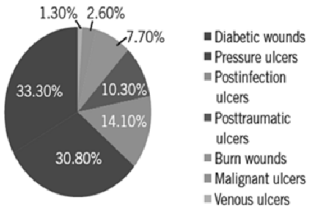
MỘT SỐ VẤN ĐỀ ĐIỀU TRỊ VẾT THƯƠNG HIỆN NAY

BsCKII : Trần đoàn Đạo

NỘI DUNG

1. **Dịch tễ học**
2. **Sự đồng thuận các chuyên gia**
3. **Chi phí điều trị & các giải pháp**

SILENT EPIDEMIC



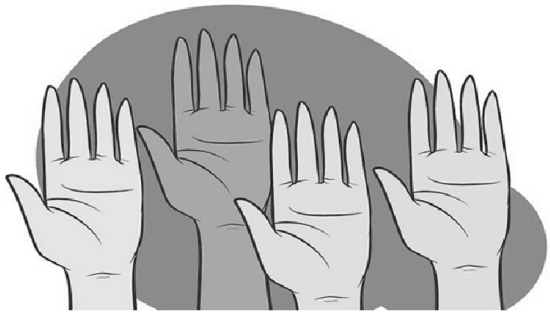
3

SILENT EPIDEMIC

- VT mạn tính liên quan đến tuổi tác, người cao tuổi
- Một số bệnh chuyển hóa (đái tháo đường, béo phì , gout…) liên quan với VT
- Can thiệp phẫu thuật gia tăng & tỷ lệ VT nhiễm khuẩn # 4%
- Mức độ đào tạo chuyên sâu về chăm sóc VT chưa được chú trọng

SILENT EPIDEMIC
Chi phí cho nguồn nhân lực

SỰ ĐỒNG THUẬN



Major Developments last 10 years

- **Biofilms – impacted both "T" & "I" components**
- **Negative Pressure Wound Therapy (NPWT) – impacted "T" "I" and "M" components**
- **New topical dressings – impacted "I" component**
  - *silver*
  - *new antiseptic dressings - PHMB*
- **DNA-based identification of bacteria – impacted "I"**
- **Diagnostics for proteases – impacted "E"**

ORIGINAL ARTICLE

Extending the TIME concept: what have we learned in the past 10 years?*

David J Leaper, Gregory Schultz, Kerylin Carville, Jacqueline Fletcher, Theresa Swanson, Rebecca Drake

Leaper DJ, Schultz G, Carville K, Fletcher J, Swanson T, Drake R. Extending the TIME concept: what have we learned in the past 10 years? Int Wound J 2012; 9 (Suppl. 2): 1–19

ABSTRACT

The TIME acronym (tissue, infection/inflammation, moisture balance and edge of wound) was first developed more than 10 years ago, by an international group of wound healing experts, to provide a framework for a structured approach to wound bed preparation and to assist the optimization of the management of open chronic wounds healing by secondary intention. However, it should be recognised that the TIME principles are only a part of the systematic and holistic evaluation of each patient at every wound assessment. This review, prepared by the International Wound Infection Institute, examines how new data and evidence generated in the intervening decade affects the original concepts of TIME, and how it is translated into current best practice. Four developments stand out: recognition of the importance of biofilms (and the need for a simple diagnostic), use of negative pressure wound therapy (NPWT), evolution of topical antiseptic therapy as dressings and the wound lounge (notably, silver and polyhexamethylene biguanide) and expanded insight of the role of molecular biological processes in chronic wounds (with emerging diagnostic and therapeutic tools). These have impacted on the TIME concept in ways that include the need for maintenance debridement and wound cleansing, both in low-flow wounds and novel methods (notably using NPWT and hydrosurgery). Infection/Inflammation: clinical recognition of infection (and non-infective causes of persisting inflammation) is critical. The concept of a bacterial continuum through contamination, colonisation and infection is now widely accepted, together with the understanding of biofilm presence. There has been a return to topical antiseptics to control biofilm in wounds, emphasised by the awareness of increasing antibiotic resistance. Moisture: the relevance of excessive or insufficient wound exudate and its molecular components has led to the development of new dressings and wound care products. Edge of wound: epithelial stem cells, which have been recognised and distributed to improve epithelial migration, which can be regarded as the cleanest sign of wound healing. The TIME concept is as relevant 10 years on, with continuing important developments that incorporate new evidence for wound care.

Key words: Chronic wounds • Debridement • Infection • Inflammation • Moisture balance • TIME • Wound bed preparation

INTRODUCTION

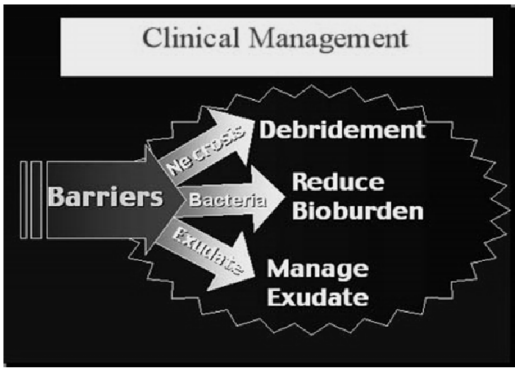
The TIME acronym was first developed more than 10 years ago, by an international group of wound healing experts, to provide a framework for a structured approach to wound bed preparation (1). This concept was adopted from a principle used in plastic surgery to ensure optimal preparation of a recipient

Authors: D. Leaper, MD, DMed, FRCS, FACS, FCS, Section of Wound Healing, Institute for Translation, Innovation, Methodology and Engagement, Cardiff University, Cardiff, UK; G. Schultz, PhD, Department of Obstetrics and Gynecology, Institute for Wound Research, University of Florida, Gainesville, FL, USA; K. Carville, RN, BSc, PGCE, MN, PhD, Wound Care Consultant, Perth, Western Australia; J. Fletcher, MSc, BSc, PGCE, RN, PNB, Institute for Translation, Innovation, Methodology and Engagement, Cardiff University, Cardiff, UK; T. Swanson, RN, MPHM, AHEA, Nursing (USA); C-DWMMC, PhD (Nursing), PGDip Info (Nursing), Master Info (Nursing), International Wound Infection Institute, Israel Wound Healthcare, Wonnanbool, Victoria, Australia; R. Drake, RN, London, UK

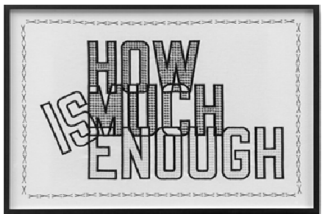
Address for correspondence: Prof. David J Leaper, Section of Wound Healing, Institute for Translation, Innovation, Methodology and Engagement, Cardiff University, Cardiff CF14 4XN, UK

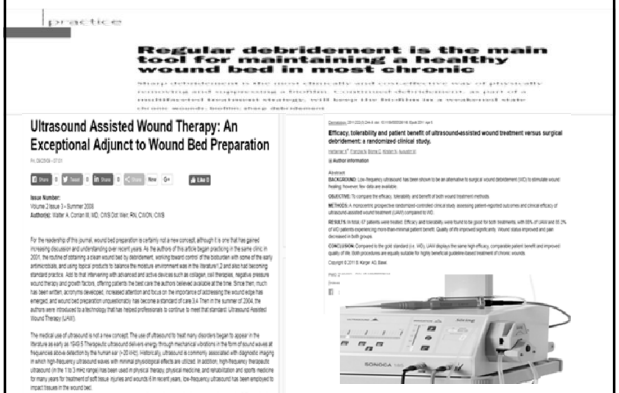
*Sponsored by Smith & Nephew Wound Management.

© 2012 The Authors
International Wound Journal © 2012 Blackwell Publishing Ltd and Medicalhelplines.com Inc



CẮT LỌC



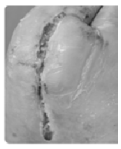


Wolcott, R. D., Kennedy, J. P., & Dowd, S. E. (2009). Journal of Wound Care, 18(2), 54–56.

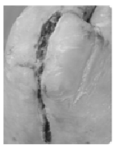
Extending the TIME concept

principle has not changed, although some of the practices used to facilitate this have changed over the intervening years. Advances in debridement technology such as low-frequency ultrasound, hydrosurgery and add-on use of NPWT devices with existing technology have led to more efficacious outcomes, as have advances in traditional non surgical debridement methods such as larval and enzymatic debridement. The practice of repetitive or maintenance-debridement for the management of static chronic wounds has also improved outcomes.

International Wound Journal 2012;9(Suppl. 12):1-19



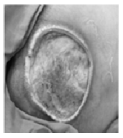
Before



After

Before

After



Only A Clean Wound Can Heal!

The wound bed is the foundation of the wound

Failing to prepare is preparing to fail

PATHWAY TO WOUND CLOSURE

Kháng sinh

- **Làm tăng sự đề kháng**
- **Sự đề kháng vẫn sẽ còn tăng với các kháng sinh hiện có**

GIẢI PHÁP : TRỞ LẠI THUỐC SÁT KHUẨN

Thuốc sát khuẩn

Cleansing Product	Improves Wound Healing	Effective Anti-microbial Against Common Wound Contaminants *in vitro*	Toxicity *in vitro*
Acetic Acid	Ineffective: 2C[1]	Effective: 1B[1]	Toxic: 1B[1,15]
Alcohol	Ineffective: 2C[1]	Effective: 1B[5]	Toxic: 1B[15]
Chlorhexidine	Ineffective: 2C[1,4,16]	Effective: 1B[5]	Toxic: 1B[1,4,15]
Hydrogen peroxide	Ineffective: 2C[1,16]	Effective: 1B[1]	Toxic: 1B[1,15,17]
Polyhexanide / betaine	Effective: 1B[1,8,10,18]	Effective: 1B[5,6,11]	Low Toxicity: 1B[5,6,19]
Povidone Iodine	Effective: 2C[1,8,12,13,16,20]	Effective: 1B[5]	Toxic: 2C[15]
Saline	Ineffective: 1A[21,22]		
Silver (ionized)	Effective: 2C[3,23,24]	Effective: 1B[1,24]	Toxic: 2C[5,15]
Sodium hypochlorite	Ineffective: 2C[1,21,26]	Effective: 1B[1,21]	Toxic: 1B[1,15,17]
Water	Ineffective: 1A[22]		

Robert G,Wikins, Kevin E Minnich (2013) , Wound cleaning and wound healing a concise review, Adv skin wound care

Thuốc sát khuẩn

Hoạt tính kháng vi sinh vật của các chất sát khuẩn [1]

	Gram +	Gram –	Nấm	Bào tử	Vi rút	Đề kháng
Chlorhexidine	+++	++	+	0	+	+
Honey	+++	+++	+++	0	+	0
Iodine	+++	+++	+++	+++	++	0
Maggots	+++	++	ND	ND	ND	0
Silver	+++	+++	+	ND	+	+

ND = Thiếu dữ liệu

European Wound Management Association (EWMA). Management of wound infection. MEP Ltd., 2006

Expert Commentary: Wound cleansing

Stephen Rowley, Clinical Director; **Simon Clare**, Director of Research and Development, The Association for Safe Aseptic Practice, London, UK

The microbiological profile of chronic wounds is diverse, and Wolcott and Fletcher highlight the developing evidence base regarding the role of planktonic and biofilm phenotypes in the pathogenesis of chronic wound infection[1-3]. They go on to highlight the fundamental point that increased proliferation of exogenous microorganisms exacerbates a state believed to inhibit wound healing[4].

It is therefore logical to focus on the importance of reducing the microbial load and preventing the introduction of new microbes during management of chronic wounds. Historically, aseptic technique has been mandated to achieve these ends; however, the term is rarely adequately defined, nor is the practical application adequately explained. As a result, practice standards vary widely[5-8], ultimately contributing to failures in aseptic technique and, in turn, contributing to the existence of chronic wounds.

However, having a standard approach to aseptic technique is increasingly mandated internationally[9-11], as it has been shown to improve healthcare worker knowledge and clinical practice and, in a growing number of cases, play a significant role in reducing healthcare-associated infection[12]. One example of a robust, evidence-based clinical practice framework that has improved competency-based teaching and the practice of aseptic technique is the now globally recognised Aseptic Non-Touch Technique (ANTT) initiative[13-15].

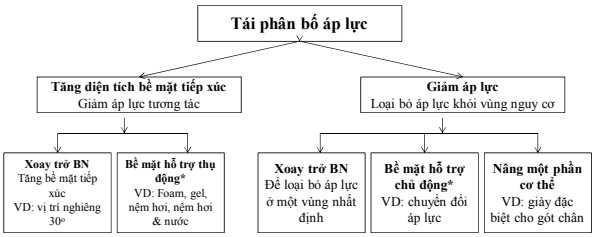
Wolcott and Fletcher attempt to thoroughly address one component of the overall practice of aseptic technique: the importance of delivering effective wound irrigation. In exploring the variety of potential solutions that could be employed in this crucial activity, they touch on the controversy that surrounds sterilised saline solutions and tap water for irrigation. The most recent Cochrane review of randomised and quasi-randomised trials reports no evidence that saline and tap water are detrimental to wound healing[16], but nor does it show that these solutions exhibit the antimicrobial effectiveness needed to help manage chronic wounds.

Furthermore, there are possible water source-related problems with using tap water. For example, gram-negative *Pseudomonas* bacteria is a well-reported issue in tap water[17] and, given the potential for biofilm development in healthcare water systems[18], the nature and extent of its presence in chronic wounds should be investigated further. Chronic wounds are not often swabbed, which limits taking an epidemiological approach to biofilm in chronic wounds. Moreover, in community settings (where the majority of chronic wounds are cared for), water quality is not routinely monitored at the point of use, underappreciating the role it might play in the development of gram-negative-rich biofilms.

Although we cannot know the extent of delayed healing of wounds related to tap water, the potential to impede healing combined with the lack of antimicrobial activity on the parts of both tap water and saline mean they cannot be viewed as the most effective options for irrigation of chronic wounds. Clinicians should therefore seek to use a solution that balances antimicrobial activity with minimal cytotoxicity as part of managing wound biofilm. Of course, whatever wound irrigation solution is chosen and used should be done so in accordance with standardised aseptic technique, to decrease the risk of microorganism proliferation. A holistic approach to chronic wound care, incorporating the practical tips provided by Wolcott and Fletcher, is therefore essential to working towards solving the huge problem of chronic wound prevalence. In an area short of gold-standard evidence, Wolcott and Fletcher's appraisal of both the role and application of wound irrigation will be very welcome by practitioners.

Wolcott R, Fletcher J. The role of wound cleansing in the management of wounds. Wound International 2014;5(3)

TÁI PHÂN BỐ ÁP LỰC (giảm lực ma sát & kéo trượt)



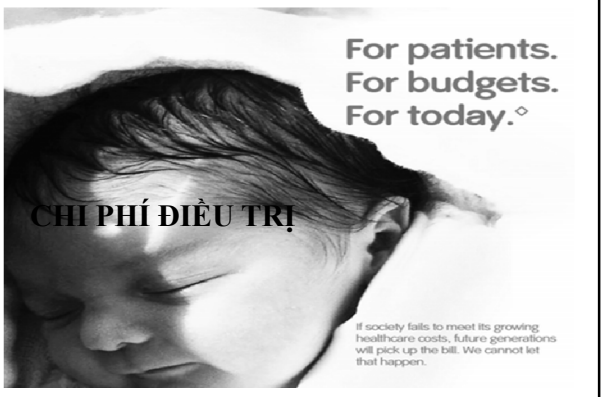
***Bề mặt hỗ trợ thụ động có khả năng thay đổi tính chất phân bố áp lực khi có áp lực tỳ đè**
Bề mặt hỗ trợ chủ động có khả năng thay đổi tính chất phân bố áp lực khi có hoặc không có áp lực tỳ đè.

Moving Forward …..

T.I.M.E » **M.O.I.S.T**

- Intended to further develop the ideas of T.I.M.E concept
- Combines modern treatment methods
- New, innovative treatment options to "O" & "S"

By Wund-D.A.CH
German-Austrian-Swiss Wound Healing Organization



CHI PHÍ ĐIỀU TRỊ

Thiếu nhận thức về quản lý vết thương

- Phòng ngừa :
  - ❖Mỹ : 6% BN mang giày dép giảm tải đúng cách
  - ❖50-60% loét do Tĩnh mạch không được điều trị băng ép
- Điều trị :
  - ❖60-80% loét tỳ đè độ IV mắc phải ở BV
  - ❖Nhiễm khuẩn vết thương

Chi phí chăm sóc vết thương

Đề xuất của Hamilton, C, 2008[1]
Số lần nhập viện
Các thủ tục
Cấp cứu/chọn lọc
Thời gian nằm viện trung bình
Tỷ lệ biến chứng: Nhiễm khuẩn Cắt cụt chi Sự thành công của ghép da, ghép mô
Thời gian lành thương
Số lần thay băng
Chi phí tất cả nguyên vật liệu mỗi lần thay băng

Chi phí chăm sóc vết thương ước tính cho NHS tại Hull and East Yorkshire (2005–2006)[2]
Chi phí nguyên vật liệu (17%-22%)
Thời gian chăm sóc điều dưỡng (33-41%)
Chi phí nằm viện (37-49%)

1. Polak et al (2008) Buyers' London NHS Purchasing and Supply Agency, 1-90.
2. Drew, P., Posnett, J., & Rusling, L. (2007). The cost of wound care for a local population in England. *International Wound Journal*, 4(2), 149-155.

I.MỘT SỐ VẤN ĐỀ CỦA VẾT THƯƠNG
Giảm chi phí ẩn

	Băng bọt Polyurethane	Băng gạt truyền thống
Chi phí vật tư/ thay băng (USD)	9.83	6.36
Chi phí điều dưỡng/ thay băng (USD)	9.18	9.18
Tổng chi phí/ thay băng (USD)	19.01	15.54
Tần suất thay băng/ tuần (USD)	2	7
Chi phí vật tư/ tuần (USD)	19.66	44.52
Chi phí điều dưỡng/ tuần (USD)	18.36	64.26
Tổng chi phí/ Tuần (USD)	38.02	108.78
Chi phí tiết kiệm/ tuần	85.26	
- Chi phí vật tư	21	
- Chi phí điều dưỡng	64.26	

I.MỘT SỐ VẤN ĐỀ CỦA VẾT THƯƠNG
Giảm chi phí ẩn

	2005 (50 BN)	2006 (50BN)
Số tuần trung bình để vết thương lành	54,5	21,9
Tần suất thay băng trung bình/ tuần	5.89	2.9
Tổng số lần thay băng đến khi lành vết thương	321	63.5
Chi phí cho điều dưỡng/ thay băng ($)	51	51
Tổng chi phí cho điều dưỡng/ BN ($)	16.371	3.239
Chi phí vật tư/ thay băng	3.75	26.99
Tổng chi phí vật tư/ BN ($)	1204	1714
Tổng chi phí/BN ($)	17.575	4.952

Thời gian lành thương trung bình 51,5 tuần (2005) so với 20,9 tuần (2006)
Tỷ lệ thay băng hàng ngày giảm từ 48% (2005) xuống 15% (2006)

Niagara community health
Ngân sách tiết kiệm 3- 8 triệu USD

I.MỘT SỐ VẤN ĐỀ CỦA VẾT THƯƠNG

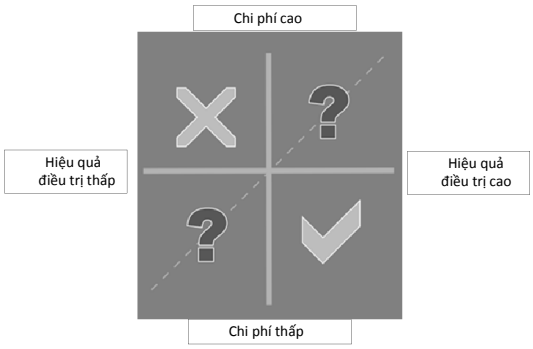
Giảm chi phí ẩn : nhiễm khuẩn VT

Dữ liệu tại Châu âu

1. Nhiễm khuẩn bệnh viện : 30-40BN/1000 cases PT
2. Thời gian nằm viện thêm trung bình : 11 ngày
3. Chi phí trung bình : € 5800/ trường hợp
4. Tỷ lệ tử vong : # 5%

- Dựa trên dữ liệu
- 01 BV thực hiện 10.000 cases PT/ năm
- → 300- 400 cases nhiễm khuẩn & 3.300 – 4.400 ngày nằm viện tăng thêm, sẽ tiêu tốn 1.74- 2.32 triệu € và 15-20 cases tử vong do nhiễm khuẩn

Giải pháp



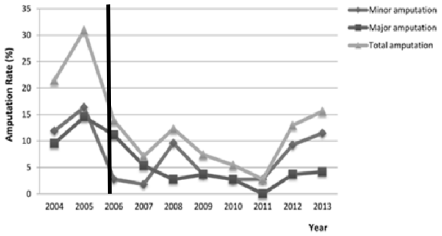
TIẾP CẬN NHÓM ĐA CHUYÊN KHOA

- **Đánh giá VT toàn diện**
- **Tiêu chuẩn hóa điều trị**
- **Chi phí điều trị thấp**

Wang et al. BMC Endocrine Disorders (2016) 16:38
DOI 10.1186/s12902-016-0111-0

BMC Endocrine Disorders

Reducing major lower extremity amputations after the introduction of a multidisciplinary team in patient with diabetes foot ulcer



Wang, C., et al. BMC Endocrine Disorders, 2016. **16**: p.

A Multidisciplinary Diabetic Foot Protocol at Chiang Mai University Hospital: Cost and Quality of Life

The International Journal of Lower Extremity Wounds
8(3) 153–156
© The Author(s) 2009
Reprints and permission: http://www.sagepub.com/journalsPermissions.nav
DOI: 10.1177/1534734609344143
http://ijlew.sagepub.com
SAGE

Table 2. Cost of Treatment for Diabetic Foot Ulcer for DFP and Standard Care Patients (SEM)

	DFP (n = 56)	Standard Care (n = 40)	P
Direct cost in US$ (SEM)			
Medical cost	915.95 (1650.92)	1455.29 (1860.09)	.01
Nonmedical cost	104.23 (153.77)	111.01 (144.92)	.19
Indirect cost in US$ (SEM)	85.28 (137.40)	141.96 (513.24)	.79
Total cost in US$ (SEM)	1127.02 (1762.51)	1824.58 (2239.33)	.02

NOTES: DFP = diabetic foot protocol; SEM = standard error of the mean.

Rerkasem, K., et al. Int J Low Extrem Wounds, 2009. **8**(3):

KẾT LUẬN

- Vẫn còn rất nhiều thách thức trong điều trị vết thương
- Cần nhiều sự đồng thuận từ các chuyên gia để tiêu chuẩn hóa việc điều trị

TÀI LIỆU THAM KHẢO

1. Posnett J, Gottrup F, Lundgren H, Saal G. The resource impact of wounds on healthcare providers in Europe. Journal of Wound Care, 2009;18(4):154-161
2. The World Bank, World Development Indicators (WDI) April 2011
3. Wild, S., Roglic, G., Green, A. *et al.* Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care 2004; 27: 1047-1053.
4. Bales I, 2009. Reaching for the moon: achieving zero pressure ulcer prevalence. J Wound Care. 2009 Apr;18(4):137-144
5. Reiber, G.E., Boyko, E.J., Smith, D.G. Lower extremity foot ulcers and amputations in diabetes. In: National Diabetes Data Group, National Institutes of Health. Diabetes in America (2nd edn). US Government Printing Office (NIH pub. no. 95-1468), 1995.
6. Drew P, Posnett J, Rusling L, on behalf of the Wound Care Audit Team. The cost of wound care for a local population in England. Int Wound J 2007;4:149–155.
7. Lindholm, C., Bergsten, A., Berglund, E. Chronic wounds and nursing care. Journal of Wound Care 1999; 8: 1, 5-10.