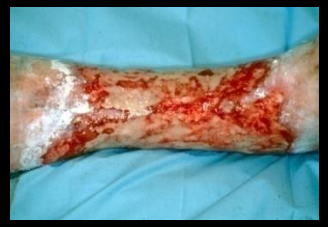
Core Outcome Set (COS) in the Wound Area

Finn Gottrup
Professor of Surgery

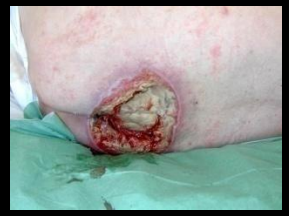
Copenhagen Wound Healing Center
Department of Dermatology
Bispebjerg University Hospital
Copenhagen, Denmark

Type of Wounds

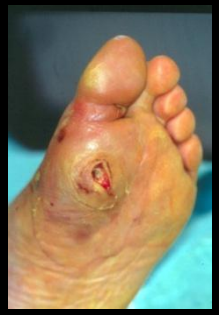
Leg Ulcers



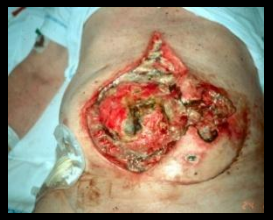
Pressure Ulcers



Diabetic Foot Ulcers



Complicated Acute Wounds



Problem Wounds (Denmark)

- **No. Wounds:** >1 % of Population
- **Expenses:** 2-4 % of Total Health Care Expenses *
- **Nursing Time:** 25-30 % in the Prim. Health Care Sector+
- **Future:** In 30 Years 25 % of Population > 65 Years
  double Incidence of DM next 15-20 Years

(*Posnett 2002) (+Posnett et al. 2009)

Outcomes in Wound Healing

Copenhagen Wound Healing Center, F. Gottrup

Wound Devices are frequently used, but often quite expensive and should be chosen based on Evidence of Efficacy

Main Problems in the Wound Area

- There is **limited evidence on the highest level** to demonstrate that *Technique/Device X* has effect on the wound treatment
- The **major problem is poor quality** of the papers

Copenhagen Wound Healing Center, F. Gottrup

The Problems with lacking Evidence of Wound Products

- In many Countries Reimbursement depend of the Level of Evidence
- The Level of Evidence and Cost-effectiveness is the Main Reason for using a Product
- Most Wound products are Devices, where no Phase 3 Trials are needed for clinical Use (opposite a Biological or Medical Product)

P. Price, Cardiff, England

Evidence of What?

(3 E´s)

Efficacy	Efficiency	Effectiveness
Healing	Frequency of Visits	Cost
Recurrence	Days in hospital	QoL

The Outcome ”Healing” is the Reason that almost all Studies performed with DFU is on superficial Wounds not the severe Wounds risking major Amputation

Outcomes in Wound Healing

Important Evidence Questions in the Wound Area

Guest Editorial

Evidence Is a Challenge in Wound Management

Nonhealing wounds are significant problems to health care systems all over the world. The frequency varies and is related to types of population and health care systems, but in the industrialized world, it can be expected that almost 1% to 1.5% of the population constantly have a problem wound, which counts for more than 2% to 4% of the health care budgets.[1] If patients at risk were identified and aggressive interventions occurred before development of complications or progression of wounds, patient morbidity and health care costs could be significantly decreased.[2] The question then is, Which type of intervention and what dressing materials are the best from what is available?

Evidence-based practice is an accepted way of evaluating the health care procedures and technologies. According to the Cochrane Wounds Group, a large number of those procedures and technologies used in wound management are not evidence based.

EVIDENCE-BASED PRACTICE AND REIMBURSEMENT STRATEGIES IN WOUND MANAGEMENT

Evidence-based practice is generally focused on the use of current best evidence in making decisions about care of individual patients.[3] The practice of evidence-based medicine (EBM) means integrating individual clinical expertise with the best available external clinical evidence from systematic research. In the Cochrane system, it is a systematic review of randomized controlled trials (RCTs), which usually leads to a meta-analysis of data from those RCTs that come within the defined rules. This approach helps to minimize bias inherent in comparisons.

This type of evidence-based practice has been the gold standard for all types of clinical work and has been the standard that has to be followed if a treatment procedure should be accepted in the medical world. Currently, economical resources to clinical and research work also have been based on the ability of the involved area to fulfill the concept of EBM.

Does this practice fit into the wound area? Most procedures, methods, materials, and technologies used in wound management may not fulfill the above-mentioned criteria. A great deal of clinical research suffers from inadequate sample sizes, short follow-ups, nonrandom allocation to treatment arms, nonblinded assessment of outcomes, poor description of control and concurrent intervention, and so on.

Lack of accepted evidence may also be related to the fact that the majority of products used in wound management are categorized as medical devices, which may be deemed safe for use after successful investigations of safety based on Phase 1 and 2 trials yield satisfactory outcomes. Thus the motivation for designing and developing Phase 3 studies (RCTs) may be less in the field of wound healing compared to other areas of clinical medicine. The evidence problem has recently been confirmed in a systematic review on the efficacy of modern dressings in the treatment of leg ulcers.[4] In a meta-analysis, it was concluded that there is insufficient evidence to determine a difference in healing time between modern and traditional (gauze) wound products in leg ulcer patients. It was also concluded that well-conducted trials are warranted. This has to be related to the fact that modern wound products were introduced more than 30 years ago.

Reimbursement strategies in Europe are often based on evidence of the used products. Consequently, traditional products such as gauze and other dry wound-healing dressings may be reimbursed, whereas no reimbursement is achieved for the modern dressings based on moist wound healing.

FUTURE STEPS

The problem is to define a possible and acceptable measure of best evidence in the wound area. RCTs may not be the most appropriated strategy. The

Correspondence should be sent to: Finn Gottrup, MD, DMSci, The University Center of Wound Healing, Odense University Hospital, DK-5000 Odense C, Denmark; e-mail: finn.gottrup@suh.fyns.amt.dk.

Conflict of Interest: None

DOI: 10.1177/1534734606289412

F. Gottrup:
Editorial,
Int J Lower Extremity Wounds 5; 2006: 74-75

RESEARCH:
Simon Palfreyman, E Andrea Nelson, and Jonathan A Michaels
Dressings for venous leg ulcers: systematic review and meta-analysis
BMJ 2007; 335: 244 [Abstract] [Full text]

Rapid Responses: Submit a response to this article

Rapid Responses published:

Evidence controversy in wound management
Finn Gottrup (3 March 2008)

Evidence controversy in wound management 3 March 2008

Finn Gottrup,
Professor of Surgery
Copenhagen Wound Healing Center, Bispebjerg Univ. Hospital, DK 2400 Copenhagen, Denmark

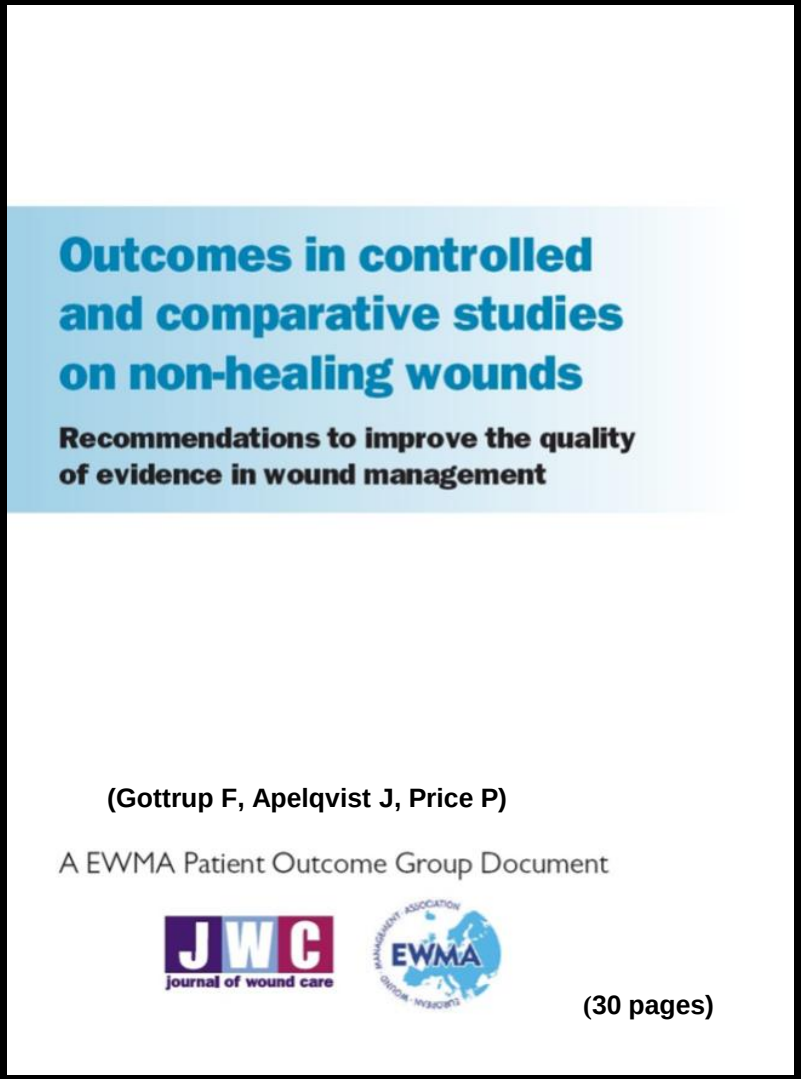
Send response to journal:
Re: Evidence controversy in wound management

Problem wounds are a significant problem for the health care system all over the world. In the industrialized world, it can be expected that almost 1-1.5% of the population constantly have a problem wound, which counts for 2-4% of the health care budget (1-3). The question is which type of intervention, which type of technology and which type of dressing materials are the best from what is available? Recent reviews have shown little or no compelling evidence of a significant difference in time to healing or percent healing between patients treated with traditional and modern dressings (4-7). In BMJ (5) a review and meta-analysis on dressings for venous leg ulcers was published in 2007. It was concluded that the type of dressing applied beneath a compression was not shown to affect ulcer healing. Reimbursement strategies in Europe are often based on evidence of this kind.

Consequently traditional products like gauze and other dry wound healing dressings may be reimbursed, while not the modern dressings based on moist wound healing Modern dressing have been used for more than 25 years and the lack of evidence may raise questions of which two are especially important. 1. why has wound care research not achieved evidence on level 1A of the Cochrane system and 2. is healing the only relevant end point when comparing different treatment regimens?

F. Gottrup:
Rapid Respose
BMJ, 3 March 2008

Are Definitions, Classifications, Priorities, End-points/Outcomes in the Wound Healing Area sufficient developed to be tested by a Cochrane Update Evidence evaluation?



EWMA
Patient Outcome Group

First Initiative focusing directly on Outcomes in the Wound Area

Recommendations on Endpoints/Outcome Parameters

- Wound closure, defined as total epithelialisation without discharge, is the most important endpoint relating to ulcer healing. It must be confirmed by an independent source (photography) and there must be sufficient follow-up to confirm healing
- Wound area reduction is a valid endpoint with regard to wound healing but it must be confirmed by tracing and include a predefined relevant cut-off to ensure that 'reduction rate error' (described in section: 'reduction rate') does not occur
- There is enough evidence to support the use of a 50% reduction in wound surface area over time as a useful outcome, provided that the initial wound size and the measurement technique are taken into consideration. The time interval used in such assess-ment will vary depending on the wound type. Any reduction of less than 50% cannot be supported by the current literature; in these instances, more objective measures of size reduction must be used
- Time to heal is an important outcome. However, the study protocol must consider the substantial methodological difficulties entailed, particularly confirmation of the exact date of healing for each patient during the specified observation period. To date, the accepted time interval for resource studies is one year
- There is an urgent need for a validated scoring sys-tem with regard to wound condition
- When using changes in the wound condition as an outcome parameter, they must be predefined and measured in such a way that they can be validated independently, wherever possible (for instance, by photograph)
- When using biological markers as a primary out-come, they should be clearly predefined, and a clin-ically relevant unit of change should be specified; reliable and valid quantitative assessment methods should be used
- When using wound infection as a primary out-come marker, it should be clearly predefined. At present, this could be either a binary measure of presence/absence or a composite score focusing on clinical signs and symptoms
- Regardless of the assessment tool used, when using pain as an outcome measure it is important to pre-define the amount of wound pain reduction that is clinically important
- When surrogate parameters such as symptoms and signs, or composite endpoints such as scales, are used as primary endpoints, it is essential that both their basic definition and what is considered to be a clinically relevant difference are predefined. When used as an primary endpoint, it is favourable for it to be verified by an independent evaluator
- When assessing dressing performance in an objec-tive manner, with a focus on a specific aspect of symptom management, a comparative study may not be needed; the relevant data could be better assessed using a cohort study with a standardised, reproducible and validated protocol that includes resource utilisation (when appropriate)
- HRQoL assessments must be based on tools with established psychometrics
- The type of assessment must fit with the purpose of the data collection: if HRQoL data are to be used for health technology assessment reviews, then generic and/or utility methods must be included
- When cost is used as an outcome parameter in wound management, it is essential to measure all the quantities of resources used and then add the value of those resources, according to a predefined protocol. It is recommended that resource use and cost are shown separately

Aims of the Document

Provide recommendations on the accepted level of precision for outcome in studies in Wound Management and develop a consistent and reproducible approach to both RCTS and clinical studies

Should be accepted by clinicians as well as industry and approved in all parts of Europe.

Types of Outcomes in the Wound Area

From 2003 to September 2009: RCTs and Comparative Studies in Non-healing Wounds. 371 articles of which 76 articles were selected.

Outcomes (% represent each category's proportion of the endpoints):

- **Wound reduction rate (24.1%)**
- **Wound closure (16.9%)**
- **Healing time (9%)**
- **Change in wound condition (9%)**

} **Almost 60 % relates to healing**

- **Biomarkers and bacteriology (4.5%)**
- **Circulation (1.9%)**
- **Infection signs (4.5%)**
- **Symptoms and signs (13.2%)**
- **Dressing performance (7.0%)**
- **Quality of life (5.8%)**
- **Costs and resources used (4.5%).**

Copenhagen Wound Healing Center, F. Gottrup

New Outcome Measures

Efficacy

- Healing
- Recurrence

Efficiency

- Frequency of Visits
- Days in Hospital (eg. Infection)
- Others

Effectiveness

- Cost
- QoL (eg. Pain)
- Others

Stakeholders in the Wound Area

The Patients

Public Health Care Personnel

- Medical Doctors
- Nurses
- Podiatrists
- Physiotherapists
- Others

Government

- Regulators
- Economists
- Others

The Industry

- Owners and Administrators
- Workers
- Sales Persons
- Researchers

Feedback & Discussions

- The EWMA Patient Outcome Group invites all relevant stakeholders to give their feedback and enter discussions about the messages of the document.
- It is a "living document" – open for adaptations hope to reach a general European consensus.
- EWMA will initiate a comprehensive implementation plan involving various stakeholders.

Active Implementation!

By inviting the EWMA Cooperating Organisations to translate and distribute the document in their countries and to arrange information meetings for relevant stakeholders on national level, e.g. HTA organisations and research active clinicians.

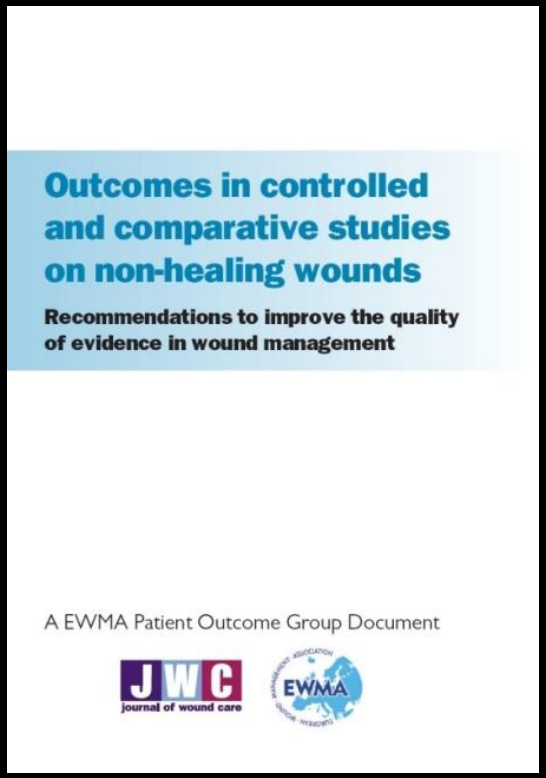
By inviting national Med Tech industry organisations to enter the discussion, give their feedback to support the implementation.

By arranging meetings with relevant stakeholders on European level and internationally to discuss the messages of the document and the implementation of generally accepted guidelines.

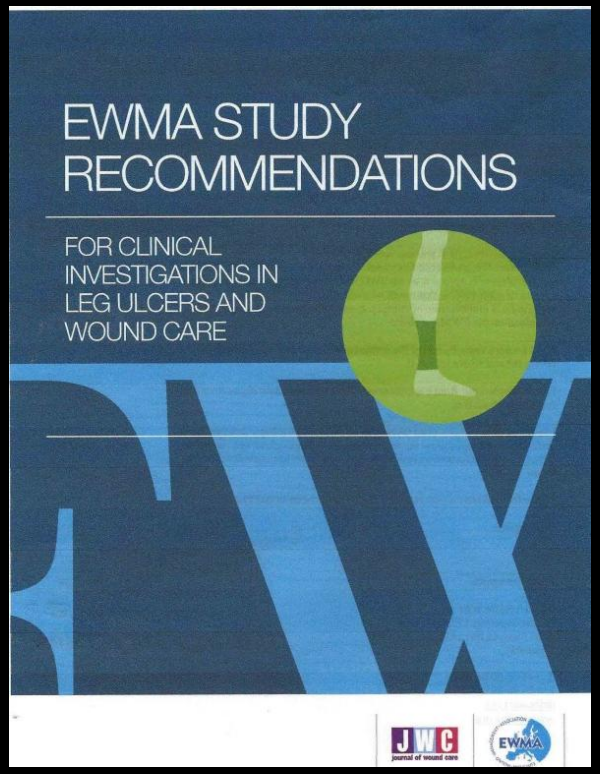
By monitoring whether the document is used on national level – on the long term.

Outcomes in Wound Healing

Developing Guidelines for Research



Gottrup F, Price P, Apelqvist J:
J Wound Care 2010; 19: 237-68



Price P, Gottrup F, Abel M:
J Wound Care 2014; 23: 5, S1–S36.

Conclusion and Key Messages

- Substantial Number of Publications. Need for increased Quality of Evidence
- Consistency in measuring Outcomes improves Quality:
  - Pre defined & robust Outcomes
  - Adapt Outcomes to the Intervention investigated
  - Use the best Evidence available
- Intact Skin/Healing. Not always possible
  - Alternative Endpoints can also be measured on a high level of Evidence
- Standardise ”Basic Care”

Thank You for Your Attention

Professor Finn Gottrup
Copenhagen Wound Healing Center
Bispebjerg University Hospital
Copenhagen, Denmark
Email. fgottrup@post4.tele.dk
Tel: +45 40303390