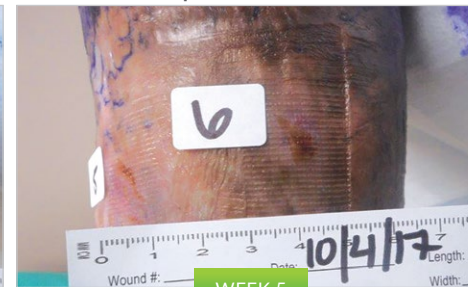
4th NuShield application



WEEK 4

Post-debridement
Date: 9/27/17
Wound size: 0.6 x 0.6 x 0.1 cm
Wound area: 0.4 cm²

Complete wound closure



WEEK 5

Date: 10/4/17

WOUND #1 | Closed at 8 weeks following 7 applications of NuShield®

1st NuShield application



WEEK 1

Post-debridement
Date: 9/6/17
Wound size: 6.0 x 5.8 x 0.2 cm
Wound area: 34.8 cm²

2nd NuShield application



WEEK 2

Post-debridement
Date: 9/13/17
Wound size: 6.0 x 5.2 x 0.2 cm
Wound area: 31.2 cm²

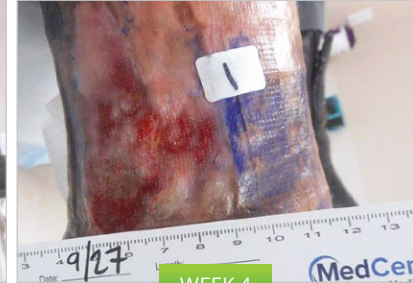
3rd NuShield application



WEEK 3

Post-debridement
Date: 9/20/17
Wound size: 5.4 x 5.0 x 0.1 cm
Wound area: 27.0 cm²

4th NuShield application



WEEK 4

Post-debridement
Date: 9/27/17
Wound size: 4.9 x 4.0 x 0.2 cm
Wound area: 19.6 cm²

5th NuShield application



WEEK 5

Post-debridement
Date: 10/4/17
Wound size: 4.4 x 2.0 x 0.1 cm
Wound area: 8.8 cm²

6th NuShield application



WEEK 6

Post-debridement
Date: 10/11/17
Wound size: 3.9 x 3.0 x 0.1 cm
Wound area: 11.7 cm²

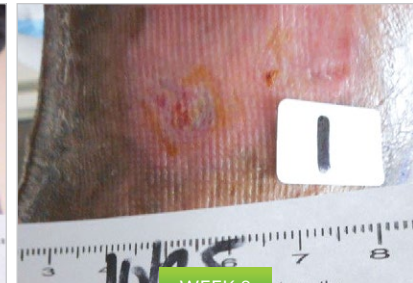
7th NuShield application



WEEK 7

Post-debridement
Date: 10/18/17
Wound size: 1.0 x 1.0 x 0.1 cm
Wound area: 1.0 cm²

Complete wound closure



WEEK 8

Date: 10/25/17

WOUND #4 | Closed at 8 weeks and remained closed at 9 weeks following 7 applications of NuShield®

1st NuShield application



WEEK 1

Post-debridement
Date: 9/6/17
Wound size: 7.0 x 2.0 x 0.2 cm
Wound area: 14.0 cm²

2nd NuShield application



WEEK 2

Post-debridement
Date: 9/13/17
Wound size: 7.0 x 1.3 x 0.2 cm
Wound area: 9.1 cm²

3rd NuShield application



WEEK 3

Post-debridement
Date: 9/20/17
Wound size: 6.8 x 1.4 x 0.1 cm
Wound area: 9.5 cm²

4th NuShield application



WEEK 4

Post-debridement
Date: 9/27/17
Wound size: 5.8 x 1.3 x 0.1 cm
Wound area: 7.5 cm²

5th NuShield application



WEEK 5

Post-debridement
Date: 10/4/17
Wound size: 3.8 x 1.2 x 0.1 cm
Wound area: 4.6 cm²

6th NuShield application



WEEK 6

Post-debridement
Date: 10/11/17
Wound size: 2.0 x 1.1 x 0.1 cm
Wound area: 2.2 cm²

7th NuShield application



WEEK 7

Post-debridement
Date: 10/18/17
Wound size: 1.3 x 1.0 x 0.1 cm
Wound area: 1.3 cm²

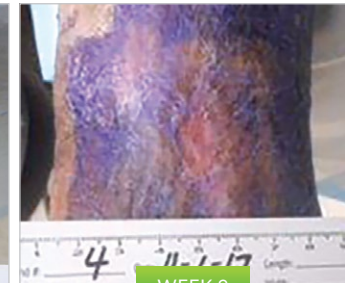
Complete wound closure



WEEK 8

Date: 10/25/17

Wound remained closed



WEEK 9

Date: 11/1/17

Help support a favorable environment for healing.

Good as

Nu

The Nu Difference

- The most complete dehydrated placental allograft wound covering^{2,3}
- Unique preservation method retains all native layers, including the spongy layer⁴

The Nu Versatility

- May be used as a wound covering for a variety of wound types from head to toe, including those with exposed bone and tendon¹⁰
- Available in a wide range of shapes and sizes allowing for flexibility when fitting a wound

The Nu Results

- As a protective wound covering in real-world patients (retrospective case series; N=50), NuShield[®] was shown to support healing in a wide variety of wounds¹
- NuShield retains more growth factors, cytokines, hyaluronic acid, and thickness than another commercially available dehydrated human amnion/chorion membrane (dHACM)⁹

When you're looking for a dehydrated placental allograft wound covering that offers convenience without compromise, give your patients NuShield.

Note: NuShield is intended for use as a wound covering and barrier.

References: 1. Caporusso J, et al. *Wounds*. 2019;31(4 Suppl):S19-S27. 2. Niknejad H, et al. *Eur Cells Mater*. 2008;15:88-99. 3. McQuilling JP, et al. *Int Wound J*. 2019;16(3):827-840. 4. Data on File. Description of BioLoc Process. Organogenesis Inc. 5. Phillips TJ, et al. *J Am Acad Dermatol*. 2000;43(4):627-630. 6. Gelfand JM, et al. *J Invest Dermatol*. 2002;119(6):1420-1425. 7. Sheehan P, et al. *Diabetes Care*. 2003;26(6):1879-1882. 8. Attinger CE, et al. *Plast Reconstr Surg*. 2006;117(Suppl):72S-109S. 9. Data on file. DR-0004. Organogenesis Inc. 10. NuShield Allograft Tissue Information and Instructions for Use. Canton, MA: Organogenesis Inc; 2019.