

# A NEXT SCIENCE® CASE STUDY

## RIGHT PLANTAR MID-FOOT ULCER

### DETAIL

73 year-old patient with right plantar mid-foot wound from leg length discrepancy following history of frostbite amputations of toes 2-5 subsequent ankle collapse of right foot.

- Comorbid pathology including neuropathy, peripheral venous insufficiency with edema, and hypercholesterolemia
- Current exam of right first toe wound with black necrotic tissue
- Previous treatment: none
- Duration of > 1 month; initial visit 6/26/2019
- BlastX Initiated: 6/26/2019 initial visit
- Measurement: 2.0x2.0cm<sup>2</sup>; calculated surface area 4.0cm<sup>2</sup>
- Treatment: sharp debridement, off-weighting and BlastX started 3x week. modified accommodative shoes once healed
- Week 4: 7/24/2019 wound healed

### REFERENCE

**100% of Diabetic Foot Ulcers have biofilm;**  
“microscopy visualisation confirms multi-species biofilms are ubiquitous in diabetic foot ulcers.”  
- Johani, 2017

Johani K, Malone M, Jensen S, Gosbell I, Dickson H, Hu H, Vickery K. Microscopy visualisation confirms multi-species biofilms are ubiquitous in diabetic foot ulcers. *Int Wound J* 2017; doi: 10.1111/iwj.12777

### VISUALS



6/26/2019A



6/26/2019B



Healed: 7/24/19

### RESULTS

***Wound area reduction 100% in 29 days of starting BlastX™ Antimicrobial Wound Gel***

### QUOTE

***“As one of the key drivers of nonhealing wounds, biofilm represents a serious threat to patients, especially among at risk patients who can collectively benefit from biofilm-inclusive care as an early part of their overall treatment plan approach.”***  
***Dr. Joseph Smith***

# A NEXT SCIENCE® CASE STUDY

## RIGHT DIABETIC FOOT ULCER

### DETAIL

68 year-old patient with insulin dependent type 2 diabetes, morbid obesity, history of previous Left first toe amputation due to ulcer and osteomyelitis.

- Comorbid pathology including: neuropathy, peripheral venous insufficiency with edema, and hypercholesterolemia
- Current exam of right first toe wound with black necrotic tissue
- Previous treatment: none
- Duration of > 1 month; initial visit 6/19/2019
- BlastX initiated: 6/19/2019 initial visit
- Measurement: 3.0x3.0cm<sup>2</sup>; calculated surface area 9.0cm<sup>2</sup>
- Treatment: sharp debridement, RX for amoxicillin 500 mg TID x 10 days, BlastX started 3x week
- Week 4: 7/17/2019 wound healed

### REFERENCE

**100% of Diabetic Foot Ulcers have biofilm;**  
“microscopy visualisation confirms multi-species biofilms are ubiquitous in diabetic foot ulcers.”

- Johani, 2017

Johani K, Malone M, Jensen S, Gosbell I, Dickson H, Hu H, Vickery K. Microscopy visualisation confirms multi-species biofilms are ubiquitous in diabetic foot ulcers. Int Wound J 2017; doi: 10.1111/iwj.12777

### VISUALS



6/19/2019 Top



6/19/2019 Side



Healed: 7/17/19

### RESULTS

**Wound area reduction 100% in 29 days of starting BlastX™ Antimicrobial Wound Gel**

### QUOTE

**“The objective of this case study is to demonstrate that in spite of confounding factors such as physical, psychological and social influences that lead to gaps in holistic care among patients in underserved and at-risk populations; quality care can be achieved when care is delivered using best practice and established healing trajectories are met”**  
**Dr. Joseph Smith**

# A NEXT SCIENCE® CASE STUDY

## RIGHT FOREARM LOOP GRAFT SURGICAL SITE INFECTION

### DETAIL

#### 84 year-old male, post operative failed loop graft

- Comorbid pathology including: DM type II, ESRD, Hypertension, multiple cancers
- Current exam: surgical site infection after placement of hemodialysis loop graft
- Previous treatment: failed standard wound care, multiple surgeries and courses of antibiotics
- Duration of >8 months; 12/18/2017
- BlastX initiated: 7/16/2018
- Measurement: 4.7x1.7cm<sup>2</sup>; calculated surface area 7.99cm<sup>2</sup>
- Treatment: sharp debridement, BlastX every two days
- Week 4: 8/7/2018 wound healed

### REFERENCE

“Septicemia is the leading cause of mortality attributed to infections in dialysis patients, and vascular access infections account for the majority of the cases”

- Fenves, 2017

“It has been said that the best possible treatment for biofilm-based infections is to inhibit the initial attachment stage thus preventing the infection from starting”

- Khatoon, 2018

Fenves, 2017 retrieved from <https://www.renalandurologynews.com/home/decision-support-in-medicine/nephrology-hypertension/medical-management-of-the-dialysis-patient-infectious-complications/> December 6, 2019.  
Khatoon, Zohra et al. "Bacterial biofilm formation on implantable devices and approaches to its treatment and prevention." Heliyon vol. 4,12 e01067. 17 Dec. 2018, doi:10.1016/j.heliyon.2018.e01067

### VISUALS



7/16/2018



7/24/2018



Healed: 8/7/2018

### RESULTS

**Wound area reduction 100% in 23 days of starting BlastX™ Antimicrobial Wound Gel**

### QUOTE

**Conclusion: “This case successfully demonstrated that the pathogens in biofilm can not only disrupt wound healing using standard of care therapy, but can render advanced therapies ineffective as standalone treatments. BlastX biofilm disruption technology implemented early promises to remove one of the greatest barriers to wound healing. While not an RTC, these results are similar to previously published clinical trials using biofilm disruption technology”. Poster presented WOW Conference Fall 2018**

Poster Authors: LTC (P) Gilbert Aidinian, M.D., FACS, RPVI; MAJ Allan G. Young, M.D. FACS, RPVI; Salvador Morales, BSN, DWC

The views expressed in this poster are those of the author(s) and do not reflect the official policy or position of William Beaumont Army Medical Center, Department of the Army, Defense Health Agency, or the US Government.

# A NEXT SCIENCE® CASE STUDY

## SURGICAL INTERVENTION FOR RECTAL CANCER

### DETAIL

**S/P Surgical intervention for rectal cancer with permanent colostomy/rectal closure 1/8/19; post operative surgical site dehiscence; discharged to Home Health on NPWT**

- Comorbid pathology including: Hx of rectal cancer, radiation to perirectal area, permanent colostomy; surg rectal closure; incision dehiscence w/infection prior to discharge; abscess w/I&D IV antibiotics started
- Current exam: non-healing open abscess with NPWT
- Previous treatment: standard wound care, NPWT, Prisma
- Duration of >3.5 months; 1/18/2019 – 5/14/2019; wound stalled
- BlastX initiated: 5/14/2019
- Measurement: 1.5x1.2cm<sup>2</sup>; 8.0cm depth
- Treatment: sharp debridement, BlastX every two days
- Week 4: 5/23/2019 wound healed

### REFERENCE

The most common post-operative complication is surgical site infections (SSIs)

-Furuya, 2010

SSI arise at the exposed site of the body where the surgery took place

-Johns Hopkins, 2019

A more recent guideline identified that colon surgery carries the highest risk of an SSI

-Harris et al, updated 2017

Furuya, EY. Infectious Diseases (Third Edition); Vol 2, Chapter 132 - Antibiotic prophylaxis, 2010, 1323-1332. Johns Hopkins Medical, 2019; Surgical Site Infections. Retrieved December 6, 2019 from <https://www.hopkinsmedicine.org/health/conditions-and-diseases/surgical-site-infections>. Harris et al, updated 2017; Best Practice Recommendations: prevention and management of surgical wound complications Retrieved from woundscanada.ca: <https://www.woundscanada.ca/docman/public/555-bpr-prevention-and-management-of-surgical-wound-complications-v2>.

### VISUALS



5/14/2019



5/14/2019 Post NPWT Dressing

### RESULTS

**Wound area reduction 100% in 10 days of starting BlastX™ Antimicrobial Wound Gel**

### QUOTE

***“Irradiated tissue is hard to heal and fragile. Developing an abscess compounded the chronicity of the wound requiring IV antibiotics. As the wound healed the sponge became too large for the small external opening and had to be discontinued. By using BlastX on a collagen rope dressing and placed into the small opening the wound closed quickly and has not reopened.”***

**Janis Harrison, RN, BSN, CWOCN**

# A NEXT SCIENCE® CASE STUDY

## DOUBLE MASTECTOMY – SURGICAL DEHISCENCE

### DETAIL

- Comorbid pathology including: Hx of breast cancer, chemotherapy; incision failed to close
- Current exam: non-healing surgical incision w/removal of floating suture 1.3cm in length x1
- Previous treatment: standard wound care, Silvadene with adhesive bandage
- Duration of >3 months; wound stalled
- BlastX initiated: 8/27/2019
- Measurement: 1.5x1.7cm<sup>2</sup>; 0.2cm depth
- Treatment: sharp debridement, BlastX w/ Prisma, Mepilex border three x week
- Week 2: 9/5/2019; initial closure 10 days
- Reopened 9/24/2019, second floating suture fragment removed 0.4x1.0cm<sup>2</sup> reimplemented BlastX, Prisma, and Mepilex Border wound closed in 8 days

### REFERENCE

Olsen et al. reported higher risk of SSIs after bilateral compared to unilateral mastectomy-only in women with breast cancer using NSQIP data and found that bilateral surgery was an independent risk factor for surgical complications

-Olsen, 2016.

Olsen, M. A., Nickel, K. B., Margenthaler, J. A., Fox, I. K., Ball, K. E., Mines, D., ... Fraser, V. J. (2016). Development of a Risk Prediction Model to Individualize Risk Factors for Surgical Site Infection After Mastectomy. *Annals of surgical oncology*, 23(8), 2471–2479. doi:10.1245/s10434-015-5083-1

### VISUALS



Healed: 10/1/2019

### RESULTS

***Wound area reduction 100% in 10 days of starting BlastX™ Antimicrobial Wound Gel***

### QUOTE

***“With the use of BlastX, the stitches that were keeping the wound from closing were brought to the surface with the use of the biofilm care and debris removing factors of the BlastX gel.”***

***Janis Harrison, RN, BSN, CWOCN***

# A NEXT SCIENCE® CASE STUDY

## UNSTAGEABLE SACRAL PRESSURE INJURY W/ESCHAR

### DETAIL

- Comorbid pathology including: severe mental incapacity w/akinesia and constant motion; weight loss; Stage III PI post debridement
- Current exam: pt. on air fluidized bed, high calorie diet, up for meals only
- Previous treatment: surgical debridement x 2, standard wound care, Prisma with Allevyn Life
- Duration of >5 months; wound stalled
- BlastX initiated: 8/1/2019
- Measurement: 0.2x0.2cm<sup>2</sup>; 0.4cm depth
- Treatment: BlastX, Prisma three x week
- Week 2: 8/15/2019 wound closed; increased activity, ROHO cushion in W.C; wound rechecked 9/19/2019 remains closed

### REFERENCE

A hard-to-heal wound is defined as a wound that has failed to heal 40-50% in 4 weeks with Standard of Care (SoC). A key factor in hard-to-heal or slow healing wounds is biofilm. Wound area reduction metrics provide wound care clinicians with an expected trajectory of healing, 40–50% reduction at four weeks, can be reasonably applied to all wounds with Standard of Care.

- Atkin, 2019

Atkin L, et al. Implementing TIMERS: the race against hard-to-heal wounds. J Wound Care 2019; 28(3 Suppl 3): S1–S49

### VISUALS



8/1/2019



Healed: 8/15/2019

### RESULTS

**Wound area reduction 100% in 15 days of starting BlastX™ Antimicrobial Wound Gel**

### QUOTE

***“A patient’s ability to heal depends on many factors, as this case demonstrates, even under compromised circumstances. This patient had been taken to surgery 2 different times to have surgical debridement. Once the BlastX™ was started, the tissue grew and the biofilm did not, and she closed quickly. “***

***Janis Harrison, RN, BSN, CWOCN***

# A NEXT SCIENCE® CASE STUDY

## CHRONIC STAGE 3 SACRAL PU/PI

### DETAIL

#### 67-year-old female post hospice care CVA with a chronic Stage 3 Sacral PU/PI

- Comorbid pathology including: Hx of CVA w/hospice, two previous inpatient and skilled nursing admissions w/failed wound healing and compulsory discharge to care of daughter; admitted to home health care on 9/6/18 for physical therapy (wound was identified on PT admission exam).
- Current exam: open wound 2.0x2.0cm<sup>2</sup>; 0.5cm depth; w/undermining 2.1cm; moderate serous drainage; 30% slough
- Previous treatment: standard wound care, Optifoam AG w/silicone border; Bactroban and Triad paste w/skin prep and bordered foam dressing.
- Duration of >2 years
- BlastX initiated: 4/23/2019 2 x per week
- Measurement: 0.7x0.9cm<sup>2</sup> undermining 6-9 o'clock 2.1cm
- Treatment: cleanse/irrigate w/dsg change, BlastX every two days
- Week 4: 86% wound area reduction 5/21/2019

### REFERENCE

4-week surrogate marker of healing > 50%, is a robust predictor of healing regardless of etiology.

- *Cardinal, 2008*

Cardinal et al. Wound Repair & Regeneration, 2008; 16(1): 19-22

### VISUALS



4/23/2019



5/21/2019



Healed: 5/23/2019

### RESULTS

**86% wound area reduction within 28 days of starting BlastX™ Antimicrobial Wound Gel**

### QUOTE

***"I am again amazed how quickly BlastX healed this 2 year-old chronic wound."***

***Karlene Wood, RN, WCC, CWS***