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SURE | SWIFT | SAFE

SUCCESS STORIES

2024 Brochure Case Studies

SilverStream

A SUPERIOR WOUND MANAGEMENT SOLUTION

The Power of Synergy

CASE STUDIES DONE IN INDIA | ISRAEL | MEXICO | USA

SilverStream Medical

MEDICAL DEVICE MD

SilverStream® is intended for management of wounds such as:

- **Stage I-IV Pressure Ulcers**
- **Stasis Ulcers**
- **Post-Surgical Wounds**
- **Diabetic Foot Ulcers**
- **First And Second-Degree Burns**
- **Cuts, Abrasions and Minor Skin Irritations**

Silverstream® is a sterile buffered solution with pleasant odor.

Silverstream® is a clear solution, protected from microbial contamination by a low concentration ionic silver.

Each mL contains an antimicrobial ionic silver in the form of silver nitrate 0.01% (w/v).

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THE POWER OF SYNERGY

INGREDIENT	ACTION	DESCRIPTION
Ag NO3	Preservative & Anti-microbial agent	Ionic silver kills on contact and inhibits the growth of bacteria, yeast, and fungi
Menthol	Penetration enhancer, Growth promoter, Pain reliever, Odor fighter	Enhances ionic silver antimicrobial activities & fights wound odor. Promotes granulation tissue growth by vasodilatation
Tween 20	Surfactant and Detergent	Enhances solution penetration into the biofilm Acts as wound cleansing detergent
Glycerol	A hypertonic aqueous solution that prevents macerations Soothing agent	Aids mechanical removal of exudates and microorganisms Creates Hydrogel function by absorbing water molecules
Tris Buffer	Buffered neutral pH	Biocompatible to physiological pH

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Diabetic Ulcers

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1

AMPUTATED NON-HEALING DIABETIC FOOT ULCER HEALED

By Dr. Yuriria Aguilar Carsolio

Place: Clínica Comedem, Mexico

Study Initiated on: 08/2022

Age of Patient: 80 yrs

Sex: Female

Type of Wound: Diabetic, left foot amputation plus infection

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Patient with history of **Diabetes,** lead to hospitalization and surgery leading to **amputation** followed by **non-healing wound with infection** that went unattended and developed uncontrollably.

Post Surgical healing delayed with **non-healing wound with infection**.

Previous treatment used:

Amputation followed by **hospitalization** with **antibacterials** along with **other dressings.**

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AMPUTATED NON-HEALING DIABETIC FOOT ULCER HEALED

SilverStream Treatment :

SilverStream was applied **10 ml once a day** for 6 weeks followed by once a day dressing.

Within a week, the **wound was clean** with **no signs of infection**. **Increased blood circulation observed**, with **granulation tissue** covering the wound. Within 6 weeks, the foot was completely covered with **fresh granulation tissue** and the **foot was almost completely healed**.

No. of 500 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0	AFTER SILVERSTREAM - WEEK 1	AFTER SILVERSTREAM - WEEK 4	AFTER SILVERSTREAM – WEEK 6

Doctor Speaks:

Fast healing, excellent results. The patient did not have any adverse reactions or discomfort.

Wound Characteristics	Week 0	Week 6
Wound Size	16cm²	5 cm²
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes
Non-viable Tissue	Yes	No

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2

AMPUTATED DIABETIC FOOT ULCER

By Dr. Rajesh Kesavan

Place: Chennai, India

Study Initiated on: 03/2013

Age of Patient: 65 yrs

Sex: Male

Type of Wound: Amputated Diabetic Foot with Infection

Age of Wound: 16 weeks

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Heavily infected Diabetic Ulcer lead to amputation of toes. The wound continued to remain in **non-healing phase for further 8 weeks due to chronic infection.**

Previous treatment used:

Surgical debridement performed with conventional **Saline and Betadine dressings.**

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AMPUTATED DIABETIC FOOT ULCER

SilverStream Treatment :

30 ml of SilverStream used per treatment. **Thrice a week dressing regime for 3 weeks** leading to **complete infection elimination. Successful skin grafting performed.**

No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM - WEEK 2

AFTER SILVERSTREAM - WEEK 3

Doctor Speaks: ”

The wounds had very good granulation tissues, and hence treatment proved to be effective against chronic wounds.

Wound Characteristics	Week 0	Week 3
Wound Size	15cm^2	Skin Grafting done
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, 100%
Non-viable Tissue	Yes, 100%	No. 0%

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3

AMPUTATED 9 MONTH OLD DIABETIC FOOT ULCER

By Dr. Kiran Bhise

Place: Pune, India

Study Initiated on: 02/2012

Age of Patient: 56 yrs

Sex: Female

Type of Wound: Amputated Diabetic Foot Ulcer

Age of Wound: 36 weeks

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Patient with history of **Type II Diabetes** since 20 years developed **neuropathy** followed by **small toe infection** that went unattended and developed uncontrollably. This lead to hospitalization and surgery leading to **amputation of all 5 toes**. Post Surgical healing delayed with **non-healing wound** beyond 3 months.Wound condition worsened with **constant oozing out of pus and reduced circulation in wound.**

Previous treatment used:

Amputation followed by **hospitalization** with **antibacterials** along with **saline and betadine dressings.**

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AMPUTATED 9 MONTH OLD DIABETIC FOOT ULCER HEALED

SilverStream Treatment :

SilverStream was applied **25 ml twice a day** for 1 week followed by once a day dressing.

Within a week, the **wound was clean** with **no signs of infection**. **Increased blood circulation observed**, with **granulation tissue** covering the wound. Within 20 weeks, the foot was completely covered with **fresh granulation tissue** and the **foot was almost healed**. All the **oral antibiotics were discontinued** after SilverStream treatment and the wound **completely healed**.
No. of 250 ml SilverStream Bottles Used: **6**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM - WEEK 12

AFTER SILVERSTREAM - WEEK 20

Doctor Speaks: ”

Infection had come in control with just first use. A very good topical anti-infective with biofilm penetration ability.

Wound Characteristics	Week 0	Week 20
Wound Size	9cm^2	1cm^2
Signs of Infection	Yes	Yes [10% of original]
Granulation Tissue	No, 0%	Yes, 20%
Non-viable Tissue	Yes, 10%	No. 8%

Venous Ulcers

4

24 WEEKS OLD VENOUS ULCER ON THE LEG

By Dr. Anirudh Mene

Place: Bhilai, India

Study Initiated on: 06/2013

Age of Patient: 62 yrs

Sex: Male

Type of Wound: Infected Venous Ulcer

Age of Wound: 24 weeks

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Venous ulcer on the foot, **with prominent signs of infection and biofilm presence.**

No debridement was performed.

Previous treatment used:

Oral antibacterials administered.

Topical treatment done with conventional saline dressings alongside.

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24 WEEKS OLD VENOUS ULCER ON THE LEG

SilverStream Treatment :

25 ml of SilverStream used per treatment - **once a day dressing routine followed for 3 weeks**. **Infection elimination observed on day 6.**
Skin grafting performed **successfully** after 25 days.

No. of 250 ml SilverStream Bottles Used: **2**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM WEEK 0.9 (DAY 6)

AFTER SILVERSTREAM WEEK 3.5 (DAY 25)

Doctor Speaks: ”

Very effective against infections with enhanced biofilm penetration. Helps wounds heal faster and leads to greater acceptance of Skin Grafts.

Wound Characteristics	Week 0	Week 3.5
Wound Size	12 cm^2	Skin grafting done
Signs of Infection	Yes, 100%	No
Granulation Tissue	No, 0%	Yes, 100%
Non-viable Tissue	Yes, 100%	No. 0%

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20 WEEKS OLD CHRONIC VENOUS ULCER WITH PRESENCE OF *PSEUDOMONAS INFECTION*

By Dr. Sandeep Naphade

Place: Pune, India

Study Initiated on: 07/2013

Age of Patient: 57 yrs

Sex: Male

Type of Wound: Infected Venous Ulcer

Age of Wound: 20 weeks

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Infected Venous Ulcer With Cavity. Recurring In Nature. Signs Of *Pseudomonas aeruginosa* infection leading to **exudating wound.**

Previous treatment used:

Compression therapy along with **hydrocolloid and foam dressing** changes.

Topical antiseptics and oral antibacterials used alongside on a regular basis for 6 months.

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20 WEEKS OLD CHRONIC VENOUS ULCER WITH PRESENCE OF *PSEUDOMONAS INFECTION*

SilverStream Treatment :

~20-25 ml of SilverStream solution was used once a day for 1.5 weeks.
Infection Reduction observed with **gradual reduction in wound cavity** size**.**

No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM- WEEK 1.5

Doctor Speaks:

A very good, patient friendly anti-infective solution. Helped wounds heal faster making it ready for grafting.

Wound Characteristics	Week 0	Week 1.5
Wound Size	7 cm^2	6 cm^2 with no infection
Signs of Infection	Yes, 100%	No
Granulation Tissue	No, 0%	Yes, 100%
Non-viable Tissue	Yes, 100%	No. 0%

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6

AMPUTATED LEG WITH VENOUS ULCER ON THIGHS

By Dr. Manoj, Dr. Mehta

Place: Baroda, India

Study Initiated on: 03/2012

Age of Patient: 50 yrs

Sex: Male

Type of Wound: Amputated Leg with Venous Ulcer on Thigh

Age of Wound: 24 Weeks

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Right leg amputated up till the thigh region (Previous case history not available) with further **Chronic non healing venous ulcer in the thigh region** with absolutely **no blood flow.**

Previous treatment used:

The patient was being treated with **Piperacillin + Tazobactum intravenously,** along with **Cefpodoxime and Augmentin orally**.

Saline and Betadine routine dressings done topically.

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AMPUTATED LEG WITH VENOUS ULCER ON THIGHS

SilverStream Treatment :

35 ml SilverStream solution used per treatment. Dressing done **thrice a week for 3 weeks**. Surgical Debridement performed once during the treatment. After 3 weeks of treatment, **complete infection elimination** observed with **increased blood circulation** making the ulcer ready for Grafting.

No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM- 3 WEEKS

Doctor Speaks: ”

SilverStream helped to improve the blood flow by eliminating necrotic tissue coupled with surgical debridement

Wound Characteristics	Week 0	Week 3
Wound Size	20 cm^2	ready for skin grafting
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, 100%
Non-viable Tissue	Yes, 100%	No. 10%

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7

ELIMINATION OF *PSEUDOMONAS* INFECTION FROM 6 YEAR OLD VENOUS ULCER

By Dr. K R Sharath

Place: Bangalore, India

Study Initiated on: 07/2012

Age of Patient: 65 yrs

Sex: Male

Type of Wound: Infected Venous Ulcer

Age of Wound: 6 yrs

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Patient operated for left foot **venous infection** 6 years back. **Non-healing venous ulcer** developed post surgery. **Skin grafting** was performed. However, the **ulcer resurfaced with secretions** after few months. As per **biopsy, venous doppler and culture sensitivity test – detection of** *Pseudomonas aeruginosa* **bacteria detected.**

Previous treatment used:

Patient was subjected to **Amikacin antibiotic injections** along with routine **Betadine dressing** changes.

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ELIMINATION OF *PSEUDOMONAS* INFECTION FROM 6 YEAR OLD VENOUS ULCER

SilverStream Treatment :

30 ml SilverStream used per treatment with **thrice a week** dressing changes for **8 weeks.**

Elimination of ***Pseudomonas aeruginosa*** was observed leading to a **healthy red wound** which was later taken for **skin grafting.**

No. of 250 ml SilverStream Bottles Used: **5**

BEFORE SILVERSTREAM WEEK 0

DURING TREATMENT WITH SILVERSTREAM - WEEK 4

AFTER COMPLETE TREATMENT WITH SILVERSTREAM- WEEK 8

Doctor Speaks:

SilverStream helped in wound healing process by elimination of bacterial load on the wound bed.

Wound Characteristics	Week 0	Week 8
Wound Size	12.5 cm^2	Skin grafting done
Signs of Infection	Yes	No
Granulation Tissue	No, 20%	Yes, 100%
Non-viable Tissue	Yes, 70%	No. 10%

8

ENHANCING EFFICACY IN VENOUS ULCERATION: RESIDUAL FIBRIN BIOMATERIAL REMOVAL WITHOUT DEBRIDEMENT

By Darlene Saucier APRN, MSN, BC-FNP, CWCN Catherine T. Milne APRN, MSN, BC-ANP/CNS

CWOCN Connecticut Clinical Nursing Associates

Place: LLC Bristol, Connecticut, USA

Study Initiated on: 2012

Presented at SAWS Spring 2012 event

Type of Wound: Infected Venous Ulcer

Clinical Problem:

Topical antimicrobial therapy has been shown to be an effective method to address critical colonization. Silver, in ionic or nanocrystalline forms, are available in a variety of dressing types. 1 There is currently limited literature2 regarding outcomes associated with a topical liquid form of ionic silver with menthol in wound cleansing.

Method:

A case series of six patients with long standing venous stasis ulcerations previously treated with standard care (saline irrigation, debridement, topical antimicrobial therapy, compression and lymphedema therapy as appropriate) were discontinued from topical antimicrobial therapy and started on a wound cleansing routine using topical silver nitrate liquid with menthol. At each dressing change, a ten minute soak of a topical ionic silver nitrate solution with a 0.05% menthol applied via gauze was performed. All other aspects of care continued except patients received an absorptive dressing without antimicrobial therapy prior to application of compression. Evaluated outcomes included wound assessment parameters and patient pain.

Results:

Five of six patients showed improvement in overall wound dimensions. **All patients demonstrated removal of residual fibrin biomaterial without debridement**. Five of six patients reported no pain upon application of the topical silver nitrate liquid, with one reporting slight transient burning. No other adverse events were noted.

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ENHANCING EFFICACY IN VENOUS ULCERATION: RESIDUAL FIBRIN BIOMATERIAL REMOVAL WITHOUT DEBRIDEMENT

Type of Wound: Infected Venous Ulcer

Patient #: 1

SilverStream Treatment :

At each dressing change, a ten minute soak of a topical ionic silver nitrate solution with a 0.05% menthol applied via gauze was performed. All other aspects of care continued except patients received an absorptive dressing without antimicrobial therapy prior to application of compression.

WEEK 1

WEEK 3

WEEK 5

Conclusion: *A topical liquid silver nitrate solution with menthol is a viable option for wound cleansing in venous stasis ulcerations. Wound cleansing with this agent may reduce overall pain. Improvements in wound bed appearance in this case series suggest further studies are needed to determine impact on biofilm in these wounds.*

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ENHANCING EFFICACY IN VENOUS ULCERATION: RESIDUAL FIBRIN BIOMATERIAL REMOVAL WITHOUT DEBRIDEMENT

Type of Wound: Infected Venous Ulcer

Patient #: 2

SilverStream Treatment :

At each dressing change, a ten minute soak of a topical ionic silver nitrate solution with a 0.05% menthol applied via gauze was performed. All other aspects of care continued except patients received an absorptive dressing without antimicrobial therapy prior to application of compression.

WEEK 1

WEEK 3

WEEK 5

WEEK 7

Conclusion: *A topical liquid silver nitrate solution with menthol is a viable option for wound cleansing in venous stasis ulcerations. Wound cleansing with this agent may reduce overall pain. Improvements in wound bed appearance in this case series suggest further studies are needed to determine impact on biofilm in these wounds.*

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ENHANCING EFFICACY IN VENOUS ULCERATION: RESIDUAL FIBRIN BIOMATERIAL REMOVAL WITHOUT DEBRIDEMENT

Type of Wound: Infected Venous Ulcer

Patient #: 3

SilverStream Treatment :

At each dressing change, a ten minute soak of a topical ionic silver nitrate solution with a 0.05% menthol applied via gauze was performed. All other aspects of care continued except patients received an absorptive dressing without antimicrobial therapy prior to application of compression.

WEEK 1

WEEK 2

WEEK 3

Conclusion: *A topical liquid silver nitrate solution with menthol is a viable option for wound cleansing in venous stasis ulcerations. Wound cleansing with this agent may reduce overall pain. Improvements in wound bed appearance in this case series suggest further studies are needed to determine impact on biofilm in these wounds.*

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TREATMENT OF MILDLY INFECTED AND NON-PROGRESSING DIABETIC FOOT ULCERS AND VENOUS LEG ULCERS

By Adam Landsman, DPM, PhD, FACFAS
Chief, Division of Podiatric Surgery,
Place: Cambridge Health Alliance, and Harvard Medical School, Cambridge, MA, USA

Abstract:

This study represents the first prospective study for the treatment of mildly infected and non-progressive diabetic foot ulcers treated with SilverStream, a clear hypertonic solution that is composed of silver ions, menthol and surfactants.

Data from 44 wounds was examined to determine the change in overall appearance and condition following either daily or weekly treatment with SilverStream® over a period of 5 weeks.

Based on data collected at 8 independent sites, we found that the wounds demonstrated significant decreases in wound discharge, odor and the presence of necrotic or non-viable tissue.

At the same time, wounds demonstrated a proportional increase in the percentage of granulation tissue. In fact, 21.5% of the wounds closed completely in 5 weeks or less, and the average decrease in wound size during the same period of time was 46%. This preliminary data strongly supports the author's feeling that SilverStream will fill a unique niche in the treatment of DFU's by optimizing conditions necessary for these wounds to close.

Materials and Methods:

Clinicians from 8 independent wound care centers were asked to treat their most difficult wounds with SilverStream. Most clinicians asked the patients to wash the wound on either a daily or weekly basis. Photographs were taken at the beginning of treatment, and subsequently, on a weekly or bi-weekly basis. Wounds were evaluated subjectively to determine the following:

- Wound size (cm2) measured at baseline, 3 weeks, and 5 weeks.
- Presence of clinical signs of infection (baseline and 5 weeks)
- Percentage of granulation tissue covering the wound bed (baseline and 5 weeks)
- Percentage of non-viable tissue on the wound surface (baseline, 3 weeks, and 5 weeks)
- Physician perception of treatment (improved/worsened/unchanged)
- Patient perception of treatment (pain, discomfort, soothing, other)
- Adverse Events

Data from all 8 sites was pooled, resulting in a total of 44 evaluable wounds. Outcomes from this preliminary study are presented here.

Inclusion/Exclusion Criteria

Inclusion	Exclusion
• Diabetic or Venous Stasis Ulcer • Wagner Grade 1 or 2 • Tolerate off-loading w/healing shoe, fixed ankle walker, or NWB • Age 18-70 • IDDM or NIDDM	• Exposed Bone • Osteomyelitis assoc. w/ ulcer • Evidence of gangrene

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TREATMENT OF MILDLY INFECTED AND NON-PROGRESSING DIABETIC FOOT ULCERS AND VENOUS LEG ULCERS

An analysis was performed to examine the effects of SilverStream on diabetic foot ulcers and venous leg ulcers located in a variety of locations on the legs and feet. A total of 44 wounds were analyzed from 38 patients. Data was collected from 8 distinct clinical sites.

Patients enrolled in this study were given adequate supply of the SilverStream wound irrigant, as needed according to their physicians treatment recommendations.

SilverStream Treatment : Most patients applied the irrigant to their wound on either a daily basis or every other day.

The average number of applications was 4.8 times per week. In addition, most applied a gauze dampened with the SilverStream solution to the foot as part of their bandage regimen. Ultimately, there was sufficient data to analyse 41 of the 44 wounds.

Results:

In this study, the average wound measured 19.1cm2 initially. Each wound was tracked and data was recorded after 3 weeks and 5 weeks of treatment.

At 3 weeks, the average wound measured 17.9cm2 , and by week 5, the average wound measured 14.9cm2. This data can be seen in **Figure 2.**

A typical case showing reduction in size of a treated wound can be found in **Figure 3**, below.

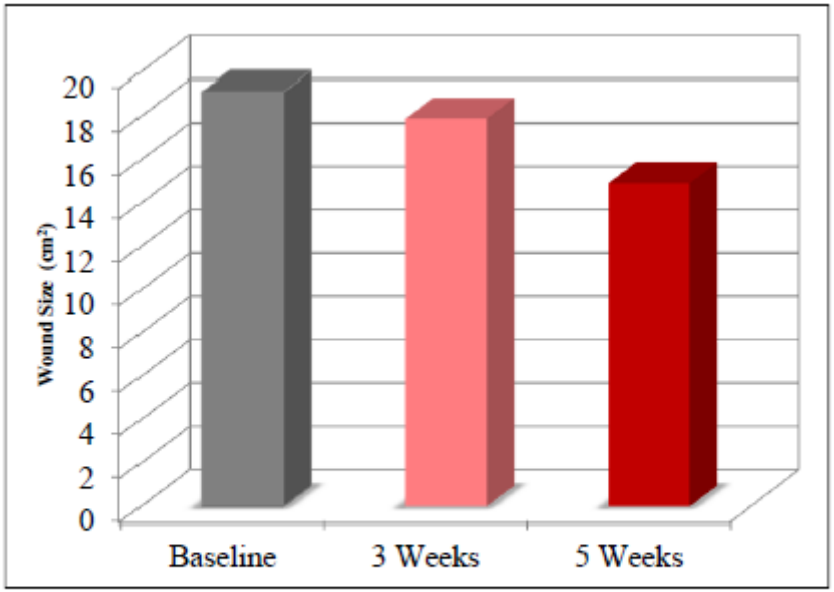

FIG. 2: Average wound size (cm^2) at Baseline, and after 3 weeks and after 5 weeks.

FIG. 3:

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TREATMENT OF MILDLY INFECTED AND NON-PROGRESSING DIABETIC FOOT ULCERS AND VENOUS LEG ULCERS

Results (Continued):

This study highlights the efficacy of the SilverStream solution in wound management.

- Over the 5-week observation period**, 92% of wounds exhibited a measurable decrease in size,** with an average reduction of 46% compared to the initial area.
- Notably, complete wound **closure was achieved in 21.5% of cases**.
- Adverse events were virtually non-existent, with only one case reporting hypersensitivity to the silver (3.3%).
- **60.6% of the patients indicated that the solution created a soothing sensation,** while 12% reported some level of discomfort during the irrigation and wound dressing process which or may not be attributable to the solution.
- A crucial finding is the SilverStream solution's capacity to reduce infection. 10 of the wounds initially showed some signs of infection, including odor, purulence, local erythema or cellulitis. Following treatment**, 100% of the cases showed complete resolution of any signs of infection.**
- Furthermore, Silverstream **facilitated the development of granulation tissue** while removing of non-viable (necrotic or fibrous) areas
- Overall, there was an average 19% increase in granulation tissue coverage and a 9.4% reduction in the wound area covered with fibrous and non-viable tissue.
- A typical clinical example of the development of granulation tissue and reduction in fibrous material can be seen in **Figure 4.**

FIG. 4: The initial wound is covered with approximately 60% fibrous tissue, more proximally. After 5 weeks treatment with SilverStream, the wound shows a granular base, and no fibrotic or non-viable tissue.

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TREATMENT OF MILDLY INFECTED AND NON-PROGRESSING DIABETIC FOOT ULCERS AND VENOUS LEG ULCERS

Conclusions:

Role in Chronic Wound Treatment:

- SilverStream plays a critical role in treating diabetic foot ulcers and venous leg ulcers.
- Specifically designed for enhancing wound healing in chronic, non-progressive wounds.

Wound Characteristics Improvement:

- Wounds treated with SilverStream exhibited increased granulation tissue formation.
- Decreased presence of non-viable tissue.
- Biofilm removal, demonstrated by a reduction in slough tissue on wound surfaces.

Wound Size Reduction:

- 92% of wounds showed a decrease in size.
- Average reduction in wound size by 46% over 5 weeks of observation.

Patient Experience:

- Most patients found the solution soothing, attributed to the menthol component.
- Menthol contributes to a cooling and calming effect, combats odors, and disrupts slough and biofilms.

Antimicrobial Efficacy:

- The ionic silver component, known for its antimicrobial properties, led to 100% resolution of wounds with signs of infection by week 5.

Attributes Beyond Wound Closure:

- While SilverStream aids in wound closure, its primary attribute lies in normalizing conditions within the wound bed.
- Reduction in slough, increased granulation tissue, odor control, and bacteria load reduction were observed.

Overall Wound Condition Improvement:

- Investigators noted clear improvement in the overall condition of wounds treated with SilverStream.

Versatile Usage:

- SilverStream can serve as an excellent daily wound treatment.
- It is suitable for preparing wounds for advanced biologic tissue grafts and skin substitutes

Pressure Ulcers

10

INFECTED STAGE III, PRESSURE ULCER ON HIP REGION

By Dr. Praveen Pande

Place: Delhi, India

Study Initiated on: 06/2013

Age of Patient: 63 Yrs

Sex: Male

Type of Wound: Infected Pressure Ulcer

Age of Wound: 2 weeks

Wound Condition before SilverStream:

Highly exudating cavitative pressure ulcer on the hip**,** with **pus, necrotic tissues** and clearly visible **signs of infection**.

Previous treatment used:

Surgical debridement on the wound performed; followed by alternate **Megaheal and Betadine dressings;** without any significant changes observed.

BEFORE SILVERSTREAM - WEEK 0

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INFECTED STAGE III, PRESSURE ULCER ON HIP REGION

SilverStream Treatment :

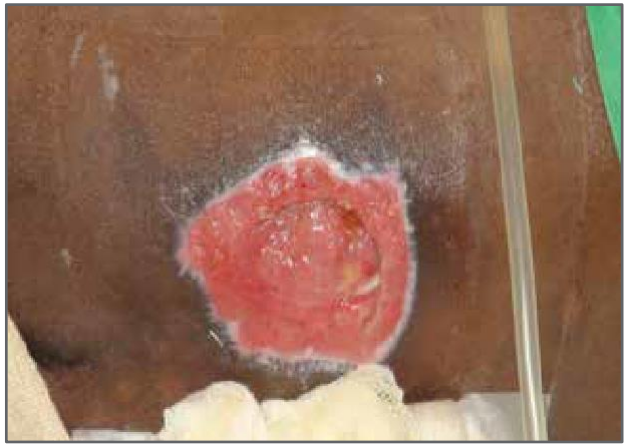
15-20 ml SilverStream used per treatment, **everyday for 15 days. Complete elimination of infection** observed with **significant reduction** in **wound cavity size** in **2 weeks time.**

No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM - WEEK 1

AFTER SILVERSTREAM - WEEK 2



Doctor Speaks:

SilverStream is very effective and has a very good reach to penetrate the underlying bacterial bio lm and clear the infection.

Wound Characteristics	Week 0	Week 2
Wound Size	15 cm^2	12 cm^2
Signs of Infection	Yes, 100%	N o
Granulation Tissue	No, 0%	Yes, 100%
Non-viable Tissue	Yes, 100%	No, 0%

SilverStream Medical

8 MONTH OLD PRESSURE ULCER OF A PARAPLEGIC PATIENT

By Dr. Kiran Bhise
Place: Pune, India
Study Initiated on: 02/2012
Age of Patient: 52 yrs
Sex: Female
Type of Wound: Infected Pressure Ulcer
Age of Wound: 32 weeks

AFTER DEBRIDEMENT
BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:
Chronic pressure ulcer developed **on the hip** of a **diabetic Paraplegic patient.**
Consequence = delayed healing.

Previous treatment used:
Surgical debridement was performed leading to **infected cavitative ulcers.** Daily **Saline and Betadine** dressings done with **no significant signs of healing.** Wound in existence for over **16 weeks.**

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8 MONTH OLD PRESSURE ULCER OF A PARAPLEGIC PATIENT

SilverStream Treatment :

Initial treatment for 4 weeks: **20 ml SilverStream, twice daily** Subsequent treatment for 6 weeks: **20 ml SilverStream, once daily Reduction in wound infection** observed within **first 2 weeks of SilverStream treatment.**
Complete wound closure achieved in **10 weeks** of SilverStream treatment.

No. of 250 ml SilverStream Bottles Used: **7**

AFTER DEBRIDEMENT & BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM WEEK 5

AFTER TREATMENT WEEK 10

Wound Characteristics	Week 0	Week 10
Wound Size	7 cm^2	2.5cm^2
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, 70%
Non-viable Tissue	Yes, 20%	No. 0%

Doctor Speaks: ”

Good product. Helped heal a non healing wound in just 2 months which did not heal for almost a year.

Burns

SilverStream Medical

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FURNACE BURNS ON FOREARM SEVERELY INFECTED WITH *STAPHYLOCOCCUS AUREUS*

By Dr. Anirudh Mene

Place: Bhilai, India

Study Initiated on: 06/2013

Age of Patient: 30 yrs

Sex: Male

Type of Wound: Furnace Burn

Age of wound: 1 week

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

2nd degree burns on the forearm of the **patient tested positive on culture for *Staphylococcus aureus*.**

Blood flow on the wound bed hampered due to eschar.

Previous treatment used:

Conventional **saline/Betadine** dressings were used.

No significant changes observed in the **wound bed condition.**

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FURNACE BURNS ON FOREARM SEVERELY INFECTED WITH *STAPHYLOCOCCUS AUREUS*

SilverStream Treatment :

20 ml SilverStream used per treatment everyday for **12 days.**
Complete elimination of infection observed in **4 days.**
Restoration of blood flow in the **wound bed** was seen.
Wound size reduced to **less than half in 12 days.**
No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM WEEK 0.75 (DAY 4)

AFTER SILVERSTREAM WEEK 1.75 (DAY 12)

Wound Characteristics	Week 0	Week 1.75
Wound Size	13.5 cm^2	7 cm^2
Signs of Infection	Yes	No
Granulation Tissue	No, 10%	Yes, 100%
Non-viable Tissue	Yes, 80%	No. 0%

Doctor Speaks: ”

Very effective against infections. Helps wounds heal faster and greater acceptance of Skin Grafts.

SilverStream Medical

3RD DEGREE BURN ON THE ABDOMEN

By Dr. Sandeep Naphade

Place: Pune, India

Study Initiated on: 06/2013

Age of Patient: 35 yrs

Sex: Male

Type of Wound: Chemical Burn Wound

Age of wound: 0 week

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

70% of the abdominal area burnt (1⁰ Burns), severe infection present.

Previous treatment used:

SilverStream used since day 1st to **prevent any systemic infection.**

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3RD DEGREE BURN ON THE ABDOMEN

SilverStream Treatment :

80ml SilverStream was used per treatment, **thrice a week for 3 weeks.**
Complete infection elimination observed with **scab formation.**
Successful skin grafting performed at the end of **3 weeks.**

No. of 250 ml Silver Stream Bottles Used: **2**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM - WEEK 1 AFTER GRAFTING

AFTER SILVERSTREAM - WEEK 3 AFTER GRAFTING

Wound Characteristics	Week 0	Week 3
Wound Size	80% Abdomen area burnt	Skin grafting done
Signs of Infection	Yes, 100%	No
Granulation Tissue	No, 0%	Yes, 85%
Non-viable Tissue	Yes, 100%	No. 20%

Doctor Speaks:

A very good, patient friendly wound cleanser. Helped wounds heal faster and made it ready for grafting.

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DOMESTIC BURN WOUND OF A MINOR ON SHOULDER AND UNDER ARM

By Dr. Dr.Sandeep Naphade

Place: Pune, India

Study Initiated on: 06/2013

Age of Patient:12 yrs

Sex: Male

Type of Wound: Domestic Burn Wound

Age of wound: 0 week

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Child with **burns on left shoulder and underarm region.**

Previous treatment used:

SilverStream used from day 1

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DOMESTIC BURN WOUND OF A MINOR ON SHOULDER AND UNDER ARM

SilverStream Treatment :

40 ml of SilverStream was used every **alternate day for 2 weeks.**
The wound was healed completely followed by skin grafting.

No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 2 AFTER GRAFTING

Doctor Speak:

A very good, patient friendly wound cleanser. Helped wounds heal faster and made it ready for grafting.

Wound Characteristics	Week 0	Week 2
Wound Size	25 cm^2	Skin grafting done
Signs of Infection	Yes, 20%	No
Granulation Tissue	Yes, 20%	Yes, 100%
Non-viable Tissue	Yes, 100%	No. 0%

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PSEUDOMONAS INFECTION ELIMINATION IN AN ELECTRIC BURN PATIENT

By Dr. Dinesh Chauhan
Place: Rajkot, India
Study Initiated on: 04/2012
Age of Patient: 40 yrs
Sex: Male
Type of Wound: Electric Burn
Age of wound: 1 week

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:
Electric burns + *Pseudomonas* infection + debris and secretions.

Previous treatment used:
Saline and Betadine used for 1 week with **no reduction in infection or signs of healing.**

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PSEUDOMONAS INFECTION ELIMINATION IN AN ELECTRIC BURN PATIENT

SilverStream Treatment :

After surgical debridement, **100ml SilverStream** was used daily for **3 weeks.**

No. of 250 ml SilverStream Bottles Used: **3**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 2

AFTER SILVERSTREAM – WEEK 3

Wound Characteristics	Week 0	Week 3
Wound Size	55 cm^2	Skin Grafting done
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, skin grafting done
Non-viable Tissue	Yes, 30%	No. 0%

Doctor Speaks:

A very mild solution for treatment of burns, which did not affect the surrounding granulation tissue and helped in quick healing.

Trauma Cases

16

DEGLOVING INJURY OF THE BACK

By Dr.Sandeep Naphade
Place: Pune, India
Study Initiated on: 05/2013
Age of Patient: 16 yrs
Sex: Male
Type of Wound: Back Degloved
Age of Wound: 1 week

BEFORE SILVERSTREAM WEEK 0

Wound Condition before SilverStream:
16 year old kid with a **trauma induced (degloving) injury** on the back.
Heavily infected with 80% back exposed and **non viable tissue** in the wound.

Previous treatment used:
Wall suction with regular **Saline cleansing and Surgical debridement** showed **no response** over the 1 week period.

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DEGLOVING INJURY OF THE BACK

SilverStream Treatment :

75 ml of SilverStream was used every **alternate day for 3 weeks.**
Sustained reduction in infection observed overtime.
Skin grafting was done post elimination of the infection.

No. of 250 ml SilverStream Bottles Used: **3**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM WEEK 1 AFTER GRAFTING

AFTER SILVERSTREAM WEEK 1 AFTER GRAFTING

Doctor Speaks:

A very good, patient friendly wound cleanser. Helped wounds heal faster and made it ready for grafting.

Wound Characteristics	Week 0	Week 3
Wound Size	80% Back exposed	Skin grafting done
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, 90%
Non-viable Tissue	Yes, 100%	No, 0%

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CHRONIC TRAUMA CASE WITH SEVERE INFECTION ON THE LEG

By Dr. Anirudh Mene
Place: Bhilai, India
Study Initiated on: 05/2013
Age of Patient: 45 yrs
Sex: Male
Type of Wound: Trauma Injury due to Road Accident
Age of Wound: 1 week

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Road accident case with **multiple open factures** was put on **external fixtures.** The **wound developed infection** and the **bone was exposed with poor prognosis and no visible signs of healing.**

Previous treatment used:

Treated with NPWT, but due to external fixtures, **closure could not be achieved.**

In addition, due to **heavy infection, no visible effect of NPWT seen.**

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CHRONIC TRAUMA CASE WITH SEVERE INFECTION ON THE LEG

SilverStream Treatment :

~ 50 ml of SilverStream was used daily for **2 weeks. Substantial wound healing enabled skin grafting to be performed after 2 weeks.**

No. of 250 ml Silver Stream Bottles Used: **3**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 1

AFTER SILVERSTREAM – WEEK 2

Doctor Speaks: ”

Very effective against infections. helped wounds heal faster and facilitated greater acceptance of Skin Grafts.

Wound Characteristics	Week 0	Week 2
Wound Size	75% of left leg exposed & wounded	Skin grafting done
Signs of Infection	Yes	No
Granulation Tissue	Yes, 10%	Yes, skin grafting done.
Non-viable Tissue	Yes, 90%	No. 0%

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TRAUMA CASE OF AMPUTATED STUMP

By Dr. Sandeep Naphade

Place: Pune, India

Study Initiated on: 06/2013

Age of Patient: 42 yrs

Sex: Male

Type of Wound: Amputated Stump

Age of Wound: 0 week

BEFORE SILVERSTREAM WEEK 0

Wound Condition before SilverStream:

Trauma wound, leading to **amputation** of left foot.
Heavily infected with **necrotic tissue and debris all over the wound with oozing.**

Previous treatment used:

SilverStream used from day 1 after **surgical debridement.**

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TRAUMA CASE OF AMPUTATED STUMP

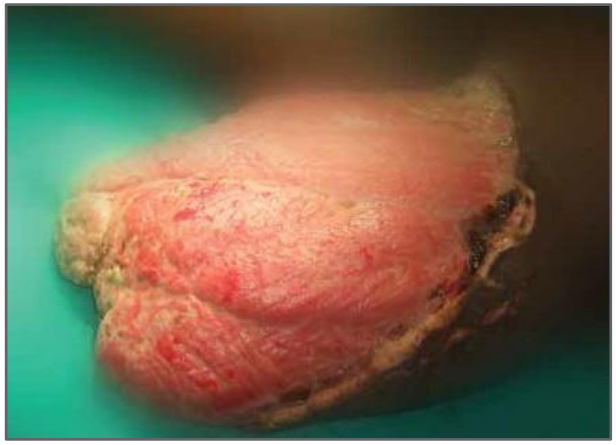
SilverStream Treatment :

20 ml SilverStream treatment **once daily for 2 weeks.**
Infection was cleared completely with visible granulation tissue.
Followed by Skin Grafting.

No. of 250 ml SilverStream Bottles Used: 1

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 1



AFTER SILVERSTREAM - WEEK 2 AFTER GRAFTING

Doctor Speaks: ”

A very good, patient friendly wound cleanser. Helped wounds heal faster and made it ready for grafting.

Wound Characteristics	Week 0	Week 2
Wound Size	20 cm^2	Skin Grafting done
Signs of Infection	Yes, 100%	NO
Granulation Tissue	No, 0%	Yes, 90%
Non-viable Tissue	Yes, 100%	No. 10%

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TRAUMA CASE WITH INFECTED RIGHT LEG

By Dr. Sandeep Naphade

Place: Pune, India

Study Initiated on: 06/2013

Age of Patient: 42 yrs

Sex: Male

Type of Wound: Trauma wound leading to exposure of facia.

Age of Wound: 0 week

BEFORE SILVERSTREAM WEEK 0

Wound Condition before SilverStream:

Facia of the leg exposed due to **severe trauma injury. Heavy signs of infection** present with **pus, debris and non-viable tissue.**

Previous treatment used:

SilverStream used from day 1 after **surgical debridement.**

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TRAUMA CASE WITH INFECTED RIGHT LEG

SilverStream Treatment :

20 ml of SilverStream was used **once daily for 2 weeks.**
The **debris and non – viable tissue cleared** with time and **signs of infection reduced.** This was followed by **Skin Grafting.**

No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM - WEEK 2 AFTER GRAFTING

Doctor Speaks: ”

A very good, patient friendly wound cleanser. Helped wounds heal faster and made it ready for grafting.

Wound Characteristics	Week 0	Week 2
Wound Size	30 cm^2	Skin Grafting done
Signs of Infection	Yes, 100%	No
Granulation Tissue	No, 0%	Yes, 90%
Non-viable Tissue	Yes, 100%	No. 0%

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CHRONIC HIP INFECTION POST TRAUMA INJURY

By Dr. Bhaumik Bhayani
Place: Rajkot, India
Study Initiated on: 02/2012
Age of Patient: 58 yrs
Sex: Female
Type of Wound: Chronic Infection due to Trauma
Age of Wound: 16 weeks

BEFORE SILVERSTREAM WEEK 0

Wound Condition before SilverStream:
Severely infected injury in the **right hip region extending towards the thigh.** Patient met with an accident 1 year ago and the **infection developed 8 months after the treatment due to poor hygiene conditions.**

Previous treatment used:
2 major debridement + 1 minor debridement performed **under anesthesia** with daily **Betadine dressings and oral anti-bacterials.**

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CHRONIC HIP INFECTION POST TRAUMA INJURY

SilverStream Treatment :

~80 ml of SilverStream was used per treatment, **thrice a week for 3 weeks.**
Cessation of infection since 1st application of SilverStream observed.
Skin grafting successfully performed at the end of 3 weeks.

No. of 250 ml SilverStream Bottles Used: **3**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 1.5

AFTER SILVERSTREAM – WEEK 3

Doctor Speaks:

It seemed to be very effective topical antiseptic.

Wound Characteristics	Week 0	Week 3
Wound Size	Buttock + 75% area of right thigh Signs of Infection - Yes	Skin Grafting done
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, 100% skin grafting done
Non-viable Tissue	Yes, 10%	No. 0%

Post Surgery SSI

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POST-SURGERY SSI: COMPLICATION AFTER ARTHRODESIS SURGERY

By Dr. Barash Yaakov

Country: Israel

Study Initiated on: 11/2022

Age of Patient: 67 yrs

Sex: Male

Type of Wound: post Arthrodesis 1st metatarsal phalanx rt foot. DS: HALLUX RIGIDUS

Age of Wound: 4 days post-surgery

BEFORE SILVERSTREAM WEEK 0

Wound Condition before SilverStream:

The patient visited the clinic four days post-discharge following Arthrodesis 1st metatarsal phalanx right foot, specifically for HALLUX RIGIDUS surgery. According to the patient, signs of inflammation around the suture and adjacent area became apparent on the third day after the surgery. Upon in-person examination, clear evidence of inflammation and symptoms of infection was observed.

Previous treatment used: Homecare

Treated with – alcohol

No signs of healing

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POST-SURGERY SSI: COMPLICATION AFTER ARTHRODESIS SURGERY

SilverStream Treatment :

SilverStream only, 5-7 ml SilverStream Solution per change, 2 x changes per day. Without the use of antibiotics. 2 weeks after SilverStream treatment the wound **completely closed.**

HOMECARE

No. of 250 ml SilverStream Bottles Used: < **1**

The patient self-administered SilverStream treatment at home following instructions from the doctor and IFU, including photographing the wound for remote evaluation.
A final in-person examination by the doctor concluded the process.

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 2

Wound Characteristics	Week 0	Week 2
Wound Size	8 cm2	Closed
Signs of Infection	Yes	No
Pain	Yes	No

Doctor Speaks:

This topical antiseptic appears highly effective, particularly for homecare use. Immediate pain reduction was noted after the initial application, with no reported adverse events or reinfection, leading to complete wound healing.

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POST-SURGERY SSI: COMPLICATION AFTER KNEE ARTHROPLASTY

By Dr. Bar-Ziv

Country: Israel

Study Initiated on: 07/2022

Age of Patient: 67 yrs

Sex: Male

Type of Wound: post-surgical: Knee Arthroplasty rt foot

Age of Wound: 4 weeks post-surgery

Wound Condition before SilverStream:

Post-surgical infection: The patient underwent total knee replacement on the right foot. Non-healing and infection persisted for 4 weeks, with a CRP level of 181 (normal range <5). No improvement in infection or healing was observed. Repeat knee replacement surgery was scheduled, but before the procedure, SilverStream was introduced for the first time.

Previous treatment used: Homecare

Treated with Saline, Betadine and other topicals
Oral Antibiotics
No signs of healing

BEFORE SILVERSTREAM WEEK 0

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POST-SURGERY SSI: COMPLICATION AFTER KNEE ARTHROPLASTY

SilverStream Treatment :

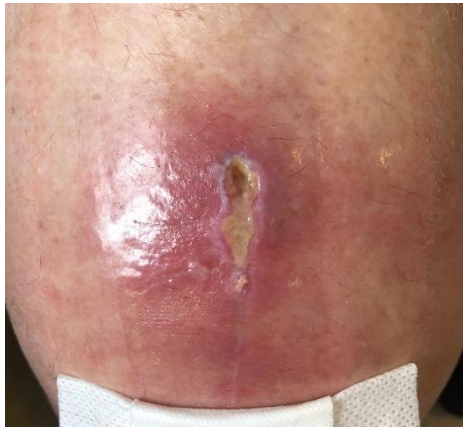
SilverStream only, 5-7 ml SilverStream Solution per change, 2 x changes per day.
Pain reduction after 1-st treatment, No Re-Infection. CRP is back to normal. All the oral antibiotics were discontinued after SilverStream treatment. Compete Recovery after 20 days

HOMECARE

No. of 250 ml SilverStream Bottles Used: **1**

The patient self-administered SilverStream treatment at home based on doctor's instructions and IFU, including photographing the wound for remote evaluation. Intermittent and a final in-person examinations by the doctor concluded the process.

BEFORE SILVERSTREAM WEEK 0



AFTER SILVERSTREAM – WEEK 2

AFTER SILVERSTREAM – WEEK 3

Doctor Speaks:

I find SilverStream solution to be highly effective for post-surgical site infection (SSI) treatment, especially in the context of home care. It has proven to be excellent for home use. In this specific case, it obviated the need for a repeat surgery.

Wound Characteristics	Week 0	Week 3
Wound Size	4 cm2	Closed
Signs of Infection	Yes	No
Pain	Yes	No
Excessive exudate	Yes	No

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POST-SURGERY SSI: COMPLICATION AFTER KNEE ARTHROPLASTY

By Dr. Bar-Ziv

Country: Israel

Study Initiated on: 01/2023

Age of Patient: 62 yrs

Sex: Female

Type of Wound: post-surgical: Knee Arthroplasty left foot

Age of Wound: 3 weeks post-surgery

BEFORE SILVERSTREAM WEEK 0

Wound Condition before SilverStream:

The patient underwent left foot knee replacement surgery. Subsequently, a non-healing wound persisted for three weeks post-surgery.

Previous treatment used: Homecare

The wound was initially treated with iodine and other silver dressings.

There were no discernible signs of wound healing during the specified duration

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POST-SURGERY SSI: COMPLICATION AFTER KNEE ARTHROPLASTY

SilverStream Treatment :

SilverStream only, 10 ml SilverStream Solution per change, 2 x changes per day.
Pain reduction after 1-st treatment, No Re-Infection, No Adverse Event.
Compete Recovery after 3 week.

HOMECARE

No. of 250 ml SilverStream Bottles Used: **1.5**

The patient self-administered SilverStream treatment at home based on doctor's instructions and IFU, including photographing the wound for remote evaluation. Intermittent and a final in-person examinations by the doctor concluded the process.

BEFORE SILVERSTREAM WEEK 0	AFTER SILVERSTREAM – WEEK 1	AFTER SILVERSTREAM – WEEK 3

Wound Characteristics	Week 0	Week 3
Wound Size	8 cm2	Closed
Signs of Infection	Yes	No
Pain	Yes	No
Excessive exudate	Yes	No

Doctor Speaks:

I have consistently observed the remarkable efficacy of SilverStream solution in the treatment of post-surgical site infections (SSI). Its application has demonstrated notable success, particularly in cases following surgery. I find it to be a valuable asset in our arsenal for managing SSI, and its effectiveness in mitigating infection-associated complications post-surgery is truly commendable.

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POST-SURGERY SSI: THERAPY FOR TREATMENT OF IMPLANT ASSOCIATED MDR BACTERIAL INFECTION

By Dr. Chouhan V

Place: Department of Orthopaedics, Consultant Orthopaedic Surgeon, Bombay Hospital, Indore. India

Age of Patient: 40 yrs

Sex: Male

Type of Wound: Post-acetabular surgery developed surgical site infection

Wound Condition before SilverStream:

A 40-year-old male treated for bilateral acetabular fracture sustained after fall from height due to an episode of seizure. After acetabular surgery, he **developed surgical site infection** unresponsive to wound wash and intravenous antibiotics.

Figure 1
Pre-operative X-Rayshowing bilateral quadrilateral plate fracture

Figure 2
Pre-operative CT scan showing bilateral quadrilateral plate fracture.

Figure 3
Post-operative X-Ray showing bilateral fixation.

A 40-year-old male presented with a history of seizures leading to a fall from a height of 10 feet, resulting in injuries to both hips and the left shoulder.

Diagnosis and Treatment Initiation:

Diagnosed with cerebral venous thrombosis and commenced on heparin.

Fracture Diagnosis:

X-rays and CT scans revealed bilateral acetabular fracture and a three-part left proximal humerus fracture.

Surgical Intervention:

Operated for bilateral acetabular fracture using the modified Stoppa's approach.

Fixed with a buttress plate in the true pelvis on both sides.

Postoperative Complications:

Postoperative day 3: Fever and discharge from the suture site.

Pus culture revealed Klebsiella and anaerobes sensitive to cefoperazone sulbactum, clindamycin, and amikacin.

Previous treatment used:

Infection Management Attempts:

Initial antibiotics treatment and wound wash.

Resumed discharge after 3 days, culture showed resistance to cefoperazone sulbactum.

Chloremphenical initiated, reducing pus discharge but not stopping it.

Meropenem started based on sensitivity tests, providing temporary relief.

Full text: J Orthop Case Rep. 2016 Apr-Jun; 6(2): 69–71.

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POST-SURGERY SSI: THERAPY FOR TREATMENT OF IMPLANT ASSOCIATED MDR BACTERIAL INFECTION

SilverStream Treatment :

QiVAS* Therapy Initiation:

About 2 weeks post-surgery, Qurion (under the brand SilverStream in certain countries) solution irrigation with Vacuum Assisted Suction (QiVAS)* therapy initiated.

Single stitches removed at both ends of the suture line, with infant feeding tubes inserted for irrigation and vacuum assisted suction.

Therapy Progress:

Daily Qurion irrigation conducted in the morning and evening, with QiVAS therapy for one hour. After two days of QiVAS therapy, the suture site became dry.

Continued Therapy and Antibiotics:

QiVAS therapy continued for 2 weeks alongside antibiotic meropenem. Blood counts and CRP returned to normal range after 2 weeks of QiVAS therapy.

Patient Discharge and Follow-up:

Patient discharged with no evidence of infection. Follow-up at 3 months and 6 months revealed no signs of infection

Figure 4

Clinical photograph showing QiVAS Therapy.

Figure 5

Clinical photograph showing QiVAS Therapy.

** Note: QiVAS, proposed by the author of this publication, refers to Qurion's irrigation solution under the brand SilverStream in certain countries. QiVAS stands for Vacuum Assisted Suction and represents an innovative approach to agricultural irrigation*

Others

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10 YEAR OLD WOUND WHICH ORIGINATED OUT OF MINOR INJURY

By Dr. Ramesh Juvekar

Place: Mumbai, India

Study Initiated on: 04/2013

Age of Patient: 45 yrs

Sex: Female

Type of Wound: Injury in the foot leading to a chronic wound

Age of Wound: 10 yrs

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

An accidental fall with small injury turned into chronic wound with **no signs of healing.** The **wound size kept increasing** over period of time and **various treatments.** Latest **culture sensitivity test confirmed the presence of *Enterobacter.***

Previous treatment used:

Multiple surgeries and skin grafting performed due to non-healing nature of the wound. **Skin grafts rejected** due to **underlying infection** with **no improvement in the wound status.**

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10 YEAR OLD WOUND WHICH ORIGINATED OUT OF MINOR INJURY

SilverStream Treatment :

~25 ml of SilverStream was used per treatment, **thrice a week for 8 weeks.** **Complete elimination of infection** observed with **70% wound closure.** Treatment still ongoing for **complete healing.**

No. of 250 ml SilverStream Bottles Used: **2.5**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 8

Doctor Speaks: ”

The product helped in reducing the wound size of a 10 years old non healing wound.

Wound Characteristics	Week 0	Week 8
Wound Size	25 cm^2	10 cm^2
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, 70%
Non-viable Tissue	Yes, 100%	No. 10%

SilverStream Medical

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MYSTERIOUS 1 YEAR OLD CHRONIC ULCER ORIGINATED FROM A SHOE BITE

By Dr. Sushil Damor
Place: Baroda, India
Study Initiated on: 03/2013
Age of Patient: 60 yrs
Sex: Male
Type of Wound: Infected Amputated Foot
Age of Wound: 1 year

BEFORE SILVERSTREAM - WEEK 0

Wound Condition before SilverStream:

Shoe bite with small cut in the foot lead to an infected wound spreading up to ankle, which lead to foot amputation. However, persistent **infection and non-healing nature** of the wound further lead to **below knee amputation.** The **signs of infection still visible** in the amputated area.

Previous treatment used:

Saline cleansing along with **Betadine dressings** and **oral antibacterials.**

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MYSTERIOUS 1 YEAR OLD CHRONIC ULCER ORIGINATED FROM A SHOE BITE

SilverStream Treatment :

~30 ml solution of SilverStream was used per treatment, **thrice a week for 3 weeks.**

Complete elimination of infection observed within **3 weeks of treatment.**

No. of 250 ml SilverStream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 3

Doctor Speaks:

The infection was cleared completely in just 15 days, which means the product has a lot of potential.

Wound Characteristics	Week 0	Week 3
Wound Size	11 cm^2	Skin Grafting done
Signs of Infection	Yes	No
Granulation Tissue	No, 10%	Yes, 30%
Non-viable Tissue	Yes, 80%	No. 0%

SilverStream Medical

FOOT ABSCESS WITH CHRONIC INFECTION

By Dr. Kushal Mital

City: Thane

Study Initiated on: 3/2013 **Age of Patient:** 53 yrs **Sex:** Male

Type of Wound: Abscess in the foot

Age of Wound: 12 weeks

BEFORE SILVERSTREAM WEEK 0

Wound Condition before SilverStream:

Infected injury on the **dorsum of the left Foot.** Due to **negligence by patient** for few months, the **wound started spreading.**

Surface skin was cut to clean the internal infection.

Previous treatment used:

Surgical as well as mechanical debridement was performed. But due to **underlying infection,** wound showed **no signs of healing** and **turned into a chronic wound.**

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FOOT ABSCESS WITH CHRONIC INFECTION

SilverStream Treatment :

~ 25-30 ml of SilverStream was used per treatment, for **thrice a week for 3 weeks. Immediate infection reduction** was observed with **good growth of granulation tissues covering the exposed bone even before skin grafting. Skin grafting** performed successfully at the **end of 3 weeks.**

No. of 250 ml Silver Stream Bottles Used: **1**

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM - WEEK 2

AFTER SILVERSTREAM - WEEK 3

Doctor Speaks: ”

Removed infection and helped in formation of granulation tissue.

Wound Characteristics	Week 0	Week 3
Wound Size	10 cm^2	Skin Grafting done
Signs of Infection	Yes	No
Granulation Tissue	No, 0%	Yes, 80%
Non-viable Tissue	Yes, 100%	No. 0%

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NECROTIZING SOFT TISSUE INFECTION AND MULTIPLE BOWEL PERFORATIONS AFTER LIPOSUCTION PROCEDURE

By Cernica Chausha Weitman and Miklosh Balla
Place: Hadassah Medical Center, Jerusalem, Israel
Study Initiated on: 8/2022
Presented at EWMA, May 2023, Milan, Italy
Age of Patient: 43 yrs
Sex: Female
Age of Wound: 5 days after abdominal wall and bilateral thighs liposuction

Type of Wound:

Necrotizing Soft Tissue Infection and multiple bowel perforations after Liposuction Procedure.

Small intestine perforations

Septic shock + acute renal failure Admission to ICU (mechanical ventilation and vasopressor support)

BEFORE SILVERSTREAM

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NECROTIZING SOFT TISSUE INFECTION AND MULTIPLE BOWEL PERFORATIONS AFTER LIPOSUCTION PROCEDURE

SilverStream Treatment :

No. of 250 ml Silver Stream Bottles Used: **21**

~250 ml of SilverStream was used per day, **3 weeks as a wound bed preparation for skin graft.**

Infection reduction was observed with **good growth of granulation tissues covering area even before skin grafting.**

13 skin graft surgeries performed successfully during the treatment.

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM BEFORE SKIN GRAFT

HEALING PROCESS AFTER SKIN GRAFT

Discharge after 5 month of hospitalization:
3 month in ICU
2 month in General Surgery unit

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SILVERSTREAM AND NEGATIVE PRESSURE VACUUM: RESECTION OF PILONIDAL DISEASE

By: Ido Mizrahi, MD, Noemie Nalbandian, RN MPH
Place: Hadassah Hebrew University Medical Center, Israel

Aim

To describe our results with a novel approach **using SilverStream Solution and Negative Pressure Vacuum system for secondary intent wound healing after pilonidal surgery**

Methods

We hereby describe two cases of complicated pilonidal surgery.

- **Patient #1** had a large pilonidal sinus projecting to his right lower buttock. **After complete excision of his disease he was treated with Negative Pressure Vacuum and SilverStream**. His wound was completely closed 8 weeks after surgery.
- **Patient #2** was treated with **SilverStream** alone with complete wound closure 7 weeks after surgery.

Introduction

Pilonidal disease presents with a wide range of symptoms and multiple treatment options exist.

Resection of the disease with primary closure might result with wound infection, delayed wound healing, and recurrence. Hence, surgical resection with secondary intent wound healing is often performed.

Silverstream Solution and Negative Pressure Vacuum system offers rapid wound healing while avoiding wound complications.

No complication was recorded. Both patients reported minimal pain after surgery

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SILVERSTREAM AND NEGATIVE PRESSURE VACUUM: RESECTION OF PILONIDAL DISEASE

Patient # 1				
Week	0	2	4	8
Length	11	10	7	0
Width	4	3.5	2	0
Depth	2	1.5	1	0

Patient #1 had a large pilonidal sinus projecting to his right lower buttock. **After complete excision of his disease he was treated with Negative Pressure Vacuum and SilverStream**. His wound was completely closed 8 weeks after surgery.

Patient # 2				
Week	0	2	4	7
Length	9	7	5.5	0
Width	4	3	2.5	0
Depth	3.5	2.5	1.5	0

Patient #2 after complicated pilonidal surgery was treated with **SilverStream** alone with complete wound closure 7 weeks after surgery.

Week 0

Week 4

Week 8

Conclusions:

SilverStream Solution or SilverStream Solution with Negative Pressure Vacuum offers rapid secondary wound healing after Pilonidal Disease Surgery.

Cosmetic results are excellent with no recurrence.

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PREVENTING ULCERS IN BULLOUS ERYSIPELAS TOPICAL SILVER STREAM TREATMENT

By: Chausha Weitman Cernica, MA, R.N. Wound-care coordinator
Place: Hadassah Hebrew University
Medical Center, Jerusalem, Israel

Background:

- **Erysipelas is a bacterial skin infection involving the upper dermis** that characteristically extends into the superficial cutaneous lymphatics.
- It is a tender, intensely erythematous, indurated plaque with a sharply demarcated border.

  Its well-defined margin can help differentiate it from other skin infections (e.g. cellulitis).
- Historically, Erysipelas occurred on the face, but cases today most often involve the legs.
- **Economically**, **chronic wounds extends hospitalization, increases** health care technology and **over all health care cost**.

Aim:

Ulceration prevention of calves due to the bacterial infection of dermis and hypodermis, using a new method of treatment, shortens the hospitalization and discharges the patient without wounds.

Results:

In 8 of the patients there was an erosive skin presentation at admission, which was resolved in 5-21 days, with no formation of chronic ulcers and no other side effects. After discharge from hospitalization, the patients were supervised by the wound care clinic for 2 more months, **with no new development of infection or ulcers.**

Visual evidence from two patients provided below.

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PREVENTING ULCERS IN BULLOUS ERYSIPELAS TOPICAL SILVER STREAM TREATMENT

SilverStream Treatment : Patient admitted to dermatology department with Bullous Erysipelas, was treated with intravenous antibiotics and with topical SilverStream Solution solution once a day.

Patient #: 1

Age of Patient: 69 yrs

Sex: Female

Type of Wound: Bullous Erysipelas

Hospitalization: 23 days

Conclusion:

SilverStream is an effective solution for chronic ulcers preventing in case of Bullous Erysipelas.
The solution is time saving and cost effective.

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 2

AFTER SILVERSTREAM – OUTPATIENT VISIT WEEK 6

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PREVENTING ULCERS IN BULLOUS ERYSIPELAS TOPICAL SILVER STREAM TREATMENT

SilverStream Treatment : Patient admitted to dermatology department with Bullous Erysipelas, was treated with intravenous antibiotics and with topical SilverStream Solution solution once a day.

Patient #: 2

Age of Patient: 52 yrs

Sex: Female

Type of Wound: Bullous Erysipelas

Hospitalization: 15 days

Conclusion:

SilverStream is an effective solution for chronic ulcers preventing in case of Bullous Erysipelas.
The solution is time saving and cost effective.

BEFORE SILVERSTREAM WEEK 0

AFTER SILVERSTREAM – WEEK 3

AFTER SILVERSTREAM – OUTPATIENT VISIT WEEK 10

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ADDITIONAL CASE STUDIES COMPILATION LIST:

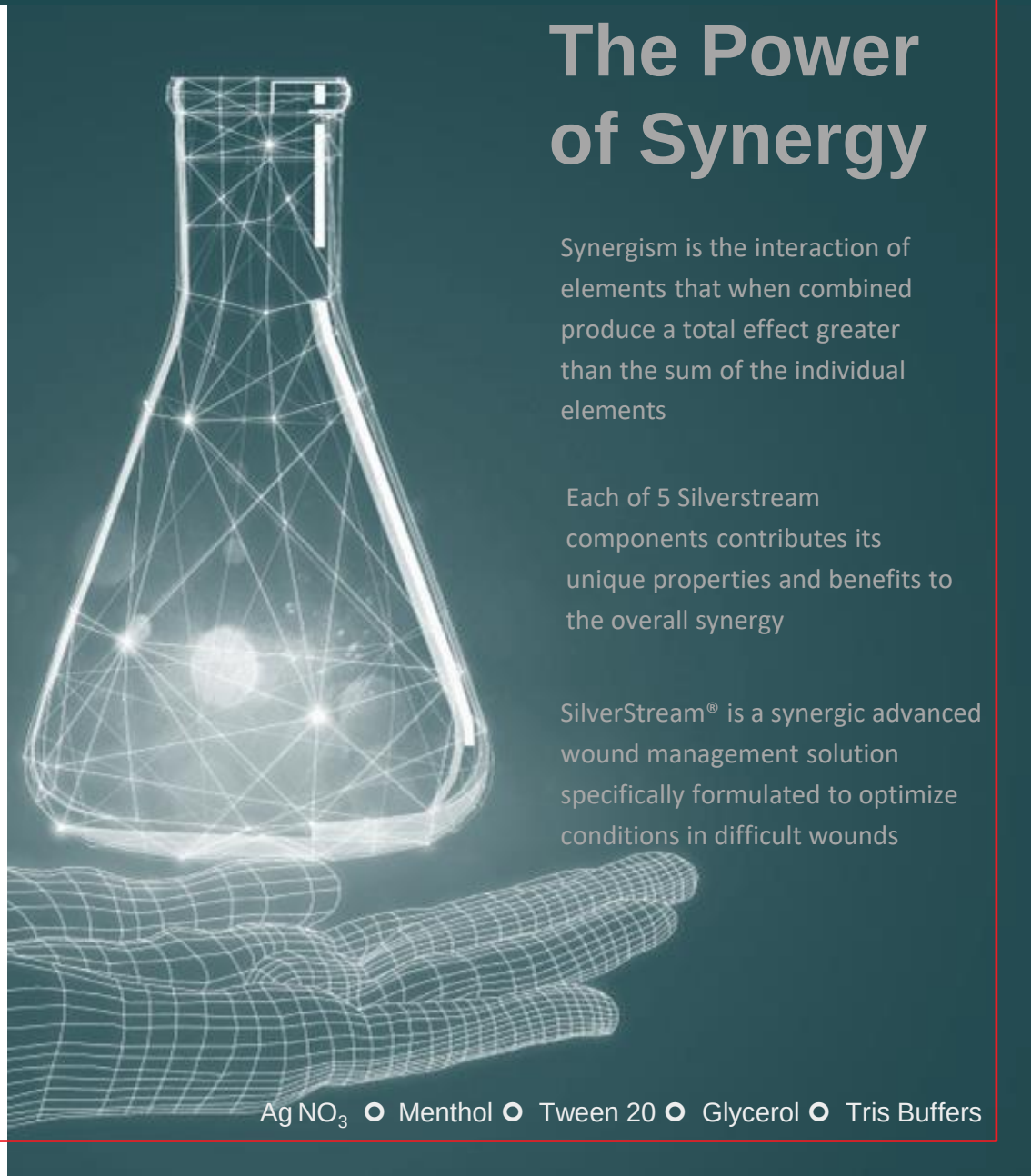
1. Park, N., Gu, G., Yao, M., Ring, J., Driver, V. "**Effect of Silver-ion Solution on Chronic Ulcers**." *Clinical Research Limb Preservation and Wound Care, Department of Surgery, Boston University Medical Center and Boston University School of Medicine, **USA***. Link to download

2. Johnson-Arbor, K. "**Efficacy of a 0.01% Silver Nitrate Solution Used for Wound Irrigation**." *Department of Emergency Medicine and Traumatology, Wound Healing and Hyperbaric Medicine Center, Hartford Hospital; Hartford, CT, **USA.*** Link to download

3. Powers, J. G., Morton, L. M., Phillips, T. J. "**Silver-Ion-Containing Solution Aids in Chronic Wound Healing**." *Department of Dermatology, Boston University, Boston, Massachusetts, **USA.*** Link to download

4. Serena, T. E. "**SilverStream Significantly Affects Biomaterial Reduction**." *St. Vincent Hospital, Erie, PA, **USA.*** Link to download

5. "**Case study of a patient suffering from Venous Insufficiency on the right leg treated with Qurion and Jet Force**", A division of Fullife Healthcare Pvt.Ltd, ***India.*** Link to download



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PUBLICATIONS & COMPARATIVE STUDIES:

1. Kumar, A., Bajaj, S. S., & Bajaj, J. K. (2022). "**A Comparative Study of Efficacy of Silver Stream versus Povidone Iodine in Healing Diabetic Ulcers**." *International Surgery Journal*, 9(6), Page Range. DOI: https://doi.org/10.18203/2349-2902.isj20221407

2. Bara, B. K., Pattanayak, S. P., Malla, T. K., & Behera, M. K. (2017). "**A Study of Silver Nitrate Solution in Dressing of Diabetic Foot Ulcer.**" *Journal of Evidence-Based Medicine and Healthcare*, 4(73), 4336-4338. DOI: https://doi.org/10.18410/jebmh/2017/863. Affiliation: National Institute of Technology Rourkela.

3. Sukanya, C., Penugonda, A., Gandikota, V., Anupama, C., Reddy, G. Harsha Vardhan. (2020). "**Role of Silver Nitrate Solution Dressings Over Conventional Dressings in Chronic Lower Limb Ulcers – A Prospective Study**." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, Volume 19, Issue 7 Ser.3 (July 2020), PP 10-14. e-ISSN: 2279-0853, p-ISSN: 2279-0861. Website: www.iosrjournals.org.

4. Mishra, B., Sharma, D. J., Arora, C. (2021). "**Comparative Study of the Efficacy of Ionic Silver Solution and Super Oxidized Solution in the Management of Chronic Wounds**." *Medical Journal Armed Forces India*, 79(2), May 2021. DOI: https://doi.org/10.1016/j.mjafi.2021.03.002. Affiliation: Bharat Mishra - Army Hospital (Research & Referral) Delhi, Dev Jyoti Sharma - Command Hospital Western Command, Chandimandir, Chetna Arora.

5. Chouhan, V. (2016). "**Qivas Therapy for Treatment of Implant Associated MDR Bacterial Infection**." Journal of Orthopaedic Case Reports, 6(2), 69–71. doi: 10.13107/jocr.2250-0685.440

REFERENCE IN LITERATURE/BOOKS

1. Role of Silver Stream in Healing Diabetic Ulcers | New Advances in Medicine and Medical Science Vol. 4 (bookpi.org)
2. New Advances in Medicine and Medical Science *Vol. 4*, 29 May 2023 , Page 129-137, https://doi.org/10.9734/bpi/namms/v4/5656B

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