



Going further
for health

200
YEARS

嶄新的水活性療法

如何有效簡單的突破傷口癒合關卡

Hydro-Responsive Wound Dressing (HRWD)
Breaking the Barriers to Wound Healing
Effectively, Yet Simply

11th August 2019

Patrick Chung-Yiu Chan
亞太區醫學部經理



Asian Association
for
Dynamic Osteosynthesis

Progress in Trauma Care through Research and Education



LINK[®]

Learn. Inform. Network. Knowledge.

The evolution of wound care

Going further to heal for more than 140 years

Patient care is our priority and healthcare professionals are our partners. We are committed to going further to heal and further for health. This is who we have been for more than 140 years.

1870 – 1874

THE POWER OF PARTNERSHIP

Paul Hartmann Sr. believed in the power of partnership. Along with Professor Victor von Bruns, who explored how materials can absorb high volumes of liquid, he enabled HARTMANN to take its first step in the industrial production of cotton wool dressings in 1873. One year later, he teamed up with British surgeon Joseph Lister to introduce the first antiseptic wound dressing, a game changer in the history of surgery.



Victor von Bruns

The German surgeon who discovered a way to remove grease from cotton.



Paul Hartmann Sr.

The German entrepreneur who devoted his efforts to the manufacturing of dressing materials.



Joseph Lister

The English surgeon who discovered carbolic acid as a suitable disinfecting agent.

PLASTER PRODUCTION BEGINS

HARTMANN begins production of plasters and ointments – laying the foundation for consumer wound care.

1919



HARTMANN OFFERS COMPRESSION THERAPY SOLUTIONS

Pütter bandages provide compression therapy to aid in the treatment of chronic wounds.

1966



HARTMANN INTRODUCES ES-KOMPRESSE

Made of absorbent cotton gauze, ES-Kompresse remains a widely used classic wound care product today.

1967



MOIST WOUND HEALING BEGINS

HARTMANN rolls out its first moist wound healing solution: Tenderwet.

1995



ZETUVIT PLUS TREATS HIGHLY EXUDING WOUNDS

Superabsorbent wound dressings, suitable for highly exuding wounds.

2007



HARTMANN UNVEILS A HOLISTIC NPWT WOUND TREATMENT

Vivano is a holistic negative pressure wound therapy solution (NPWT).

2011



HYDROTHERAPY IS INTRODUCED

A sequential wound treatment for the majority of chronic & acute wounds.

2013



傷口敷料過去幾十年的演化浪潮 從被動式吸收到份子層面癒合



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70's

Improved
Outcomes



被動癒合

PASSIVE

TRADITIONAL

- Gauze 綿紗
- Sponges 海綿

GWC

70 + Years - First Wave

70年代 - 第一浪潮

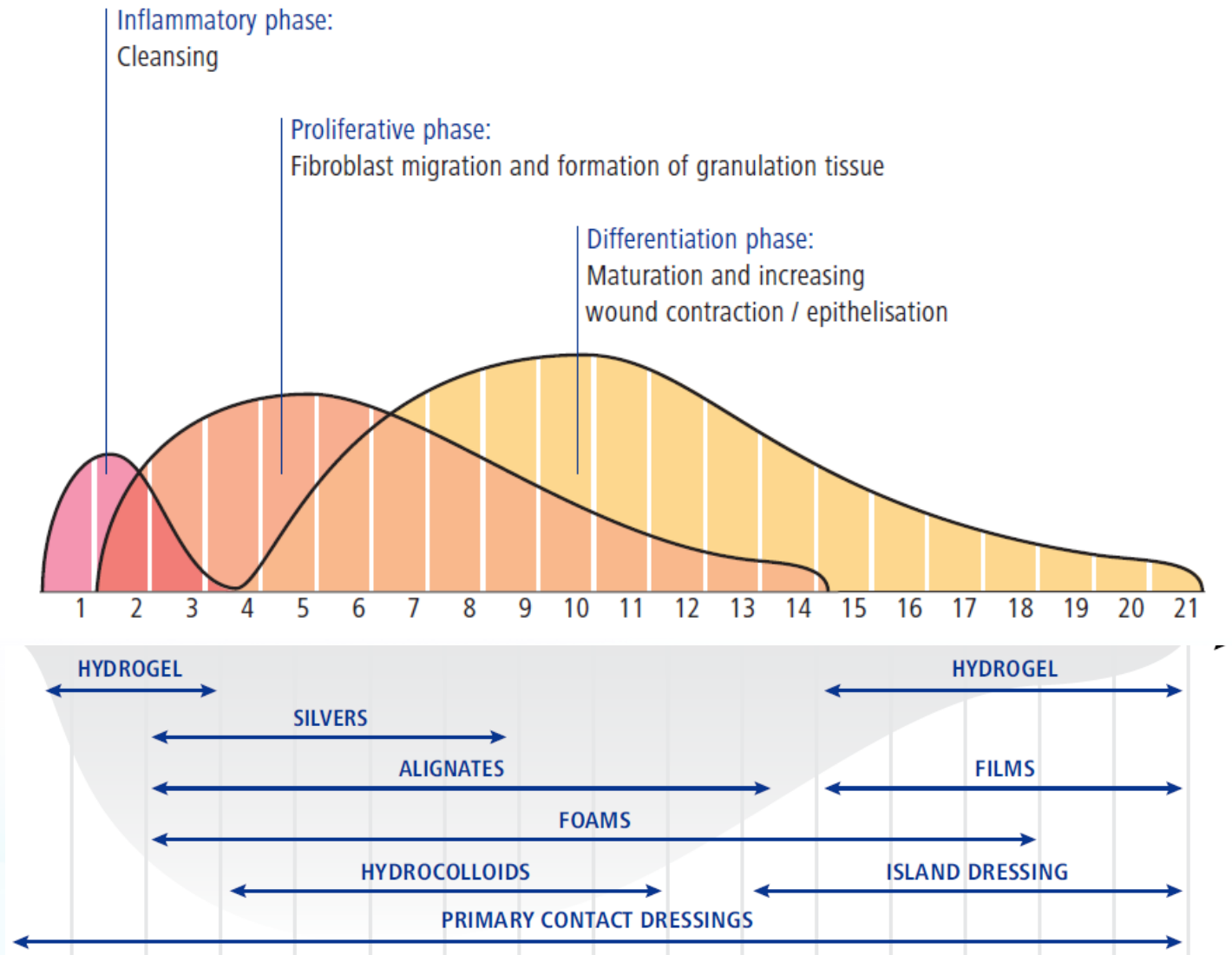


Wound
Management



200
YEARS

你正在使用哪現代先進敷料呢？



問題不是缺少敷料選擇，是如何選擇？





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病人數目增加



混合傷口



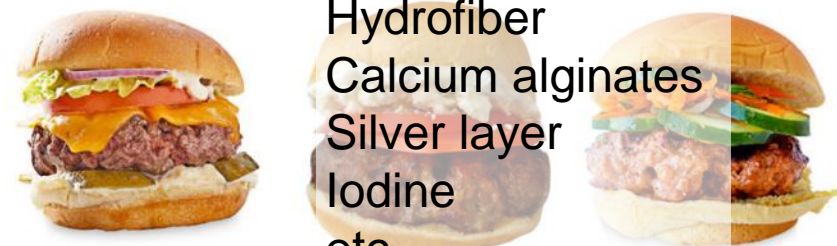
Effective, not always
necessary to be complicated
Handling dressings take your
precious time



Gauze
Foams
Hydrocolloid
Hydrogel
Enzymatic gel

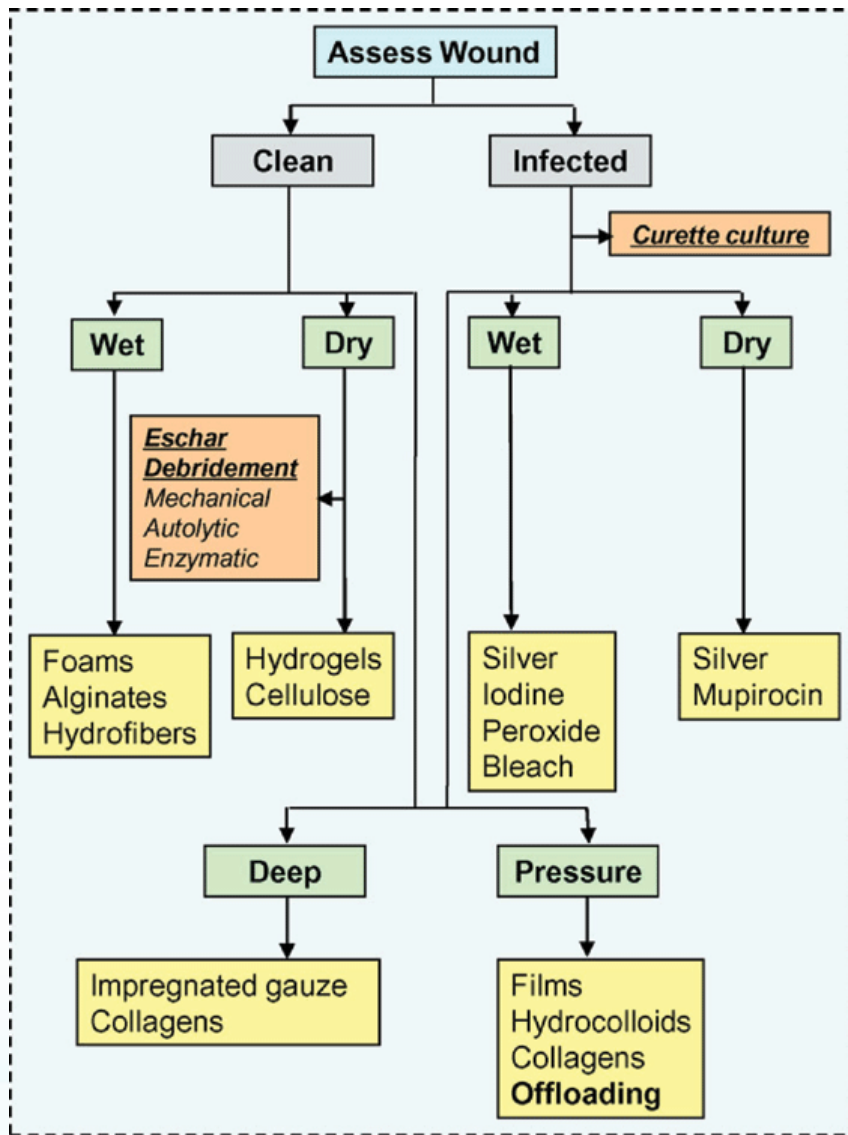


Hydrofiber
Calcium alginates
Silver layer
Iodine
etc....



要是.... 我們能夠 簡化敷料選擇

該有多好?



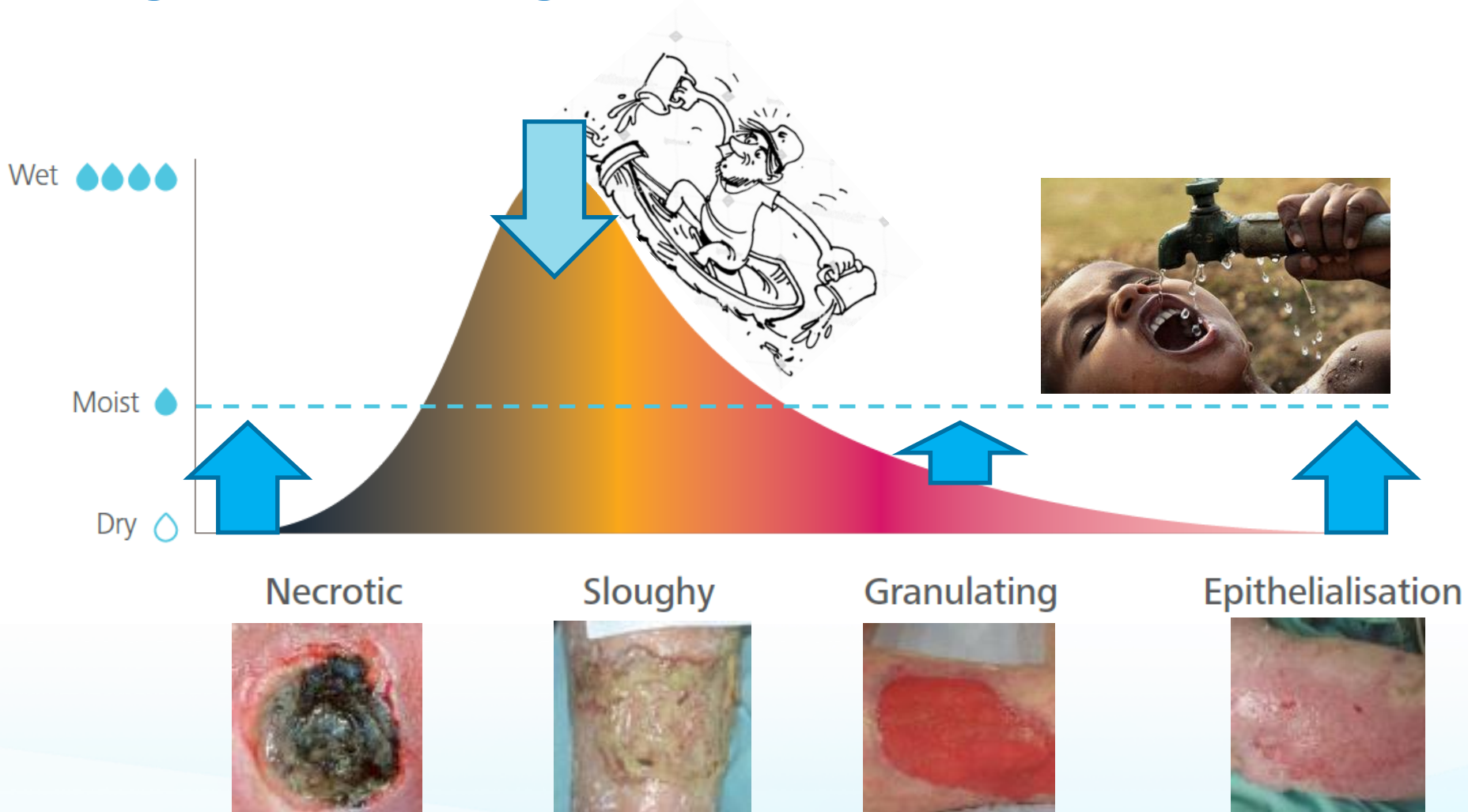
A photograph of two healthcare professionals in a hospital hallway. A woman in blue scrubs is smiling and talking to a man in teal scrubs and a blue surgical cap. The man is leaning on a counter. The background shows a typical hospital environment with a door and medical equipment.

Passionate

熱情讓我們追求更好

We know you are striving for the better clinical outcomes, easier application and easy product selection.

Yet, Its not easy to maintain Optimal Moisture throughout the healing





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尋找新的方法

Taking a different approach to healthcare will benefit all of us.

Moist dressing



- **Wound heals better in moist environment than in dry environment**

- Winter GD. *Nature*. 1962
- Hinman CD. *Nature*. 1963
- Field FK. *Am J Surg*. 1994
- Korting HC. *J Eur Acad Dermatol Venereol*. 2011

Comparison of wound healing in dry and moist environment

	Dry Environment	Moist Environment
<u>Microscopic aspect</u>		
Cellular migration 細胞移行	-	+
Keratinocyte proliferation 角質形成細胞增生	-	+
Fibroblast proliferation 纖維母細胞增生	-	+
Growth factors activity 生長因子活性	-	+
Angiogenesis 血管新生	-	+
Collagen synthesis 膠原合成	-	+
Dead tissue and fibrin	+	-
Duration of inflammatory and proliferative phase	+	-
<u>Clinical aspects</u>		
Incidence of infection	-	-
Pain	+	-
Wound aesthetics and quality	-	+



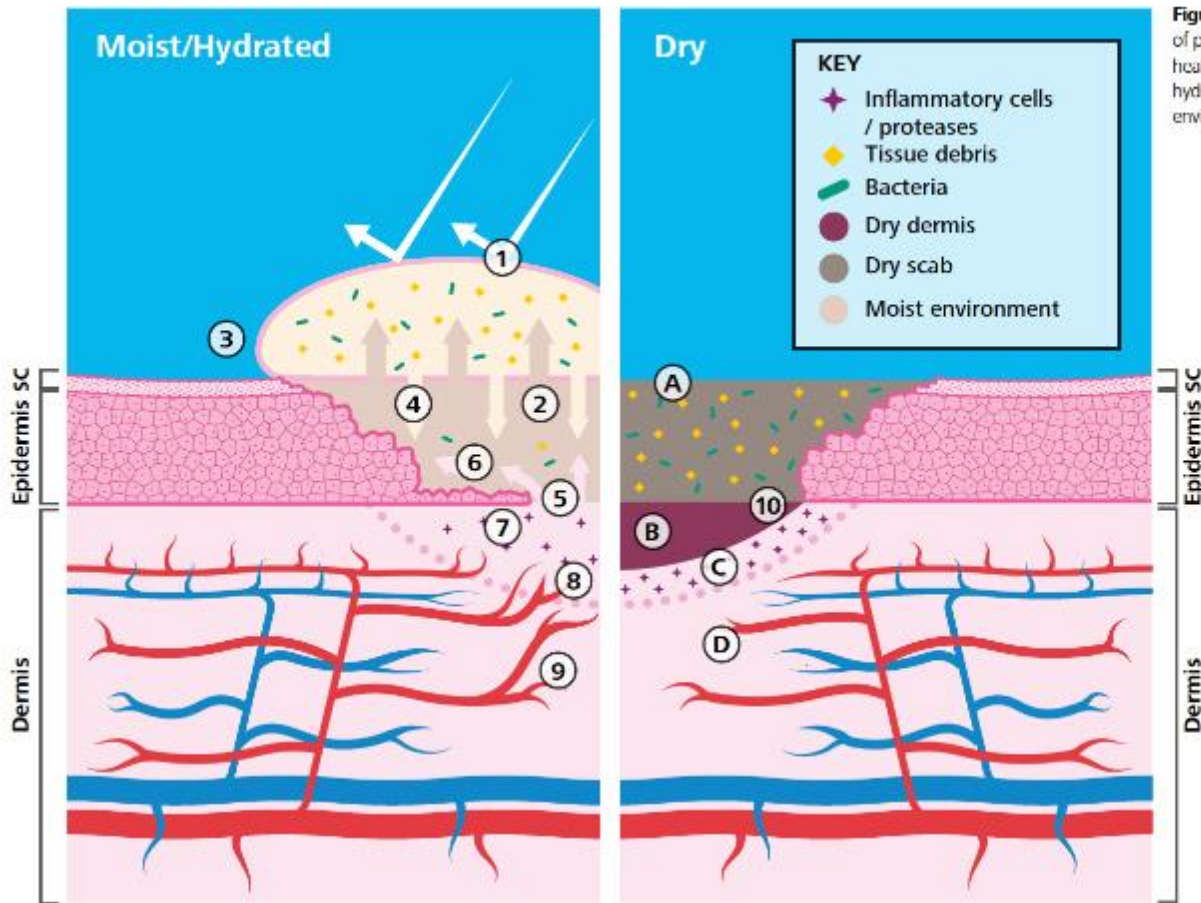


Figure 1 Comparison of processes in wound healing under moist/hydrated and dry healing environments

- ① Dressing protection from environment
 - ② Removal of damaging components and tissue debris
 - ③ Cover dressing promoting hydration
 - ④ Donation of fluid from dressing (if applicable)
 - ⑤ Donation of fluid from tissue
 - ⑥ Moist environment
 - ⑦ Migrating epidermis
 - ⑧ Optimal hydration
 - ⑨ Promotion of dermal responses
 - ⑩ Poor epidermal migration
- (A) Dry scab
 (B) Dry dermis
 (C) Excessive proteases
 (D) Slow tissue responses

Ousey et al. , Wound Healing Under Moist / Hydrated and Dry Healing Environments, Scientific symposium - A New Perspective on Wound Cleansing, Debridement and Healing Wounds UK 2016

Maceration

- “the softening and breaking down of skin resulting from prolonged exposure to moisture”
- **Moisture Associated Skin Damage (MASD)** - inflammation or skin erosion caused by prolonged exposure to a source of moisture such as urine, stool, sweat, wound exudate, saliva, or mucus
- Additional complicating factors: **mechanical (friction), chemical (irritants contained in the moisture source), microbial or excessive wound exudate**



- may associated with dermatitis/
eczema, breakdown of skin



Hyperhydration

- White wrinkly skin
- inhibits the trans epidermal water loss (TEWL)
- quickly reverse by exposure to air
- Dressing technology has been evolving to achieve balanced moist environment for better wound healing
- Not jeopardize wound healing



What if we could tackle all
at once?



Wound
Management

From cleansing to wound closure with just two innovative Hydro-Responsive Wound Dressings (HRWD™)








Overview of Local Wound Management

(by HARTMANN according to T.I.M.E. framework)



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Clinical finding	Strategy required	Our 1st line recommendation for the majority of chronic wounds	
<p>T (Necrotic devitalized tissue)</p>	<p>Clean & debride</p>	<p>HydroTherapy</p> <p>HydroClean</p> 	<p>Alternative (hard to heal wounds, deep wounds, *highly exuding wounds)</p> <p>HydroClean</p>  <p>*NPWT</p>  <p>HydroTac</p> 
<p>I (Inflammation and/or infection)</p>	<p>Decrease bacterial burden inflammatory cytokines, MMPs</p>		
<p>M (Moisture imbalance)</p>	<p>Absorb exudate Hydrate wound bed</p>	<p>HydroTac</p> 	
<p>E (Impaired epithelialization)</p>	<p>Re-assess T.I.M. Support epithelialization</p>		

Cleansing

Granulation

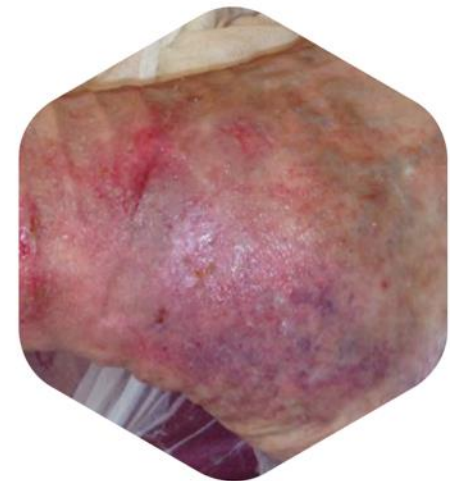
Epithelialization

Step 1: HydroClean®

HydroClean® cleanses, debrides and activates the wounds with its **unique Rinsing-Absorption Mechanism** ^[1-4]

Step 2: HydroTac®

HydroTac® accelerates the epithelialization process with **AquaClear Gel Technology** ^[4,5]



Start with
HydroClean®

After 6 Weeks
Transition to HydroTac®

After 13 Weeks
Full wound closure

HydroClean[®] almost everywhere usable^{1,2,3}



Fibrinous wounds

Exuding wounds

Traumatic wounds

Infected wounds

*Effective
wound bed
preparation for
the majority
of wounds*

Necrotic wounds

Dry wounds

1 Eming S, Smola H, Hartmann B, et al (2008). The inhibition of matrix metalloproteinase activity in chronic wounds by a polyacrylate superabsorber. *Biomaterials* 29: 2, 2932-2940

2 Humbert P, Faivre B, Véran Y, et al. on behalf of the CLEANSITE study group. Protease-modulating polyacrylate- based hydrogel stimulates wound bed preparation in venous leg ulcers a randomized controlled trial. *Journal of the European Academy of Dermatology and Venereology* (2014);28 (12):1742-1750.

3 Kaspar D, Therapeutic effectiveness, compatibility and handling in the daily routine of hospitals or physicians' practices. HARTMANN Data on file: Hydro-Responsive Wound Dressing (HRWD) and AquaClear Technology are trademarks of HARTMANN (2011).



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Awarded the Most Innovative Wound Dressing Worldwide HydroClean® 榮獲世界第一創新敷料大獎



WUWHS

World Union of Wound Healing Societies



200 YEARS



Wound Management

Journal of Wound Care (JWC) and World Union of Wound Healing Societies (WUWHS).



27th September - 17:45. Scherma Hall - Fortezza da Basso - Viale Filippo Strozzi, 1 - Firenze from Porta Faenza

*NEW &
UNIQUE*

Only from
HARTMANN

HydroClean®

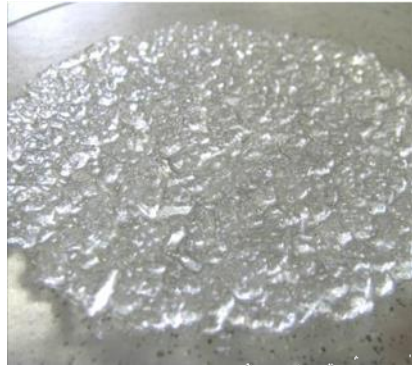
The only
Hydro-Responsive Wound Dressing
with a **unique**
Rinsing-Absorption
Mechanism

that cleanses and debrides!

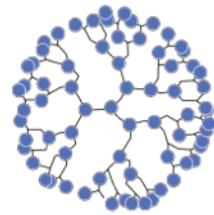


The essence to our secret

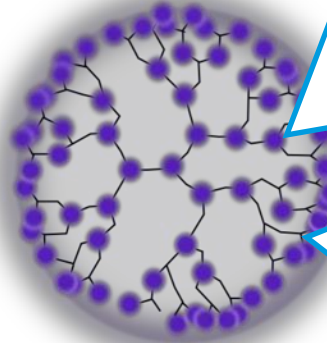
Polyacrylate Superabsorbent Polymer (SAP)



Dry SAP



Hydrated SAP



Excess
Proteinase

Exudate

Dead
tissue

Absorb + Retain

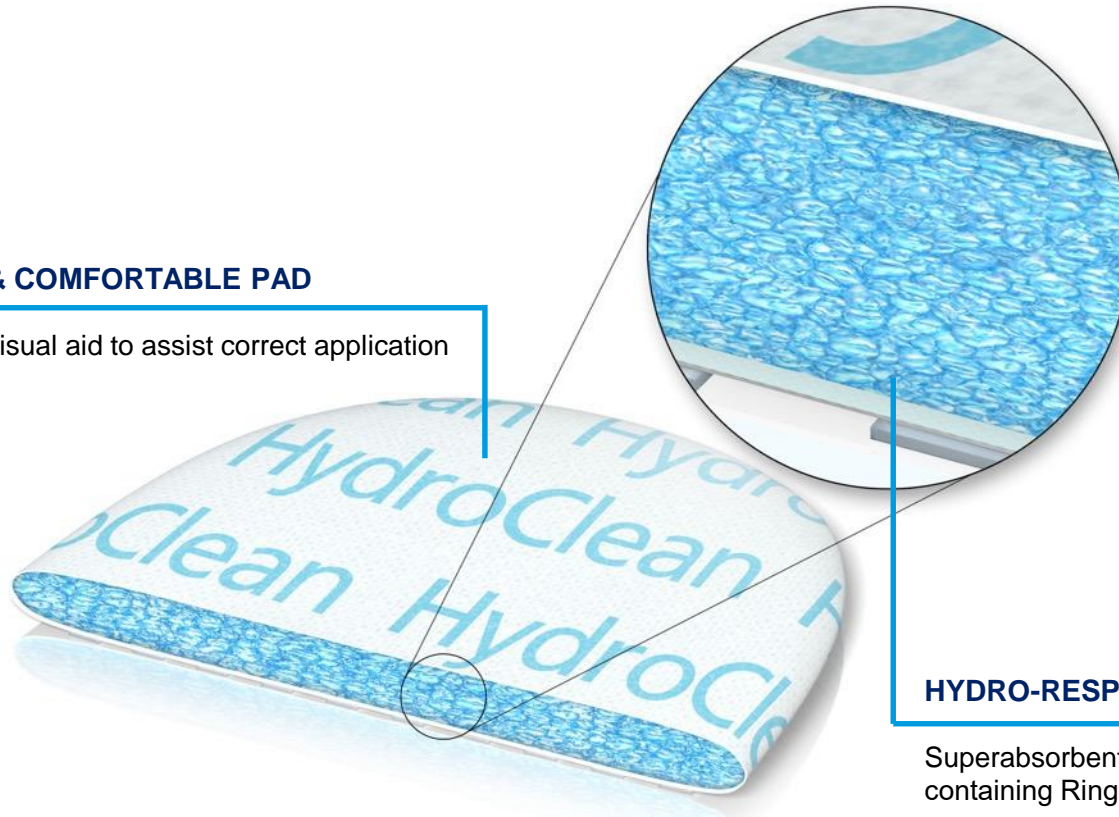
Bacteria



HydroClean® enables effective treatment due to distinctive features.

SOFT & COMFORTABLE PAD

With a visual aid to assist correct application



The effect of Ringer's solution within a dressing to elicit pain relief

HYDRO-RESPONSIVE MATRIX

Superabsorbent polyacrylate (SAP) particles containing Ringer's solution

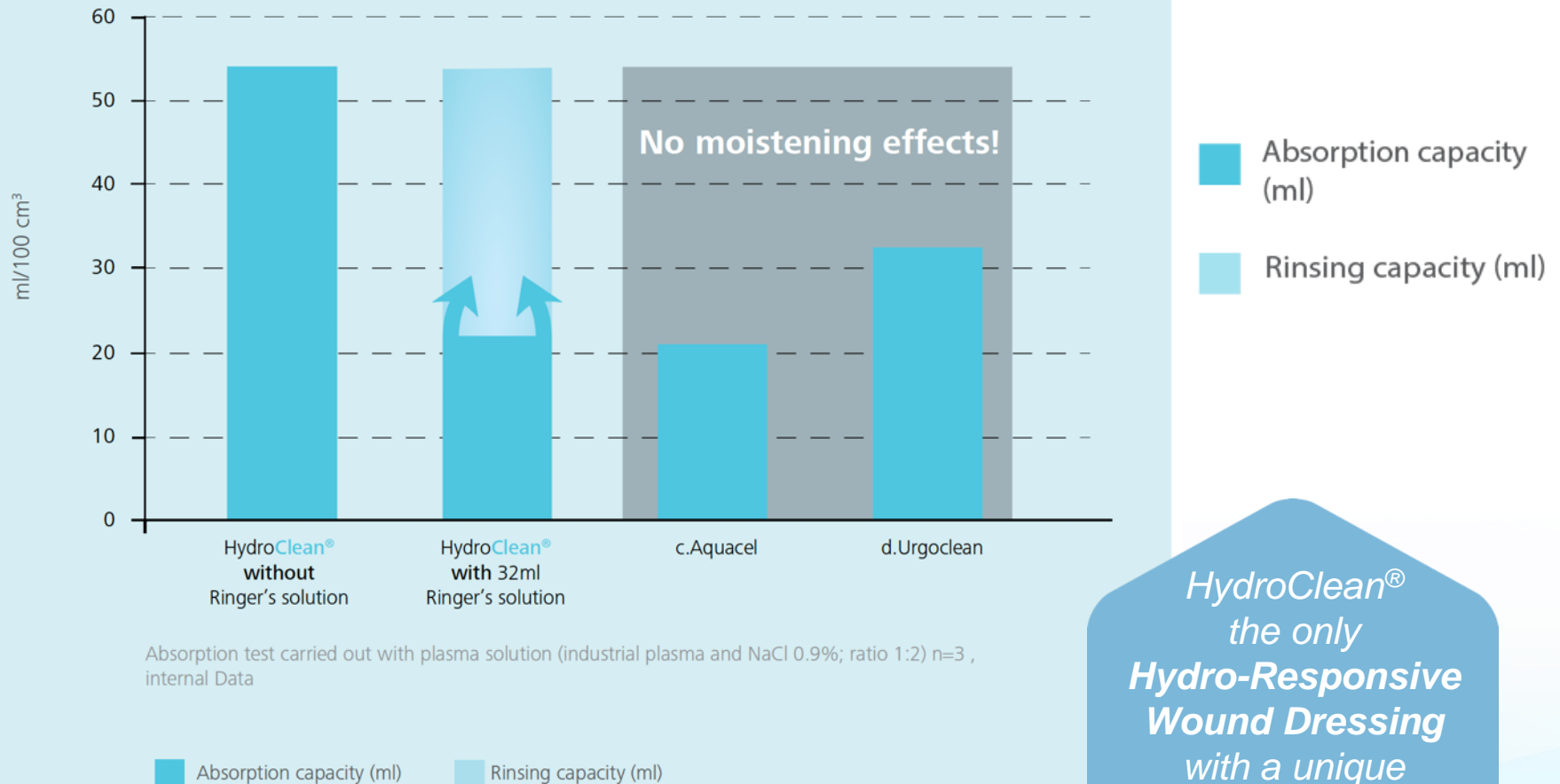


HydroClean – the wound dressing which can handle both Rinsing and Absorption 可同時沖洗及吸收的科技

Juni 2016

HydroClean[®] enables Hydro-Responsive wound healing

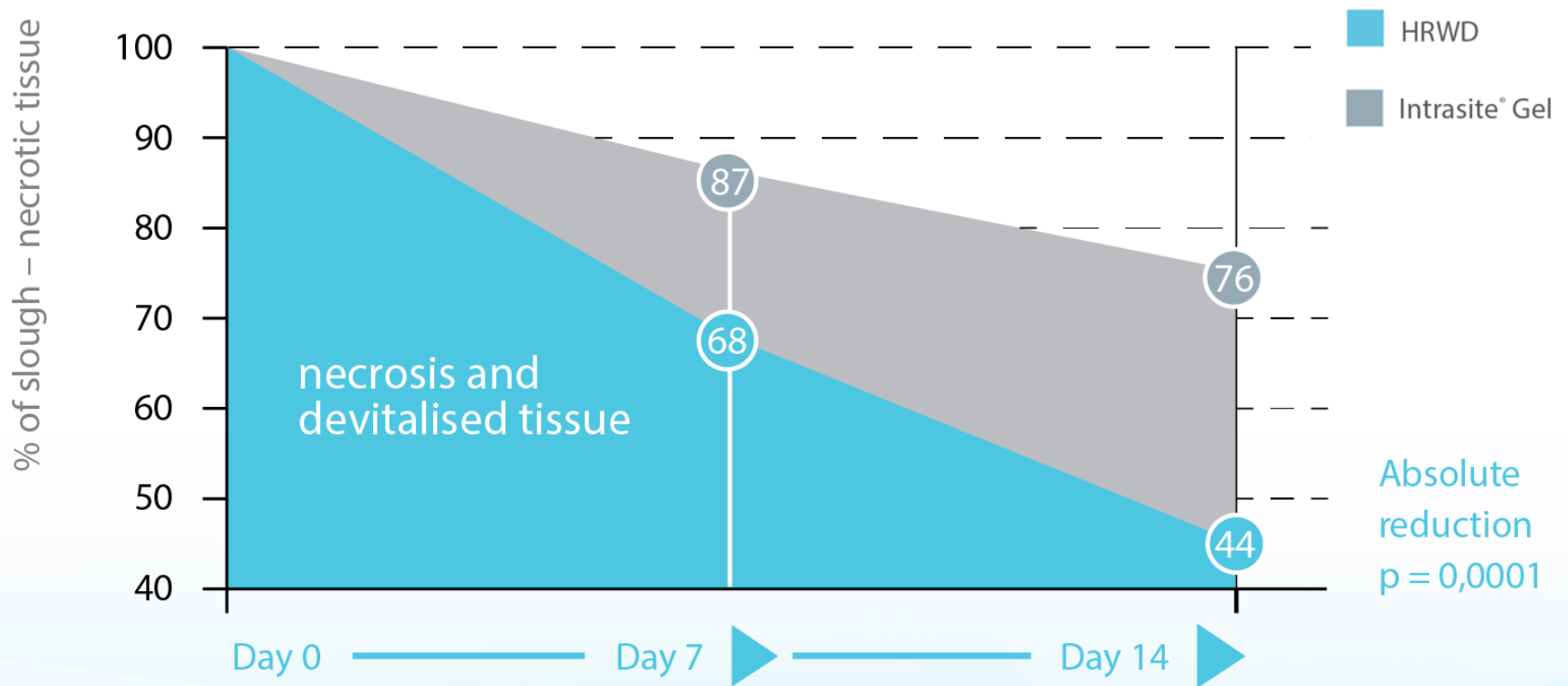
Moist wound heals faster ^[1]



*HydroClean[®]
the only
Hydro-Responsive
Wound Dressing
with a unique
Rinsing-Absorption
Mechanism*

HydroClean® state of the art cleansing and debridement

Hydro-Responsive Wound Dressings (HRWD) are 2.5x more efficient compared to intrasite Gel [1][2]



Summary ○

Stagnating venous ulcer

Female patient aged 70 years, presenting with a venous ulcer that has failed to respond to treatment for over four weeks.



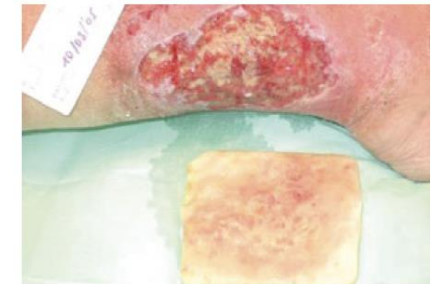
D0



D22



D0 Fibrin is present, HydroClean® applied with a compression system.



D9



D22 Wound is now mostly debrided.

HydroClean®

Summary

Malleolus pressure ulcer

Male patient, aged 50 years, living alone, wheelchair-bound paraplegic with no specific medical history. Receiving follow-up care for a malleolus pressure ulcer.



D0



D28



D0 Wound fully fibrinous and necrotic. Mechanical debridement in conjunction with application of HydroClean®.



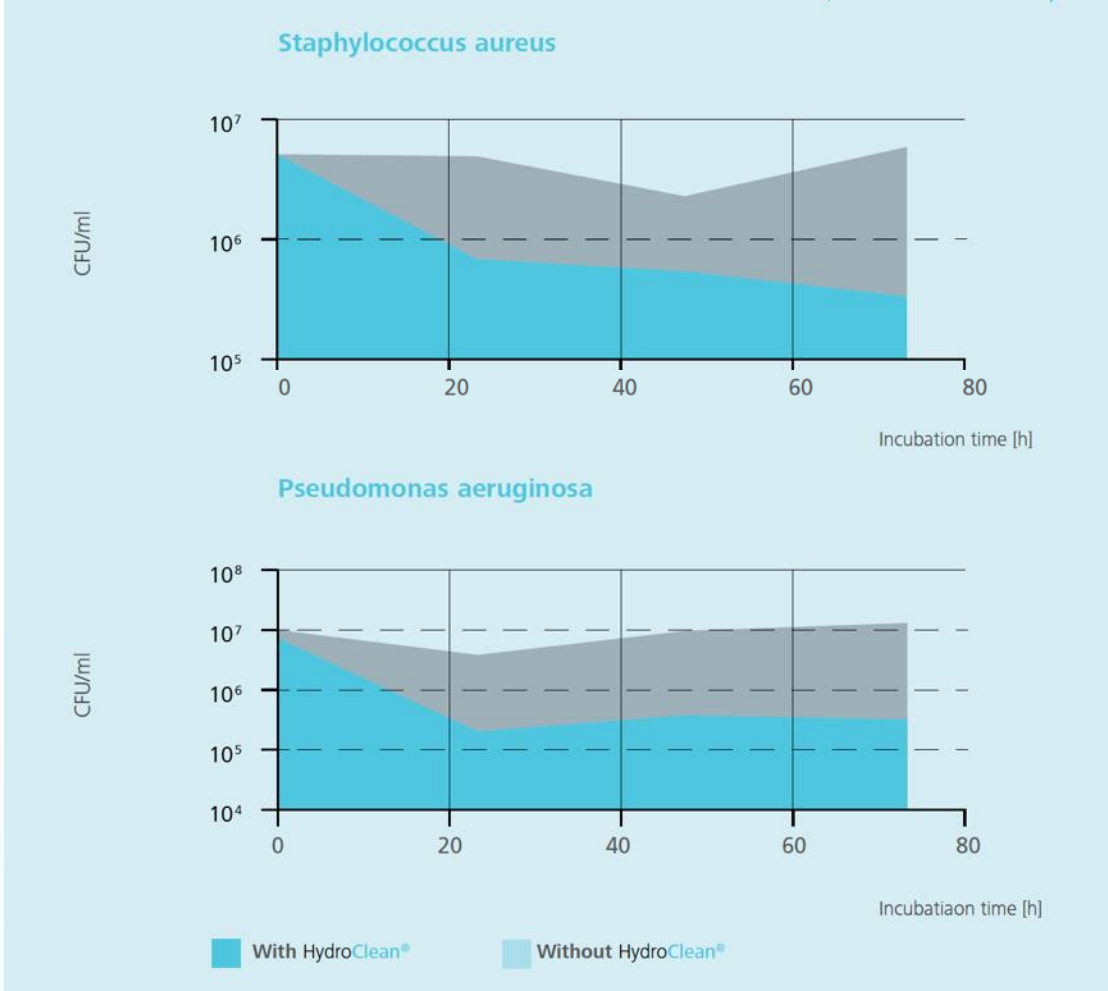
D11



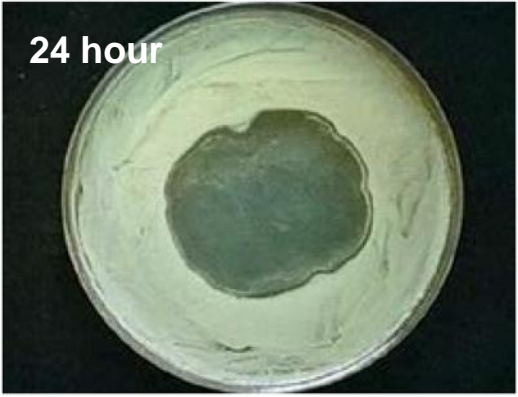
D28 Fibrin has almost disappeared, the inflammatory plaque has reduced. The process of granulation is well underway.

HydroClean Absorbing and Binding Bacteria [1][2][3]

Proven reduced bacteria load Significantly [1][2][4]



Staphylococcus aureus



[1] Knestele, M (2004) The treatment of problematic wounds with HydroClean plus - tried and tested over many years in clinical practice. HARTMANN Data on file.
[2] Bruggisser, R. (2005). Bacterial and fungal absorption properties of a hydrogel dressing with a superabsorbent polymer core. J Wound Care 14, 438 -42
[3] Smola H.: Stimulation of epithelial migration - novel material based approaches. Presented at EWMA Congress, 2015, London. Data on file: in-vivo study, H. Smola.
[4] Courderot-Masuyer, C. et al. (2005) Study on the behavior of healthy fibroblasts and venous ulcers after infection with *Pseudomonas aeruginosa* and in the

Heel pressure ulcer

Failed Pressure revascularization
Patient, leg rescuing. Atonic
wound with adhesive fibrin and
cartilage and tendon exposure.



D0



After 5 months



D0



Wound treatment commenced with
HydroClean®



After 1 1/2 months

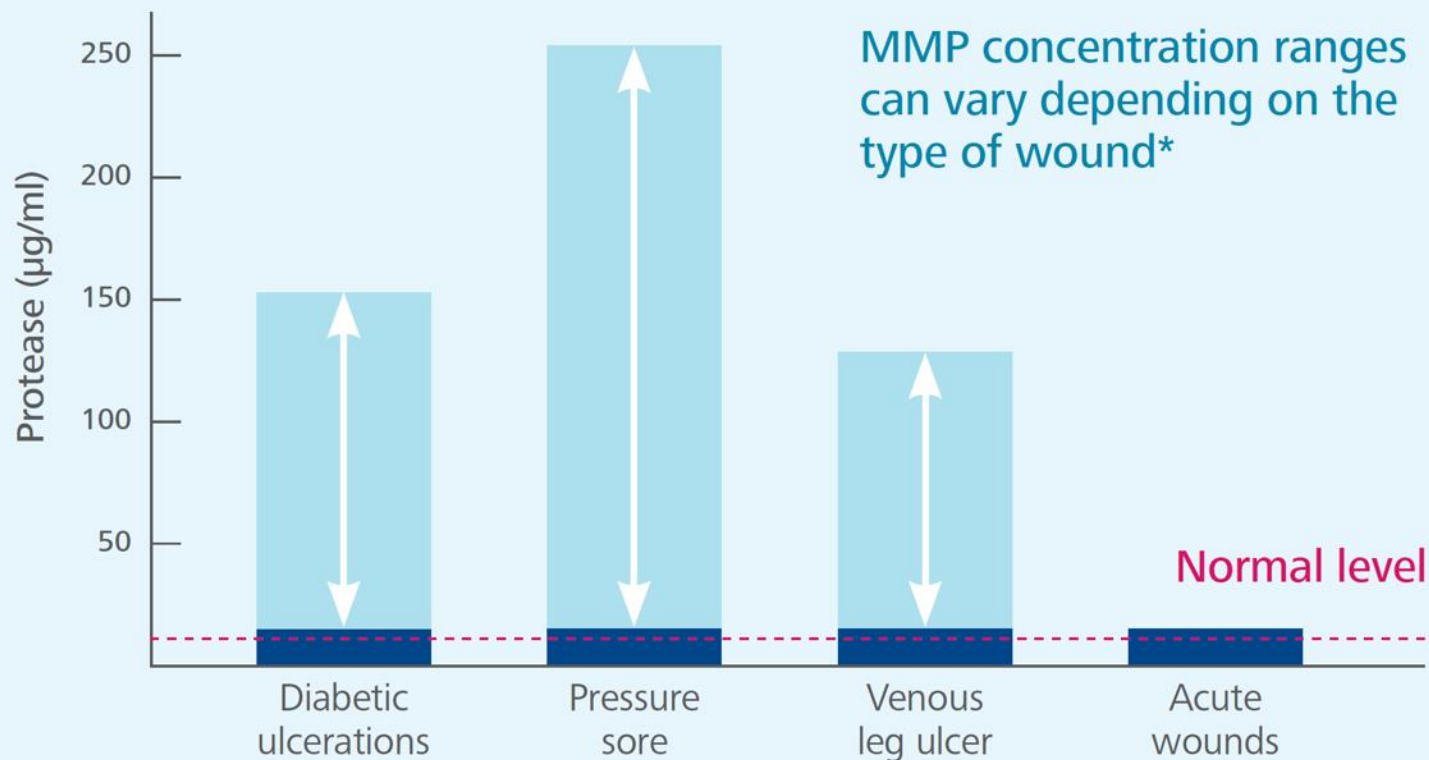


After 4 months



Bone recovery begins after 5 months

各類慢性傷口普遍有過高蛋白酶(MMPs) 破壞健康組織及阻礙癒合



糖尿潰瘍

壓瘡

靜脈性下肢潰瘍

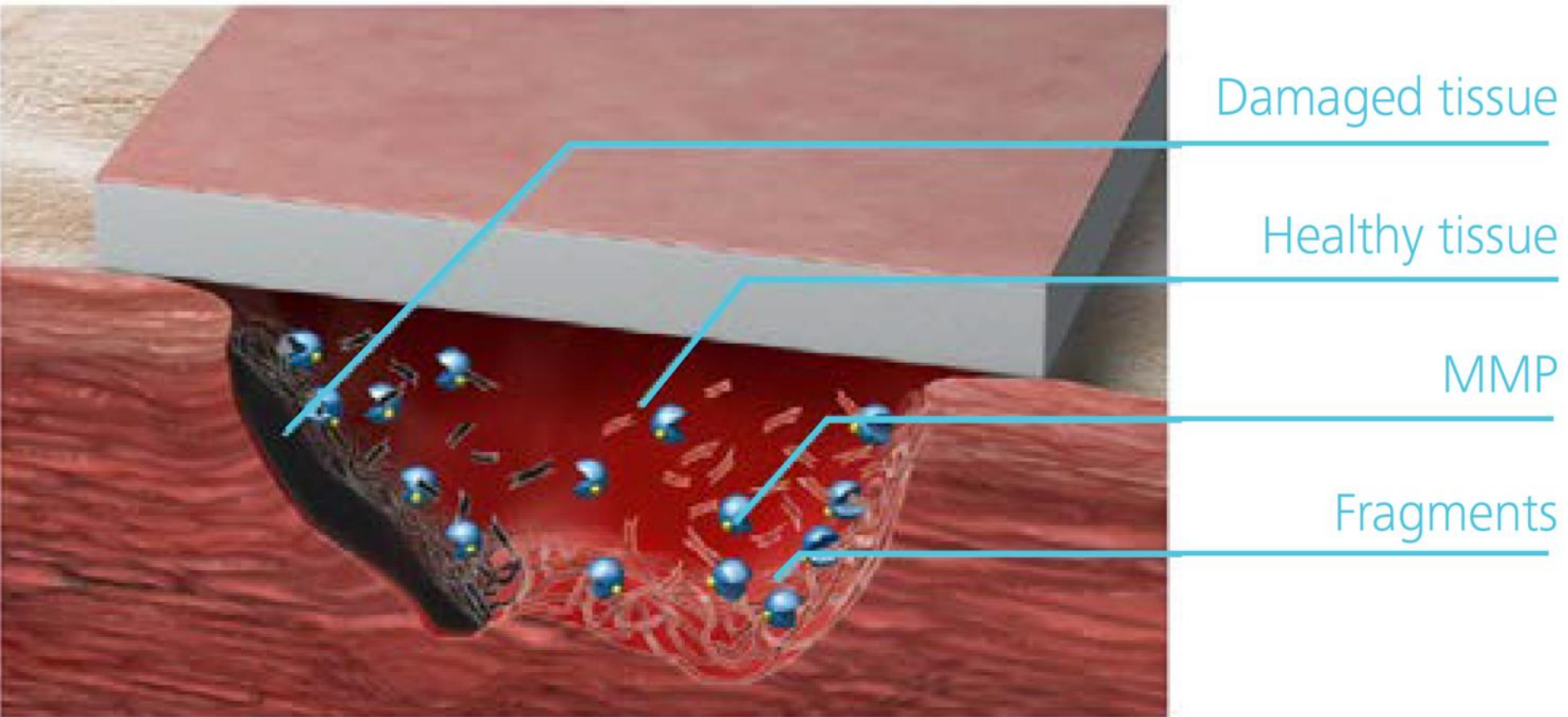
急性傷口

*Source: Trengove NJ. et al., Wound Repair and Regeneration 1999; No. 7: 442-452.

過高蛋白酶(MMPs)活性是傷口停滯不前的原因

Increased MMP* - key cause of delayed healing of chronic wounds^{12,13}

- Degrade growth factors¹⁴
- Prolonged bacterial growth and inflammation¹⁴



12: Trengove et al. (1999) Analysis of the acute and chronic wound environments: the role of proteases and their inhibitors. **Wound Repair Regen** 7, 442-452.

13: Wysocki et al. (1993) Wound fluid from chronic leg ulcers contains elevated levels of metalloproteinases MMP-2 and MMP-9. **J Invest Dermatol** 101, 64-68.

14: Attinger et al. (2006) Clinical approach to wounds: debridement and wound bed preparation including the use of dressings and woundhealing adjuvants. **Plast Reconstr Surg** 117, 72S-109S. 1

▶ Healing impossible.

HydroClean® 方便使用 – 無須二層敷料



Figure 4. Schematic representation of HRWD fixed at ankle wound (left) and two clinical examples of HRWD fixation over wound using transparent film (middle and right).



Figure 5. Clinical example of wound debridement following application of a HRWD to a wound with significant tissue necrosis.

HydroClean® 有效調控蛋白酶濃度及鋅離子 重新激活傷口癒合



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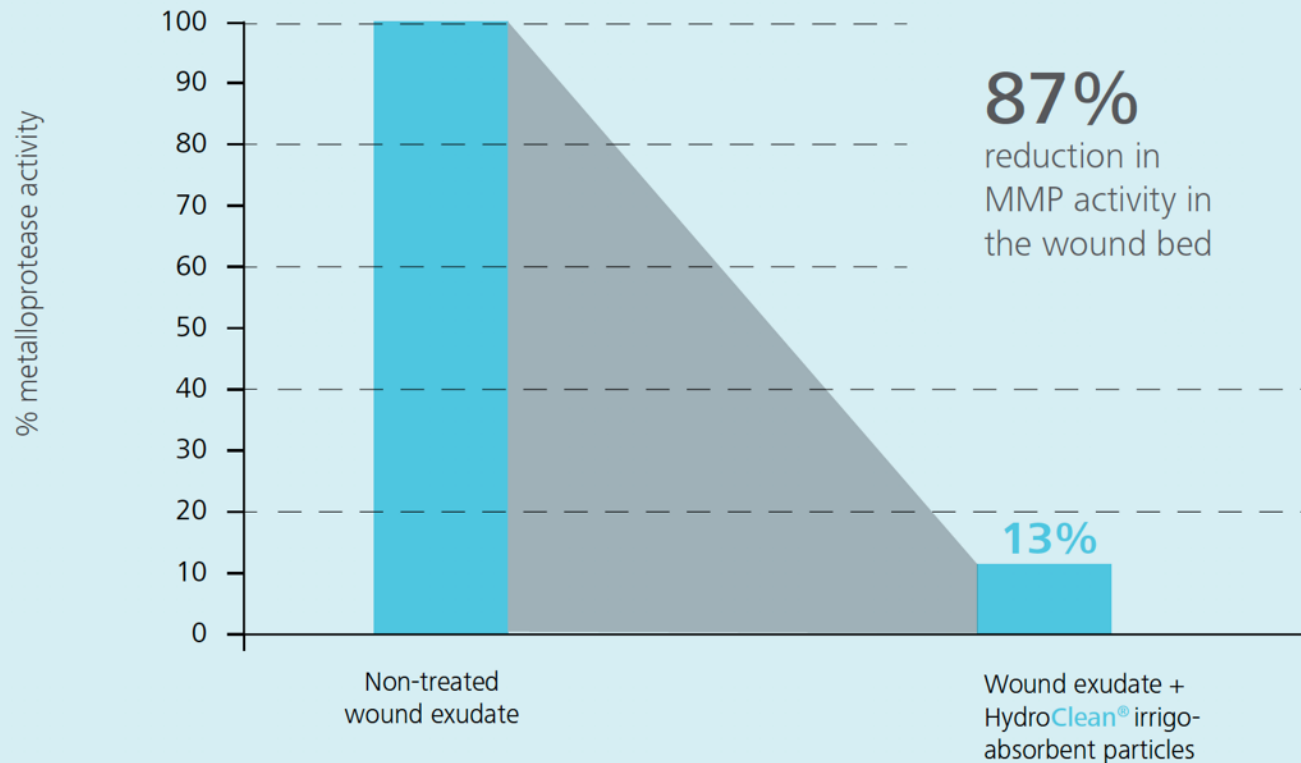
Wound
Management

Eming S, Smola H, Hartmann B, et al (2008). The inhibition of matrix metalloproteinase activity in chronic wounds by a polyacrylate superabsorber. *Biomaterials* 29(2), 2932-2940



HydroClean® 有效調控蛋白酶濃度 重新激活傷口癒合

Regulated Metalloprotease activity with HydroClean®



Summary

Pressure ulcer on buttock

Care for stage 4 pressure ulcers in a 65-year-old patient suffering from senile dementia



D0



After 2 months



D0 Mechanical debridement at bedside followed by HydroClean® Cavity application.



D6



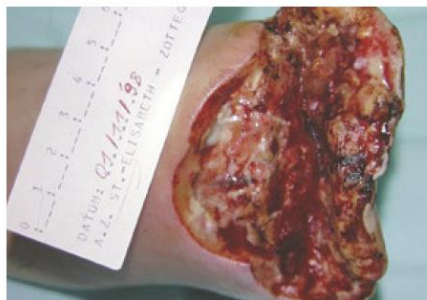
After 1 month



After 2 months
Predominantly granulating wound with only 10% fibrin-necrotic tissue remaining.

Diabetic foot amputation

78-year-old patient poor controlled Type 1 diabetes
Medio-tarsal amputation after spontaneous necrosis of 3 toes.



D0



After 2 months



D0 50% presence of fibrin. Various size and types of HydroClean® applied.



D5



D40



After 2 1/2 months.
Wound is debrided and almost completely healed.

Surgical Dehiscence - complication



Figure 6. Clinical example of wound debridement following application of HydroClean plus to a dehiscent abdominal wound. Significant removal of necrosis and slough by Day 2 after dressing application.

Wounds UK | Vol 12 | No 1 | 2016



Partnership

Focus on direct practical benefits. Developed in close collaboration with users and patients.



**NEW &
UNIQUE**
Only from
HARTMANN

2004
Hydro**Clean**

2011
Hydro**Clean plus**

2017
New Hydro**Clean**

Setting new standards in wound management with HydroClean®



Clinically-proven to promote autolytic debridement and facilitate the natural healing process.^{1,2,3}

- 1 Humbert P, Faivre B, Véran Y, et al. on behalf of the CLEANSITE study group. Protease-modulating polyacrylate- based hydrogel stimulates wound bed preparation in venous leg ulcers a randomized controlled trial. Journal of the European Academy of Dermatology and Venereology (2014);28 (12):1742-1750.
- 2 Rippon G, Hydro-Responsive Wound Dressing (HRWD) Monograph: Clinical and Scientific Monograph. ISBN Monograph. 978-1-944788-63-6-ISBN Services (2016).
- 3 Kaspar D, Therapeutic effectiveness, compatibility and handling in the daily routine of hospitals or physicians' practices. HARTMANN Data on file: Hydro-Responsive Wound Dressing (HRWD) and AquaClear Technology are trademarks of HARTMANN (2011).

What are your benefits of treatment with HydroClean[®] plus?

- Optimal wound bed preparation¹
- Painless dressing changes²
- Keeps wounds moist for up to 3 days²
- Comfortable due to thin and flexible pad and low adherent layer³



Different shapes and sizes available, no need to cut product




1 Spruce P, Bullough L, Johnson S et al (2016) Benefits of HydroClean plus in wound bed preparation: a case study series. Wounds International (in press)

2 No additional pain during dressing changes.

Kaspar, D (2011). Therapeutic effectiveness, compatibility and handling in the daily routine of hospitals or physicians's practices. HARTMANN Data on file: Hydro-Responsive Wound Dressing (HRWD) and AquaClear Technology are trademarks of HARTMANN

3 Ellermann, J (2015). HydroClean 2.0: Design validation customer/user interviews. Internal Report, International Marketing Department

A photograph of an elderly woman with white hair, wearing a pink hospital gown, lying in a hospital bed. She is smiling and looking towards a healthcare professional (a woman in blue scrubs) who is leaning over her. The background is a light green wall. A semi-transparent white box with black and blue text is overlaid on the bottom left of the image.

In fact, 94 percent of patients who used HydroClean[®] rated the dressing overall as **‘good’ or ‘very good’**.

** Source: 2016 *Wounds UK* clinical product study evaluation of 403 patients

HydroClean – The Hydro-Responsive Wound Dressing

Benefits for You and Your Patients



Cost saving

Supports cost savings over standard practice through **improved times to debridement and healing** vs. hydrogels and enzymes, and monofilament pads.¹⁶



Time saving

Mean **time to debride is quicker** with HydroClean® plus (6.5 days) vs. hydrogels and enzymes (20 days), and monofilament pads (12 days).¹⁶



Quality of life

Can improve the quality of life through positive changes to wounds such as the **reduction of pain and malodor**.¹⁷





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Clinical Study Presentation

Bilateral lower limbs
non-healed infected wounds

Dr. LEE, Kin-wing Vivian
Plastic Surgeon

26th October 2017

Case Study Presentation

Chronic non-healed infected wounds



Patient History

- Female
- 61
- Good past health
- Not on any medication
- No hx of trauma

- Sudden onset of blisters of bilateral limbs since 24.5.17
- Multiple skin necrosis, non-healed, smelly and



Additional relevant information

- Seen by Dermatologist
- Skin biopsy (27.5.17) : Leucocytoclastic vasculitis
- High dose steroid 25mg Daily → 12.5mg Daily
- Naproxen 250mg BD
- Pepcidine 20mg BD
- Caltrate + D 1 tab Daily
- On daily dressing by patient without proper dressing



Start and End

Start and End of Case Study/Treatment

- Date of Start: 12.7.2017
- Date of End: 10.10.2017

Status of Treatment: 12.07.17



Wound

- Description: non-healed wound with necrotic skin
- Wound size: 10x5.5cm
- Exudate: moderate
- Pain: moderate

Dressing

- Nil

Relevant information

- Infection: YES
- Medication: Steroid, NSAID



Debridement (GA) on 13.07.17



Left foot dorsum

Debridement on 13.07.17 (Day 0)

New HydroClean®



Left foot dorsum (post-debridement)

Status of Treatment: 14.07.17 (Day 1)

New HydroClean®



Cover with Tegaderm 14.07.17 (Day 1)

New HydroClean®



Status of Treatment: 15.07.17 (Day 2)

New HydroClean®



Status of Treatment: 15.07.17 (Day 2)

Wound

- Description: open wound with exposed tendon
- Exudate: moderate
- Pain: moderate

Dressing:

New HydroClean®

Problem:

- Contact between tendon and HydroClean is suboptimal

Status of Treatment: 17.07.17 (Day 4)



Wound

- Description: non-healed wound with exposed tendon
- Tendon still viable, but granulation static
- Exudate: moderate and smelly
- Pain: moderate

Dressing switch to:

Atrauman[®] Ag (silver contact layer)

New HydroClean[®]

Relevant information

- C/ST: Heavy growth of **E. Coli**, **Preoteus mirabilis**, **Streptococcus agalactiae** and **Peptostreptococcus species**.
- Medication: Steroid, NSAID, Morphine
- Augmentin + Levofloxacin for 1 week

Status of Treatment: 19.07.17 (Day 6)



Wound

- Description: non-healed wound with exposed tendon
- Tendon still viable, but granulation static
- Exudate: moderate and smelly
- Pain: moderate

19.07.17 (Day 6)

Hydrosorb® Gel + **Atrauman® Ag** + **New HydroClean®**

(Ringer's solution based hydrogel)

(Silver primary contact layer)

(All-in-one wound bed preparation)



Status of Treatment: 24.07.17 (Day 10)

Hydrosorb® Gel
Atrauman® Ag
New HydroClean®



Wound

- Tendon still viable
- More granulation covers the exposed tendon
- Exudate: mild to moderate
- Pain: moderate
- Repeat wound swab: pending
- Steroid 12.5mg → 10mg

Status of Treatment: 26.07.17 (Day 12)

Hydrosorb® Gel
Atrauman® Ag
New HydroClean®



Wound

- Tendon still viable
- More granulation covers the exposed tendon
- Exudate: mild to moderate
- Pain: mild
- Repeat wound swab: pending
- Steroid 10mg QD po

Status of Treatment: 07.08.17 (Day 26)

HydroTac®



Wound

- Tendon is covered by granulation tissue
- Exudate: mild
- Pain: no
- Steroid 10mg QD po
- switch to hydrotac, change every 5 days
- Discharged home

Status of Treatment: 06.09.17 (~2 months)

HydroTac®



Wound

- Left foot completed healed
start scar mx
- Right foot still raw
cont hydrotac

Status of Treatment: 10.10.17 (~3 months)

HydroTac®



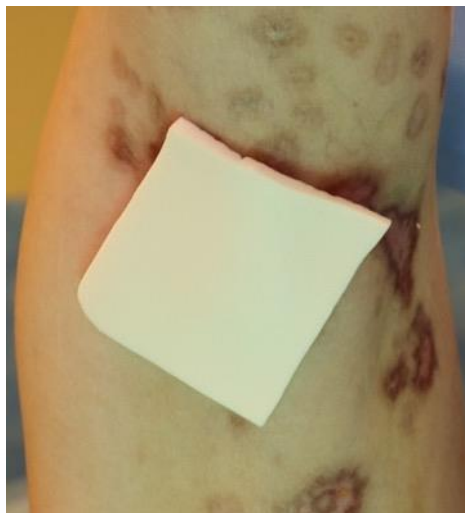
- No recurrence so far
- Wounds all healed
- On scar management

13.07.17 (Day 0)

26.07.17 (Day 13)



Left posterior knee
HydroTac[®] dressing



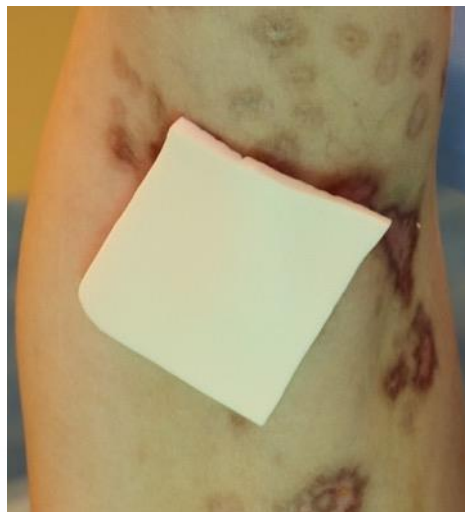
Right posterior knee



13.07.17 (Day 0)



Left posterior knee
HydroTac[®]
dressing



Right posterior knee

14.08.17 (Day 31)



Going Further to Heal..... With Innovations



Wound Management



Wound
Management



200
YEARS

HARTMANN



Going further
for health

Wound Management by Hartmann

Efficacy. And Simplicity








Overview of Local Wound Management

(by HARTMANN according to T.I.M.E. framework)



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Clinical finding	Strategy required	Our 1st line recommendation for the majority of chronic wounds	
<p>T (Necrotic devitalized tissue)</p>	<p>Clean & debride</p>	<p>HydroTherapy</p> <p>HydroClean</p> 	<p>Alternative (hard to heal wounds, deep wounds, *highly exuding wounds)</p> <p>HydroClean</p>  <p>*NPWT</p>  <p>HydroTac</p> 
<p>I (Inflammation and/or infection)</p>	<p>Decrease bacterial burden inflammatory cytokines, MMPs</p>		
<p>M (Moisture imbalance)</p>	<p>Absorb exudate Hydrate wound bed</p>	<p>HydroTac</p> 	
<p>E (Impaired epithelialization)</p>	<p>Re-assess T.I.M. Support epithelialization</p>		

Expecting the New Generation NPWT from Hartmann in 2019

VivanoTec Pro



Intuitive interface

Easy therapy setting and switch between continuous and intermittent (variable) modes - even with gloves



Comfortable silence

Patients can experience a non-disturbing low noise*



One-handed canister change

Canister lock button allows simple canister change

The Vivano[®]Tec Pro negative pressure wound therapy unit combines convenient user interface at the wound, and focuses on safe handling and simplicity. [1][2]



Wound Management

In use now NTEC, NTWC, HKEC, HKWC, KWC

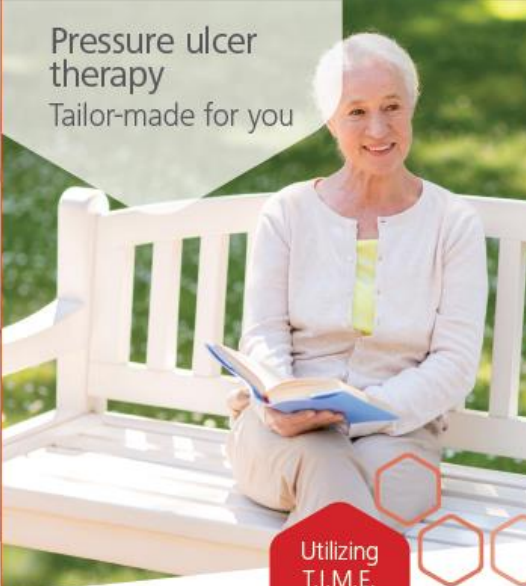


200 YEARS



Tailor-made for different wound needs

Based on the latest international guidelines

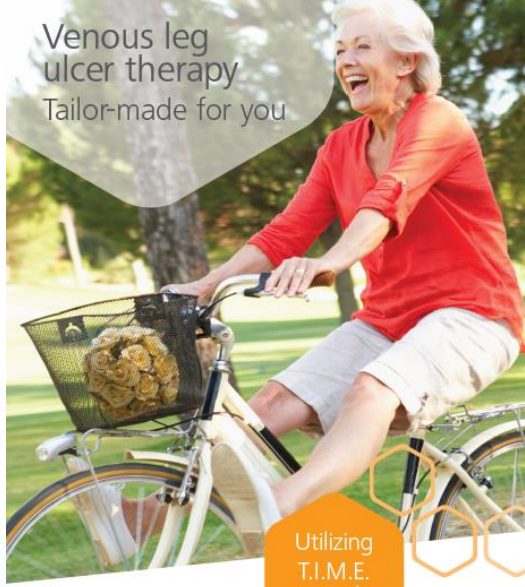
Pressure ulcer therapy
Tailor-made for you





Utilizing T.I.M.E. principles



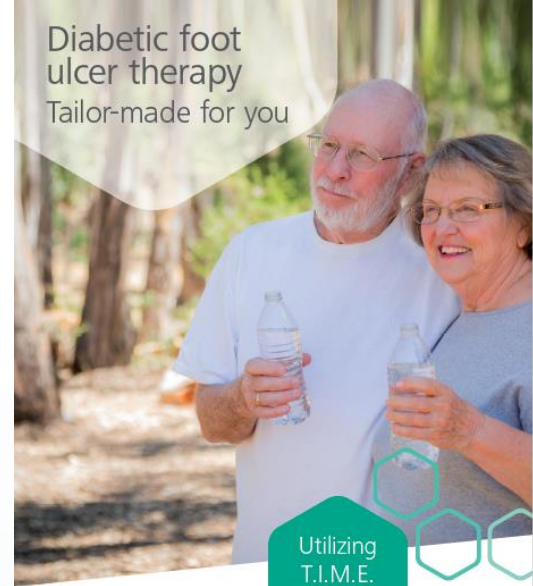
Venous leg ulcer therapy
Tailor-made for you





Utilizing T.I.M.E. principles



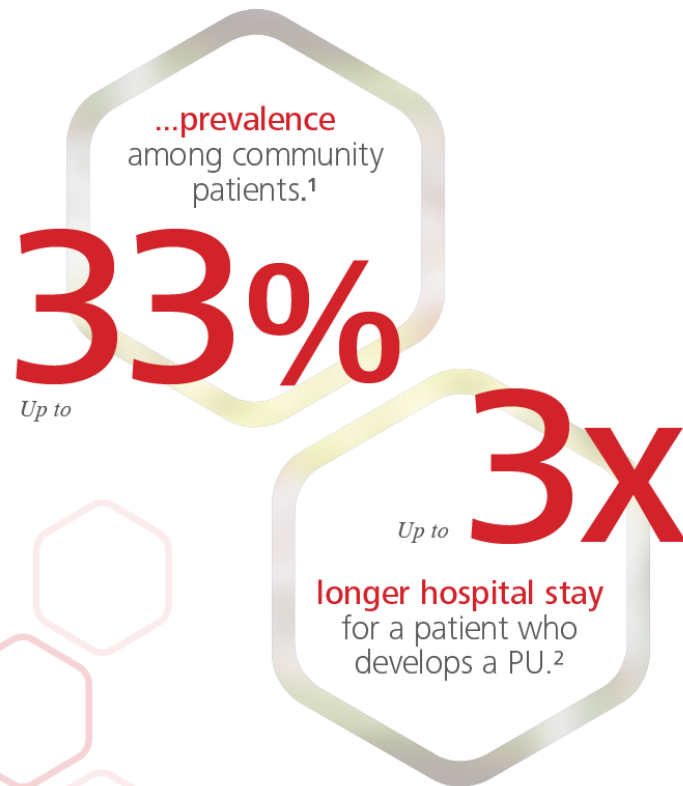
Diabetic foot ulcer therapy
Tailor-made for you



Utilizing T.I.M.E. principles



Pressure ulcer (PU) A worldwide major issue



Do your wound dressings have **WHAT IT TAKES TO OVERCOME PU?**

Modern dressings according to NPUAP/EPUAP/PPPIA 2014⁴ provide:

- 
-  **Manage pain** with a painless application and removal wound dressing
 -  **Cleansing and autolytic debridement** (biofilm)
 -  **Manage infection** by reducing bacteria load and biofilm
 -  **Prevent contamination**

Prevention and Treatment of Pressure Ulcers (PU)

Guideline Summary



EUROPEAN
PRESSURE
ULCER
ADVISORY
PANEL



NATIONAL
PRESSURE
ULCER
ADVISORY
PANEL

PAN PACIFIC
Pressure Injury Alliance



Prevention

Risk and Skin Assessment

Standardized tools, eg.

- Braden scale
- Waterlow scale
- Norton scale

Preventative Skin Care

- Regular inspection
- Absence of wet skin
- Moisturizing dry skin

Pressure Redistribution

- Encouragement of mobility
- Repositioning
- Use of wound care dressings

Nutrition

- Sufficient energy and protein intake
- Hydration and provision of all necessary vitamins and minerals

Wound dressings for PU prevention

Pressure

Thick dressings (high loft)

- ▶ Pad risk area and redistribute pressure

Friction

Film and dressings with low friction outer layer

- ▶ Reduce friction and shear

Shear

Multilayer high loft dressings with elastic adhesives

- ▶ Absorb and redistribute shear forces

Microclimat

Foam hydrocolloids, dressings with outer layer with high MVTR

- ▶ Keep skin dry

Treatment

General Measures

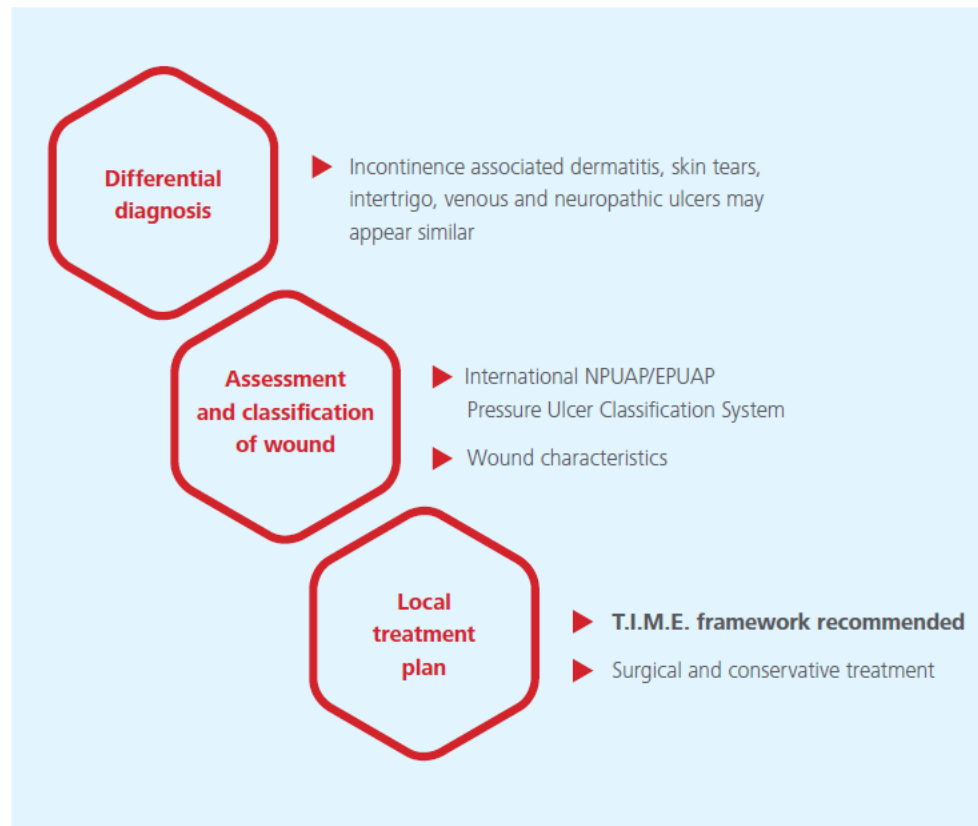
Redistribution of pressure by repositioning and use of support surfaces

- Static support surfaces, if
Patient able to reposition and be active
- Dynamic support surfaces, if
PU doesn't heal, severely impaired mobility, high risk, multiple PU

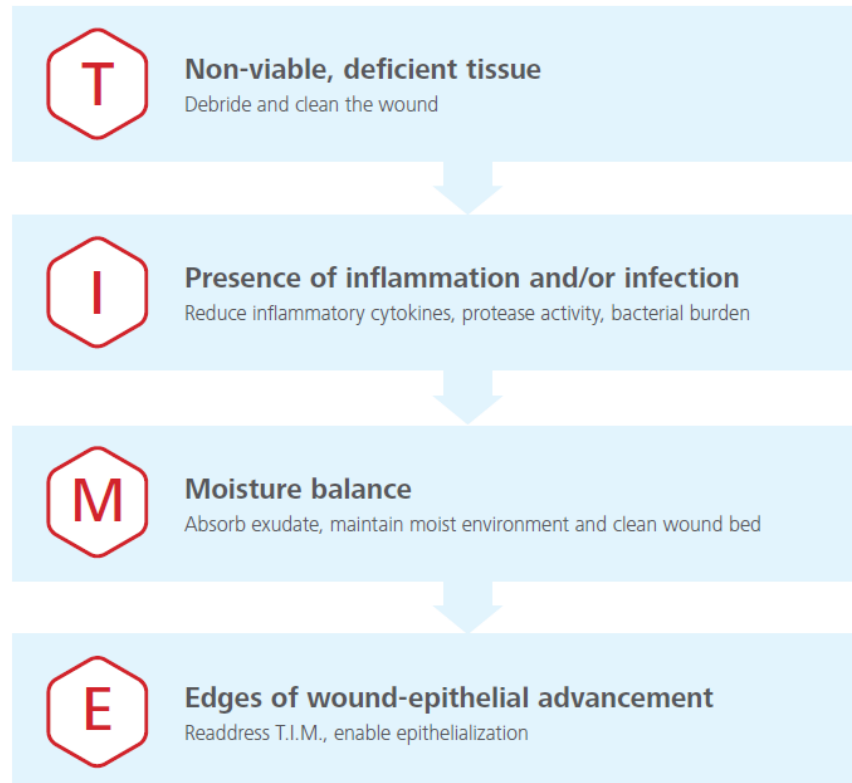
Encouragement of mobilization

Addressing nutritional needs

Local Wound Management of PU



T.I.M.E. Framework of PU^{1,2}



Wound bed preparation and healing progress

	T	I	M	E
Clinical finding Clinical condition	Necrotic, devitalized tissue	Inflammation and/or infection	Moisture imbalance	Impaired epithelialization
Our recommendation	Clean and debride	Decrease bacterial burden inflammatory cytokines, MMPs**	Absorb excess exudate, hydrate wound bed	Reassess T.I.M. Support epithelialization

Our 1st line recommendation
majority of chronic wounds low to moderate exudate

For special treatment consideration see detail aid



Chronic wound management Tailor-made for you

Wound bed preparation and healing progress according to T.I.M.E.* principles³



We work

for them

We go further for them
every minute of every
day, everywhere.





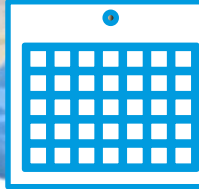
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Clinical Study Presentation Highly Exudative Venous Leg Ulcer

Community Wound Clinic, Hong Kong

Case in HK General Out-Patient Clinic



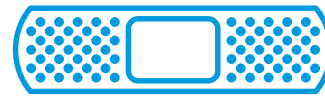
Dressing change
daily/alternative day



Primary: Hydrofibre w/Ag
Secondary: Burn pad (gauze)



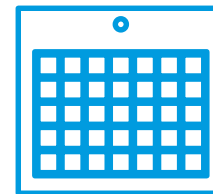




Primary: HydroClean[®]

Secondary: Zetuvit[®]
Plus

Fixation: Peha-haft[®]



Dressing change
on day 4 (96 h),
day 7 (72h).

Case from SOPD- Mr. N, 55 yr-old, VLU



17/7/2017 (Day 0)



24/7/2017 (Day 7)



17/7 (Day 0)

Slough significantly reduced
Fresh wound bed with
improved blood supply
Less **exudative**
Reduced **malodor**



24/7 (Day 7)

Healthy wound edge
Hyper-hydration - temporarily
swollen & whitish after
absorption of **cytoprotective**
Ringer's solution.

Not maceration (pale, fragile,
irregular wound edge)



Better outcomes yet less dressing change

Mon

Tue

Wed

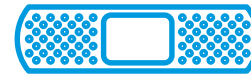
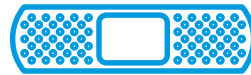
Thu

Fri

Sat

Sun

Before



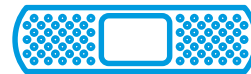
Hydrofiber Ag
Burn pad

Hydrofiber Ag
Burn pad

Hydrofiber Ag
Burn pad

Hydrofiber Ag
Burn pad

Now



HydroClean® Zetuvit®
Plus

HydroClean® Zetuvit®
Plus

After 2 dressing change, wound nurses decided to switch to HydroClean & Zetuvit Plus.

Wound nurses and CNS:

- Impressed by the debridement progresses in just a week after two dressing change!
- “These wounds stagnating for over 10 years. No progress after trying all other dressings. Good to see it’s working”





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Clinical Study Presentation

Exudative non-healing Venous Leg Ulcers

案例 - 下肢靜脈潰瘍

香港門診診所

Patient History

- 45-year-old, Male
- A construction worker, married, living with family
- Smoker. Right feet deformed since 2016
- Scheduled orthopedics surgery but postponed due to the wound that appeared a month before surgery (Dec-2016)
- Diagnosed **Venous Leg Ulcer** (ABPI > 0.8)
- First followed up in GOPC and Hospital
- **Stopped working** due to frequent attendance to hospitals (2-3 times/week)
- Poor appetite, **sleep upright** on chair for months due to **extreme exudate**



Clinical case presentation

Exudative non-healing venous leg ulcers



45/M, Venous leg ulcer on left lower leg

Progressed to circumferential since early 2017

Summary



Extreme exudate



Dec. 2016



Jan. 2017



Apr. 2016

Dec-16

Jan-17

Apr-17



- **Foam and sharp debridement** were found **ineffective**. Stagnating for > 9 months.
- Very painful, highly exudative, strong bad odor

45/M, Venous leg ulcer at right lower leg

Summary



Extreme exudate



Dec-16

Jun-17

Sep-17



- Followed up at GOPC 3 times a week



- Followed up at Hospital Orho. dept. once a month

Chronic non-healing wound affects patients, family and clinicians

Treatment - not only to the wound but the patient as an individual

- **Extreme exudate with strong bad odor** - significantly affect patient Quality of Life (QoL*)
- **Poor sleep quality** - slept on chairs to avoid wetting the bed and affecting his wife
- Dressing **saturated with exudate every hour** - sometimes 10+ times absorbent change a day.
- Force to **stop working**
- **Painful** wound cleansing/debridement





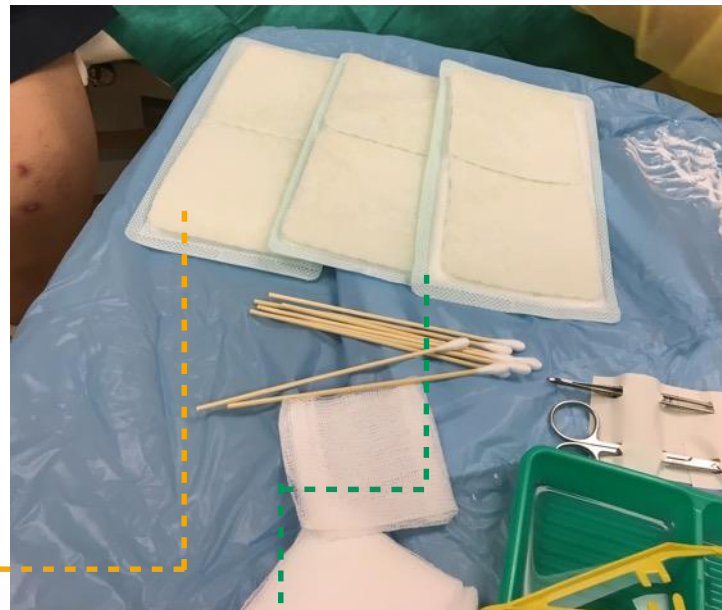
Juni 2016

Interview recorded under patient consent.

New HydroClean for wound bed preparation
Zetuvit Plus SAP super absorbent for exudate management



New HydroClean 10 x 10 cm fixed with surgical tape to conform circumferentially



Zetuvit Plus 10 x 20 cm (4 pcs) were Used as 2nd dressing. Fixation with **Peha Haft** cohesive bandage



Compression Therapy was applied to aid vascular function
Zetuvit Plus is designed with high retention even under compression



Zetuvit Plus 10 x 20 cm (4 pcs) were
Used as 2nd dressing. Fixation with
Peha Haft cohesive bandage



72 h later - 1st dressing change



All wound photos with patient consent.

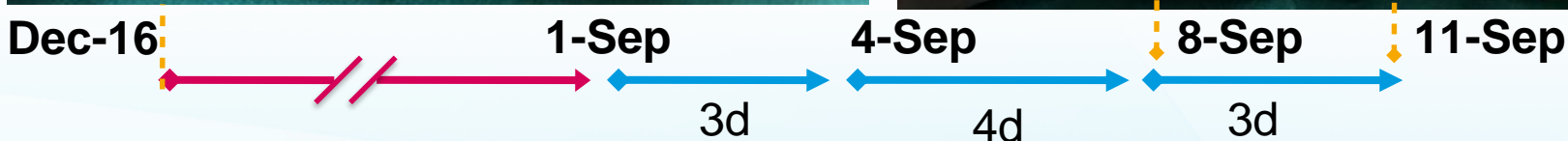
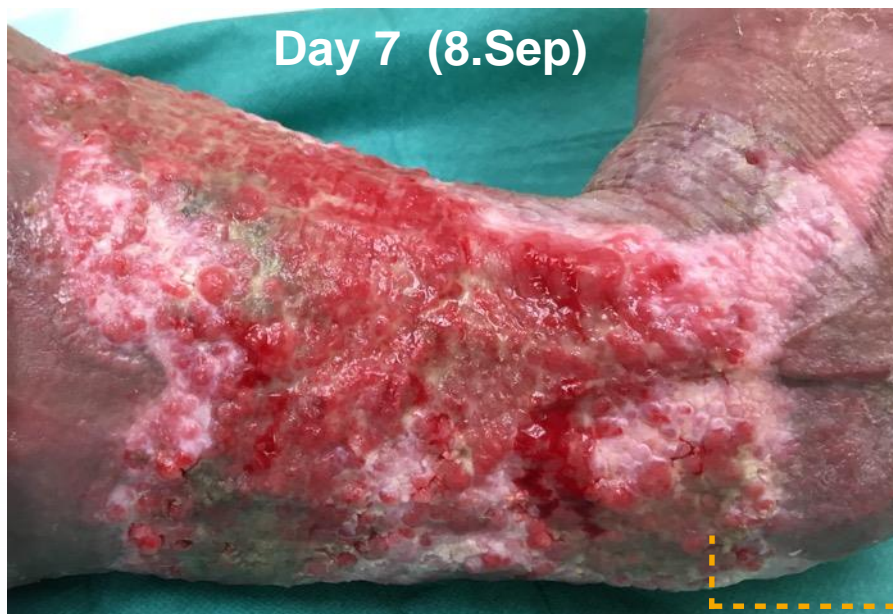
Re-vitalize the stagnating chronic wound after 9 month

Improved blood supply, reduced slough area and thickness



Debridement 90% completed in 1 week with HydroClean

Healthy granulation tissue replaced slough on wound bed



HydroClean effectively prepared the wound bed

HydroClean change every 3-4 days



Granulation completed in 7 weeks - improve patient *QoL

No more pain. Almost no exudate and bad odor



*QoL: Quality of Life improved according to direct patient interview OCT 2017.

HydroClean + Zetuvit Plus - A Simple and Effective solution

Easy application - facilitates community clinics and patient self-care*



Day (1.Sep)



Day 49 (20.Oct)

*Can stay on wounds for up to **3 days**, easy application even for patients.
Remove **necrotic/slough, bacteria, proteinase**.
Suitable for **dry/wet/exposed tendon/bone** wounds.

Challenges in exudate wound - change HydroClean in time

Keep rinsing and absorbing mechanism in moist not wet environment



2 dressing change/week



3 dressing change/week

Zetuvit Plus and **HydroClean** are excellent combination to heal exudative wounds.

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Wound Management by Hartmann

Efficacy. And Simplicity



Interview recorded under patient consent.

Finding new ways

Taking a different approach to healthcare will benefit all of us.

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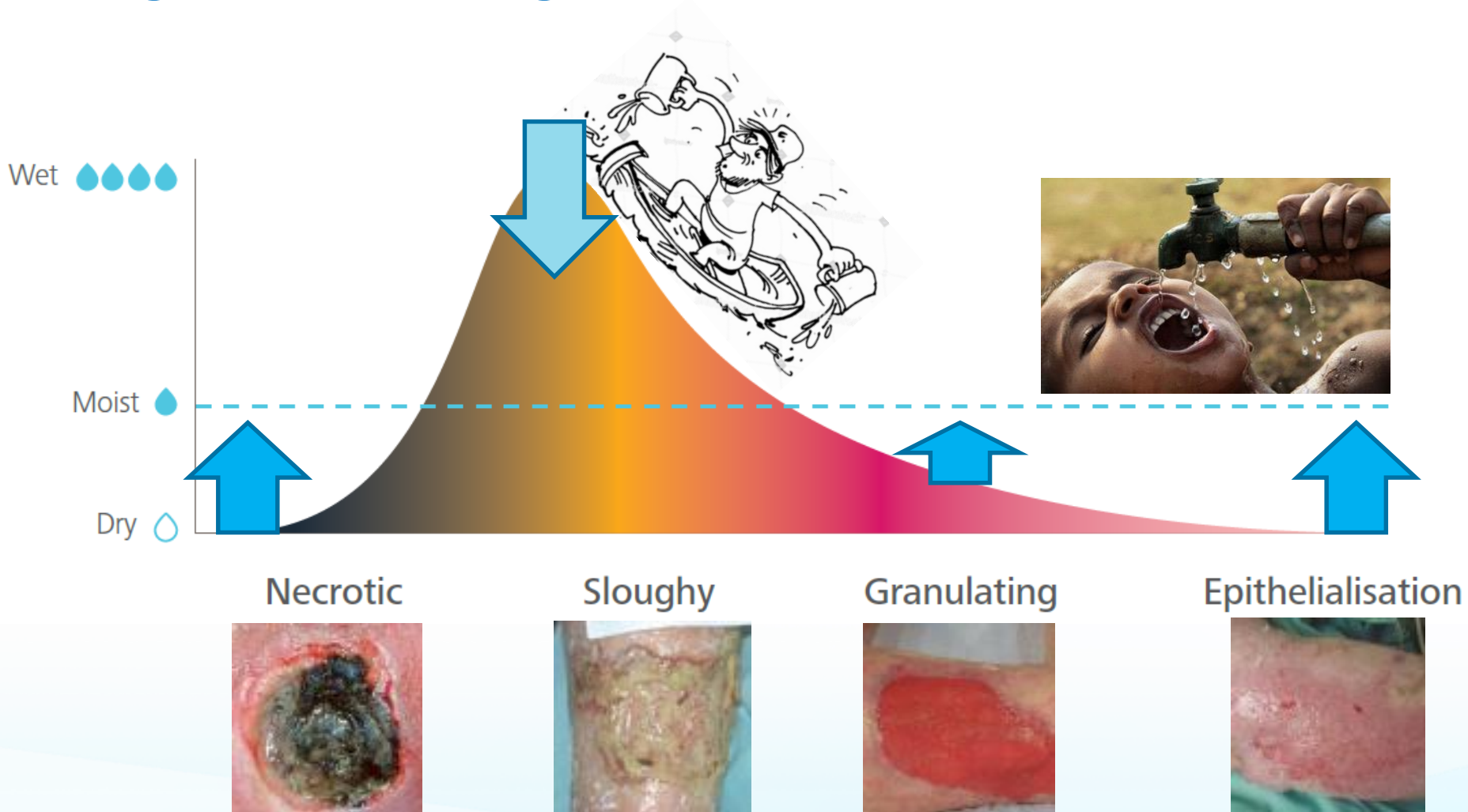


Going further
for health

From cleansing to wound closure with just two innovative Hydro-Responsive Wound Dressings (HRWD™)



Yet, Its not easy to maintain Optimal Moisture throughout the healing



HydroTac®

What if there was more innovative technology that took effective wound management further?



HydroTac®

It's time to look
beyond silicone:

HydroTac® with **AquaClear**
Technology a unique foam
dressing that actively absorbs
and hydrates



HydroTac®

What is HydroTac®?

HydroTac®

HydroTac® Comfort

AquaClear Technology

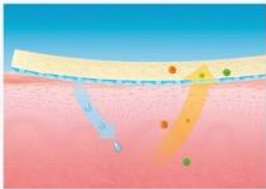
- Hydrates the wound
- Cools and soothes²
- Helps to alleviate pain on removal¹⁰

ABSORBENT POLYURETHANE FOAM

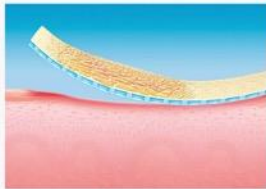
- Absorbs exudate
- Reduces maceration²
- Retains exudate under compression¹¹

EXTRA THIN ADHESIVE BORDER

- Protective film provides bacterial barrier²
- Showerproof²



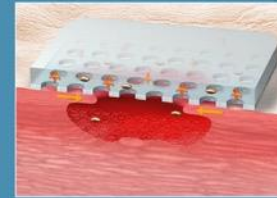
HydroTac®
Absorbs exudate and hydrates²



HydroTac®
Helps to alleviate pain on removal,
due to the hydropolymer gel²

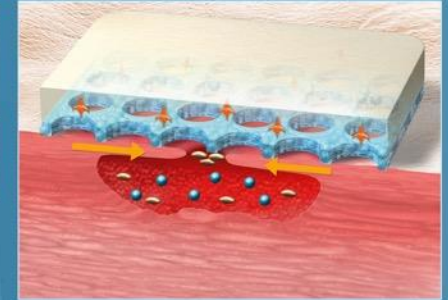
How AquaClear Technology works

Silicone interface



Silicone is an inert, passive material that does not actively hydrate the wound

HydroTac®
With AquaClear Technology



HydroTac® actively promotes granulation and epithelialisation¹² and facilitates wound progression¹³. The hydropolymer gel absorbs and hydrates, and actively promotes a moist wound healing environment^{3,14}

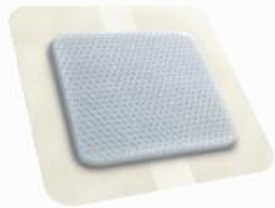
Hydro**Tac** – Fast and Active Wound Closure

Fast and active epithelialization²

absorption

accumulation of
growth factors¹

active moisturizing³



HydroTac[®]
with hydrogel



standard wound dressing
(e.g. silicone interface)





Professionalism

We constantly adapt ideas and solutions for the future and help implement them to improve quality of life.



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Clinical Study Presentation **Paediatric Hand Burn Management**

Plastic Surgeon, Hong Kong

Patient History

- Male
- 2 year-old 4 month
- Good past health
- Accidental **scald injury** while he was trying to reach the bowl of hot soup
- 100 degree Celsius
- Contact time few secs
- No first aid



2/M Right Hand Scald 14 Jul 2017 (Day 0)



2nd degree burn with ruptured blisters over the right hand, right forearm and right wrist

Dressing: HydroTac®



2/M Right Hand Scald 17 Jul 2017 (Day 3)

HydroTac®



2/M Right Hand Scald 19 Jul 2017 (Day 5)

HydroTac®



2/M Right Hand Scald
2Sep 2017 (post injury 1.5 months)

HydroTac®



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Wound Management by Hartmann

Efficacy. And Simplicity



We work for them

We go further for them every
minute of every day, everywhere.





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Clinical Study Presentation

Bilateral lower limbs
non-healed infected wounds

Dr. LEE, Kin-wing Vivian
Plastic Surgeon

26th October 2017

Case Study Presentation

Chronic non-healed infected wounds



Patient History

- Female
- 61
- Good past health
- Not on any medication
- No hx of trauma

- Sudden onset of blisters of bilateral limbs since 24.5.17
- Multiple skin necrosis, non-healed, smelly and



Additional relevant information

- Seen by Dermatologist
- Skin biopsy (27.5.17) : Leucocytoclastic vasculitis
- High dose steroid 25mg Daily → 12.5mg Daily
- Naproxen 250mg BD
- Pepcidine 20mg BD
- Caltrate + D 1 tab Daily
- On daily dressing by patient without proper dressing



Start and End

Start and End of Case Study/Treatment

- Date of Start: 12.7.2017
- Date of End: 10.10.2017

Status of Treatment: 12.07.17



Wound

- Description: non-healed wound with necrotic skin
- Wound size: 10x5.5cm
- Exudate: moderate
- Pain: moderate

Dressing

- Nil

Relevant information

- Infection: YES
- Medication: Steroid, NSAID



Debridement (GA) on 13.07.17



Left foot dorsum

Debridement on 13.07.17 (Day 0)

New HydroClean®



Left foot dorsum (post-debridement)

Status of Treatment: 14.07.17 (Day 1)

New HydroClean®



Cover with Tegaderm 14.07.17 (Day 1)

New HydroClean®



Status of Treatment: 15.07.17 (Day 2)

New HydroClean®



Status of Treatment: 15.07.17 (Day 2)

Wound

- Description: open wound with exposed tendon
- Exudate: moderate
- Pain: moderate

Dressing:

New HydroClean®

Problem:

- Contact between tendon and HydroClean is suboptimal

Status of Treatment: 17.07.17 (Day 4)



Wound

- Description: non-healed wound with exposed tendon
- Tendon still viable, but granulation static
- Exudate: moderate and smelly
- Pain: moderate

Dressing switch to:

Atrauman[®] Ag (silver contact layer)

New HydroClean[®]

Relevant information

- C/ST: Heavy growth of **E. Coli, Preoteus mirabilis, Streptococcus agalactiae** and **Peptostreptococcus species.**
- Medication: Steroid, NSAID, Morphine
- Augmentin + Levofloxacin for 1 week

Status of Treatment: 19.07.17 (Day 6)



Wound

- Description: non-healed wound with exposed tendon
- Tendon still viable, but granulation static
- Exudate: moderate and smelly
- Pain: moderate

19.07.17 (Day 6)

Hydrosorb[®] Gel + **Atrauman[®] Ag** + **New HydroClean[®]**

(Ringer's solution based hydrogel)

(Silver primary contact layer)

(All-in-one wound bed preparation)



Status of Treatment: 24.07.17 (Day 10)

Hydrosorb® Gel
Atrauman® Ag
New HydroClean®



Wound

- Tendon still viable
- More granulation covers the exposed tendon
- Exudate: mild to moderate
- Pain: moderate
- Repeat wound swab: pending
- Steroid 12.5mg → 10mg

Status of Treatment: 26.07.17 (Day 12)

Hydrosorb® Gel
Atrauman® Ag
New HydroClean®



Wound

- Tendon still viable
- More granulation covers the exposed tendon
- Exudate: mild to moderate
- Pain: mild
- Repeat wound swab: pending
- Steroid 10mg QD po

Status of Treatment: 07.08.17 (Day 26)

HydroTac®



Wound

- Tendon is covered by granulation tissue
- Exudate: mild
- Pain: no
- Steroid 10mg QD po
- switch to hydrotac, change every 5 days
- Discharged home

Status of Treatment: 06.09.17 (~2 months)

HydroTac®



Wound

- Left foot completed healed
start scar mx
- Right foot still raw
cont hydrotac

Status of Treatment: 10.10.17 (~3 months)

HydroTac®



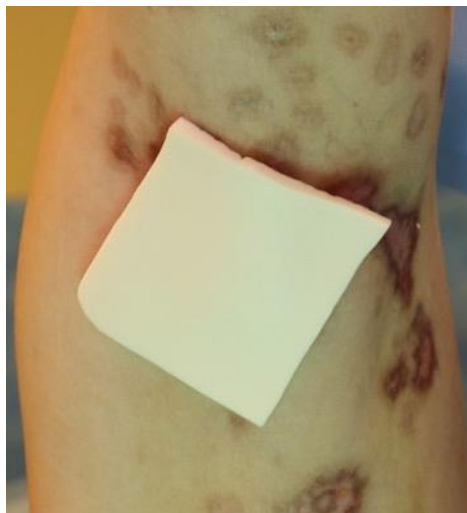
- No recurrence so far
- Wounds all healed
- On scar management

13.07.17 (Day 0)

26.07.17 (Day 13)



Left posterior knee
HydroTac® dressing



Right posterior knee

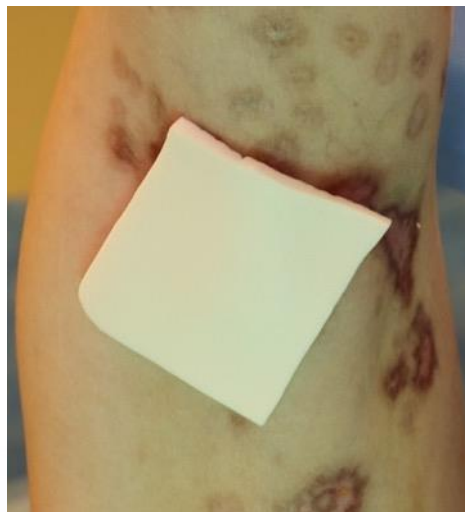


13.07.17 (Day 0)

14.08.17 (Day31)



Left posterior knee
HydroTac[®] dressing



Right posterior knee



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