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The annual EWMA conference was held in Pisa, Italy earlier this year. The conference gathered together over 1300 health professionals from both Europe and the rest of the world. The atmosphere was innovative and enthusiastic. The conference programme offered a wide range of information and knowledge for developing wound care in your own work as well as in your organisation.

EWMA has now been active for 12 years, since it was founded in 1991. In 1999 EWMA defined its long-term aim: to be a truly umbrella organisation for wound management/wound healing organisations in Europe. One step toward this goal was a decision to widen the EWMA council to include representatives from the co-operating organisations from countries in Europe. During the Pisa conference, a meeting was held with the co-operating organisations, chaired by Christine Moffatt (the chair of the EWMA co-operating organisations board). In this meeting representatives of 22 co-operating organisations elected two persons to be members of EWMA council; Dr Stephan Coerper, a surgeon from Germany and myself. I am a nurse teacher and chair of the Finnish Wound Care Society.

Personally I feel that this new post is very challenging. As a representative of a co-operating organisation my task is to highlight the expectations of national wound care societies as well as developing co-operation in the development of wound management in European countries. EWMA has already done a lot of good work to promote the development of high quality wound care in Europe. For example EWMA Position Documents can be used as guides for the national development of good practices in wound care. The EWMA Journal provides information on research, appropriate practices and education in the field of wound care. The annual EWMA Conference is a very important forum for professionals to update their knowledge in wound care as well as build networks. EWMA also provides grants for its members to undertake research and development in wound care or to develop personal knowledge and skills in wound management. Look out in this edition of the EWMA Journal for the latest announcement of awards available to EWMA members; they might help you visit a centre of excellence, work towards a further qualification, or carry out research.

The development of wound management is a challenge for all European countries. The age of the population will rise and therefore the prevention and treatment of chronic wounds and problems associated with acute wound healing will maintain a very important position in national health policies. European-level co-operation in the development of wound management is a resource that should also be recognised by national politicians and decision makers. Increasing the national awareness of EWMA’s activities needs to be a mission for all national wound management/wound-healing societies. Shared, European-level responsibility for the development of wound care by research, good practice and education is a real challenge. It demands a lot of work and commitment from both those professionals participating in EWMA as well as professionals acting in national wound care/healing societies. EWMA is a great forum for multi-professional and international co-operation in the development of wound management, but we, the professionals in hospitals, health care centres, communities, research centres, universities and other institutions, where wound care is implemented, studied and educated, are the key persons for holistic, high quality and cost-effective wound care.

Salla Seppänen
ABSTRACT
Many amputations might be delayed or prevented by more effective clinical supervision of the diabetic foot ulcer. The aim of this investigation was to measure the local metabolism at the edge of a diabetic ulcer and compare it to healthy subcutaneous tissue. In five non-fasting diabetic patients a microdialysis catheter was inserted at the edge of a diabetic ulcer. A reference catheter was inserted into healthy abdominal subcutaneous tissue. Local concentrations of glucose, lactate and glycerol were recorded during rest. Glucose concentrations in the ulcers were 7.8 mM. (SEM 1.9) vs. 10.6 mM. (SEM 1.8) (p = 0.4) in the reference tissue. The lactate concentrations were 2.9 mM. (SEM 0.7) and 2.1 mM. (SEM 0.7) (p=0.2) and the concentrations of glycerol were 290 μM. (SEM 84) vs 98 μM. (SEM 7.2) respectively (p = 0.002).

This study shows that microdialysis can detect differences in dialysate concentrations of metabolites obtained from diabetic ulcers and a reference tissue. It seems that microdialysis can provide valuable information concerning metabolites in the diabetic foot ulcer. Future studies should combine the technique with measurements of other factors such as local blood flow.

INTRODUCTION
Neuropathy, vascular diseases and infections are associated with diabetes mellitus and ulceration of the foot is one of the feared complications. An important prelude to successful treatment of the ulcer is the differentiation between these main syndromes (Gentry 1993). Knowledge concerning the local metabolism of diabetic ulcers is scarce (Simonsen et al 1998). Microdialysis was initially developed for the investigation of glucose metabolism in brain tissue. With this technique it is possible to monitor interstitial glycerol, glucose and lactate in various tissues under clinical conditions (Benveniste & Huttemeier 1990). We investigated interstitial concentrations of glucose, lactate and glycerol at the edge of a diabetic ulcer and compared it to healthy reference tissue.

MATERIAL AND METHODS
Five non-fasting diabetic patients (three men) with an unilateral chronic foot ulcer were included into the study. Three patients had non-insulin dependent diabetes mellitus and two had insulin dependent diabetes mellitus. The median age was 53 years (range 35-74) and the median duration of the diabetic disease was 20 years (range 8-54). All patients had had a diabetic ulcer for more than six months. They had normal toe blood pressure and four patients had palpable pulses of the posterior tibia artery. All ulcers were located distally on the feet, either on the dorsal or plantar side. Three of the patients had neuropathy. At the time of study none of the patient had ulcers that were infected or needed surgical revision. The median follow-up period after the study was seven months (range 2-7). Five months after dialysis two of the patients developed an infection and underwent surgery. S.aureus and B.fragiles were found in the ulcers.

After local application of 1 mL lidocaine, a microdialysis catheter was inserted at the edge of the ulcer. A reference catheter was inserted in healthy abdominal subcutaneous tissue. After one hour of calibration, local tissue concentrations of glucose, lactate and glycerol were recorded in resting position over a period of one hour.

The microdialysis technique uses the dialysis principle and consists of a membrane permeable to water and small solutes. It is continuously flushed and a concentration gradient is created, causing diffusion of solutes from the interstitial space into the dialysis. Samples are harvested into microvials and analyzed (Benveniste & Huttemeier 1990). We used CMA 60 catheters (Microdialysis A/B,
Sweden, membrane length 30 mm with a molecular cut-off at 20 kDa). The catheters were flushed with a Ringer Chloride (Microdialysis A/B, Sweden, Na\(^+\) 147 mmol/L; K\(^+\) 1.4 mmol/L; Ca\(^{2+}\) 2.3 mmol/L; Cl\(^-\) 156 mmol/L, pH 6; osmolarity, 290 mosmol/kg). Flow rate of the microdialysis system was 0.3 µL/minute (Microdialysis A/B, Sweden, CMA 106). Under these conditions the relative recovery of the metabolites measured are almost 90-100% (Ederoth et al 2002). Analysis of glucose, lactate and glycerol were performed on a CMA 600 Drug Analyser (Microdialysis A/B, Sweden). All data presented are mean values (SEM). All data were compared using a rank sum test. P-values <0.05 were considered significant.

The local ethics committee approved the study. The subjects gave informed consent according to the declaration of Helsinki II before participating in the study.

RESULTS
The interstitial glucose concentrations in the ulcer area were 7.8 mM. (SEM 1.9) vs. in reference tissue 10.6 mM. (SEM 1.8) (p = 0.4). The lactate concentrations were 2.9 mM. (SEM 0.7) and 2.1mM. (SEM 0.7) respectively (p = 0.2). The interstitial concentrations of glycerol in the ulcers were 290 µM. (SEM 84) vs. in reference tissue 98 µM. (SEM 7.2) (p = 0.002). Blood glucose was 11.8 mM. (SEM 2.7) and similar to reference tissue (p = 0.8) and the diabetic ulcer (p = 0.3).

The ratio of glucose measured in healthy abdominal subcutaneous tissue vs. the ulcer was 1.6 (SEM 0.24). Similarly the ratio for lactate and glycerol were 0.73 (SEM 0.12) and 0.46 (SEM 0.13).

DISCUSSION
Microdialysis has been used in bone and tendonous tissue for measurements of inflammatory and metabolic parameters (Thorsen et al 1996, Langberg et al 2002). In this study the measured markers were glucose and lactate because they give information about the substrate availability and redox state of the tissue. In a previous study performed on chronic diabetic foot ulcers decreased concentrations of glucose and increased concentrations of lactate were found compared to reference tissue (Simonsen et al 1998). Unfortunately the interstitial concentrations of glycerol in the diabetic foot ulcers were not measured. Glycerol is an important metabolite and appears to be of clinical interest. It describes the degradation of glycerol phospholipids in cell membranes, as glycerol is an end product of membrane phospholipids degradation (Hillered et al 1998). Studies performed by the technique of microdialysis in ischemic tissue showed raised concentrations of glycerol (Sarrafzedeh et al 2002, Stahl et al 2001). The interstitial concentrations of local metabolites can be influenced by several factors i.e. blood flow and hormones. For glycerol an increased local blood flow increases the transport away of this compound. In the opposite way, glucose will elevate due to a higher transport to the tissue (Ederoth et al 2002). Our study showed increased concentrations of glycerol and similar values of glucose and lactate in the ulcers. The sympathetic tone amplifies during surgical stress and lipolysis is promoted (Udesen et al 2000). However, this universal response should result in increased concentrations of glycerol in both ulcer and reference tissue. Studies that include measurements of blood flow and hormones might contribute to the search for aetiologies behind the
found metabolic values. We included ulcers that showed no clinical sign of ischemia or infections and chose abdominal subcutaneous tissue as reference tissue. No major difference in dialysate concentrations was expected. From a scientific point of view one might have preferred the contra lateral foot as reference tissue. Because our study group consisted of chronic diabetic patients with long lasting ulcers, the risk of introducing an ulcer, even by a minor trauma like microdialysis, was taken into consideration. Our small sample size precludes a detailed analysis, but it is noteworthy that two of the diabetic patients with high local interstitial concentrations of glycerol had an unfavourable outcome i.e. a need for surgical revision of their ulceration. It is speculated, therefore, that finding a high concentration of glycerol is potentially a prediction of the clinical outcome.

This study shows that microdialysis can detect differences in dialysate concentrations of metabolites obtained from diabetic ulcers and a reference tissue. In combination with measurements of local blood flow, microdialysis might give valuable information concerning local metabolism in the diabetic foot ulcer. Further investigations are needed to ensure proper care of the diabetic foot i.e. predicting inflammation and necrosis.

References


Acknowledgement

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ABSTRACT
Eighty-nine fully photo-documented case reports were examined in order to get a clear picture of the effect of L-Mesitran. This honey-based ointment is new on the market and clinical data was unavailable till now. A free, computer wound registration program was used to collect data from different locations in a standardized way in order to facilitate wound data analysis.

Depending on the underlying pathology the wounds healed with a mean healing time of 32 days. The small amount of cases per pathology and the variability within the different pathologies made it very difficult to evaluate the results in a clear and comprehensive way.

A non-randomised comparison with a similar photo-documented standardized database with other dressings suggests that the honey ointment is faster healing than other high tech dressings.

We surmise that this ointment has a very quick debriding and antibacterial activity. The new honey ointment should be compared directly to other available high tech dressings to quantify any difference in effect on healing.

INTRODUCTION
Modern wound management was revolutionized by the advent of antibiotics during the 1950s, and later by the development of sophisticated, innovative dressing materials designed to maintain a moist healing environment. In conventional medicine these improvements, coupled with a transition to evidence-based clinical practice led to the discontinuation of many empirical therapies. Honey lost favour because the evidence supporting its efficacy in wound treatment was largely anecdotal. Even though many modern physicians remain sceptical, claims that honey has important benefits in wound care continue to accumulate.

The effects of honey are very well documented as far as its antibacterial activity is concerned. Many of these reports show that wounds treated with honey become sterile within seven to ten days, although personal observations have not always confirmed this conclusion. Nevertheless, honey is able to remove *Enterococcus* species and *P. aeruginosa* from multiple, infected, non healing leg ulcers caused by meningococcal septicaemia, with simultaneous loss of offensive smell and reduction in pain.

The most noticeable effect of using honey on the patient was the rapid formation of granulation tissue, which marked the transition from chronic inflammation to wound repair, followed by the clearance of infection.

For a complete overview of the benefits of honey in wound care we have referred to the work of Molan. Honey is not user-friendly (it slips off the wound) and in the time of the Egyptians and later in the Middle Ages, honey was mixed with fat and other ingredients. Recently a new honey-based ointment L-Mesitran was developed by Triticum (The Netherlands). L-Mesitran consists of honey (irradiated), Medilan (low allergic FDA approved lanolin), sunflower oil, cod liver oil, Marigold extract, aloe vera, vitamins C and E and zinc oxide. This ointment is CE marked and is sterile. A validated challenge test was done in order to measure the antibacterial activity of the ointment in vitro. In four separate test dishes, *Staphylococcus aureus* and *Pseudomonas aeruginosa* from multiple, infected, non healing leg ulcers caused by meningococcal septicaemia, with simultaneous loss of offensive smell and reduction in pain.

For 28 days the presence and the activity of the microorganisms were examined. After 48 hours only 1.7 × 10⁶ *Staphylococcus aureus* were present, a decrease of a factor of 100, after seven days no *Staphylococcus aureus* could be found, this remained the case until the end of the test. This test proved that growth of microorganisms does not occur even with a very high contamination level. With *Pseudomonas aeruginosa* after 48 hours only 2.3 × 10²cfu remained, and at 60 hours, nothing could be found. The most striking result in vitro was found with *Candida albicans* and *Aspergillus niger*, which were completely gone after 48 hours.
In order to see whether this ointment has similar healing properties to other modern dressings in vivo, a prospective cohort study was set up in clinical practice.

PATIENTS AND METHODS
Eighty-nine patients with chronic wounds were treated with the ointment until complete wound closure. A computer programme was used to collect healing data in a standardized manner. Community nurses treated the majority of the patients at home, the rest were treated in a hospital or elderly home care setting. Wounds were photographed regularly and, if possible, the photograph had a date and a centimetre label next to the wound. None of the nurses were paid for taking part in the study. A free computer program (a database which collates standardized information about the case running under MS Access; available at www.woundcare.be) was used to collect all the data in a standardized way (See photo 1). The database data was then used to summarise the performance of the ointment. We used SPSS version 10 in order to analyse the data.

RESULTS
The median age of participants was 72 years. There were 33 male and 56 female patients, of whom 18 had pressure ulcers, six diabetic ulcers, seven burns, 36 venous ulcers, eight skin tears and 14 had wounds with a mixed pathology.

The average healing time was 32 days (median 28 days) range 3-180 days. Figure 1 summarises the mean time to healing by wound type.

METHOD OF APPLICATION
Usually the nurse applies the ointment on the gauze or non-adherent dressing (Melolin®) and then on the wound. When questioned, nurses reported that a thin layer of ointment once a day gave better results than big amounts of ointment, but this has not been formally tested. The reason for this affecting the effectiveness of the ointment is not clear. Honey-based products are often known for their stinging effect during the first hours. In our study pain at application was not consistently reported. We found that the most common report of pain was amongst patients with arterial insufficiency (in the mixed wound aetiology group). The pain score results were:

<table>
<thead>
<tr>
<th>Pain sensation on application of honey ointment</th>
<th>None</th>
<th>Mild (duration less than 30 minutes after application)</th>
<th>Severe (required use of analgesia)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venous Ulcer</td>
<td>31</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Burns</td>
<td>5</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Diabetes</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Mixed wounds</td>
<td>9</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Pressure sores</td>
<td>15</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Skin tears</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

ANALYSIS PER WOUND TYPE
Venous ulcers: 36 patients (average healing time: 35 days (range 5-90 days, median = 35).

We examined the relationship between ulcer severity (depth and area) and time to healing. The null hypothesis was that there is no relationship between ulcer area and time to healing. The area was measured in cm² and the healing time in days. We correlated these and found a low correlation coefficient = 0.10. This may be low either because there really is no relationship between ulcer area and time to healing, or due to the small number of wounds we had in this group. Statistical tests on small numbers of observations have a high chance of being unable to identify relationships even where they do exist, this is called a type 2 error (falsely concluding that the null hypothesis is correct). Nine venous ulcers were considered superficial (i.e. less than 0.5 cm deep) and the other 27 were considered deep. All superficial ulcers were given compression therapy whereas amongst the deep ulcers only 6/27 received compression therapy. There was poor correlation between the ulcer area and the healing time for deep ulcers that did not receive compression therapy (n = 21)(r = 0.11). Table 2 summarises the relationship between ulcer area, depth and healing time.

<table>
<thead>
<tr>
<th>Venous ulcers</th>
<th>Number</th>
<th>Mean area (cm²)</th>
<th>Mean time to healing</th>
<th>Median time to healing</th>
<th>Correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>deep no compression</td>
<td>21</td>
<td>14</td>
<td>48</td>
<td>40</td>
<td>0.111</td>
</tr>
<tr>
<td>deep + compression</td>
<td>6</td>
<td>4.5</td>
<td>25</td>
<td>25</td>
<td>-0.63583</td>
</tr>
<tr>
<td>superficial + compression</td>
<td>9</td>
<td>14.3</td>
<td>16</td>
<td>14</td>
<td>0.1384</td>
</tr>
<tr>
<td>All venous ulcers</td>
<td>36</td>
<td>12.4</td>
<td>35</td>
<td>35</td>
<td>0.1007</td>
</tr>
</tbody>
</table>
The mean length of time the ulcer was present before the ointment was used was 30 days.

From our database of healing times of patients with venous ulcers, we estimate the honey ointment is healing these venous ulcers faster than similar cases in the same setting. As we are not able to guarantee that the patients in this sample had ulcers of similar severity to those evaluated previously, or that concurrent treatments remained the same, we cannot confidently attribute a reduction in healing time to the ointment. This is an indication that a further comparative evaluation of this ointment may be warranted, and does not statistically prove that the ointment is better than other wound dressing products.

**Skin tears**: Eight patients. Average healing time 13 days (median 11.5 days, range 10-30 days).

We classified skin tears as superficial or deep, using the Payne Martin classification\(^1\). Seven skin tears were class I and one was Class III. The ‘minor’ skin tears, with just a skin flap (class I), were healed within 10 days, whereas the deep one (class III) took up to 30 days. Again the numbers are not sufficient to draw clear conclusions. Nevertheless a comparison with our database records of previous skin flap healing times suggests a faster healing time with the honey ointment (Figure 1). We feel that a prospective comparative study of the ointment and modern wound dressings is warranted.

**Wounds in people with diabetes**: There were six wounds in people with diabetes. They had a mean healing time of 29 days (median 7 days, range 14-48 days). This is very low and this is due to the small wounds that were treated (the larger ones were treated in the hospital). We classified the wounds using the Wagner scale and five were Wagner class II and one was Class III.

**Pressure sores**: There was data on 16 pressure sores. The average healing time was 39 days (median 7 days, range 14-48 days). This is very low and this is due to the small wounds that were treated (the larger ones were treated in the hospital). We classified the wounds using the Wagner scale and five were Wagner class II and one was Class III.

**Burns**: We collected data on seven burn wounds. The average healing time was 13 days (median 13 days, range 7-18 days).

The number of burns is low, and distributed over babies and adults of middle age and old age. All were first degree or superficial second degree burns. In three cases the burn was inflicted by a hot fluid, the other four were contact burns.

In four cases a comparison was made within one patient with the honey ointment and an antiseptic ointment (Isobetadine\(^2\)). These patients had similar burns on the left and right side of the body, for example left knee compared with right knee, elbow, hand. Selection was made at random. In those cases quicker healing was seen with the ointment than the comparator dressing (we did not formally test the difference in healing time due to the very small numbers). The ointment has not been tested on large burns (i.e. more than 10% TBS of the body surface area).

**Mixed pathology**: We present data on 12 patients with an average healing time of 66 days (range 21-180 days, median 45 days).

Mixed pathology means diabetes and a pressure sore, mixed venous and arterial insufficiency. Despite these sometimes difficult to heal wounds they all healed within a reasonable timeframe.

**PERFORMANCE COMPARED TO OTHER DRESSINGS**

In order to get some kind of reference we looked to an older data source of photo-documented case reports treated with other high tech dressings. We used an existing database of 64 patients (nine skin tears, 18 burns, 15 venous ulcers and 22 pressure sores) to compare the healing rate with the honey ointment. See Table 3 for a comparison in healing time. The healing time and all other relevant parameters were also collected with the same computer program and came mostly from the same setting where the new data concerning the honey ointment were collected.

**Table 3 Mean healing time comparison**

<table>
<thead>
<tr>
<th></th>
<th>Healing time with previous products in days</th>
<th>Healing time with L-Mesitran in days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin tears</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>Burns</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Venous ulcers</td>
<td>52</td>
<td>35</td>
</tr>
<tr>
<td>Pressure sores</td>
<td>54</td>
<td>39</td>
</tr>
</tbody>
</table>

We cannot formally compare the data from these two sources as potentially these patients may be different in some way from the 89 treated with the honey ointment, both with regards to factors that we feel may be important for healing, e.g. age, compliance, motivation, duration, area, and for factors about which we do not yet know. In addition, it has been established in a number of studies that the healing rates in clinical settings can change over time as the skill mix and population case mix change. For this reason, therefore, historical controls are not useful to estimate the effect of a treatment. Finally, the quality of data recording and the potential for case selection is higher when collecting retrospective data. This means that we
cannot be confident that the only difference in ‘then’ and
‘now’ is the ointment.

DISCUSSION
To get an overview of the whole database, all pictures of
the case reports were placed on a large table. We performed
a number of statistical tests on the data to see if we could
determine whether there were any systematic differences
in healing times. It was frustrating to see that even eighty­nine
fully documented cases were not enough to draw
a clear scientific conclusion. We will therefore continue
to build up the wound database in the same standard­ized
way in order to get more cases. We also suggest that
comparative clinical trials are done with this honey­based
ointment. Clinical wound care research is definitely a dif­ficult profession!

The computer program (the English version is shown
here, Photo 1) is used to collect data from all kinds of
wounds and dressings in a standardized way in order to
process data from different facilities.

CONCLUSION
The clinical results with a honey­based ointment are con­sistent with the reports of the effect of honey in wound
care in the international literature. The computer program
enabled us to collect wound care data in a standardized
way from different health care facilities.

We are currently investigating the role of the different
ingredients in the ointment, and believe there is still a lot
of work to do. Despite the fact that honey has been used
in wound care for 6000 years, it looks like we still need
answers to a lot of important questions.

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INTRODUCTION
Despite the progress wound healing research has made in the past 20 years, the repair process is still not fully understood. Millions of patients are still suffering from chronic non-healing wounds and wound healing related problems.

Eight years ago we started a research program, which focused on wound healing studies. We established a surgical wound care unit for patients with chronic non-healing wounds and a basic research laboratory. The symbiosis between these two units is an ideal opportunity to understand healing related clinical problems, to transpose them and if possible, solve them at the basic science research level and to provide at the same time the basis for later ongoing clinical studies.

RESEARCH LABORATORY
Our general interest in basic research is to understand regulatory mechanisms in wound healing. We focused our research activities primarily on three areas: first, the expression of cytokines and hormones during wound healing; second, the role and function of nitric oxide (NO) for wound healing and third, the regulation of the collagen metabolism during repair. We are especially interested in studying these aspects under impaired conditions of wound healing such as sepsis, trauma, diabetes, steroid treatment or radiation due to the clinical impact of these conditions on successful healing. To combine and to transpose our basic scientific and our clinical research activities we further developed a wound healing model which is now internationally widely used for human wound healing studies.

One of our major interests is the role of insulin-like growth factor (IGF) and its binding proteins (IGF-BP) in cutaneous repair as well as TGF-β and IGF in gastrointestinal wound healing. We have intensively compared the RNA and protein expression of IGF in non-septic and septic wounds in trauma, orthopedic patients and diabetic patients. In the gastrointestinal tract, we investigated the influence of acid suppression by cytokines and its effect on wound healing in the upper gastrointestinal tract. We also studied the expression of IGF in an ischemic flap model in the rat where the expression of IGF was correlated with the local pO₂.

To study these aspects of wound repair we use different wound healing models. For ischemic healing a dorsal pedicle flap was created and excisional wounds were made in the flap at different distances from the base. The subcutaneous flap oxygen tension was measured using a Licox probe. To investigate gastrointestinal healing, we induced gastric ulcers by applying external cryoprobes or performed gastrointestinal anastomoses in the colon. Samples were analyzed by different appropriate methods including molecular biological, histological and chemical techniques.

A different focus of our group is in the regulation of nitric oxide (NO) synthesis in the wound milieu. As previously demonstrated, NO seems to have major impact on outcome after wounding. We have extended our knowledge by investigating the function of NO in diabetic healing as well as in the iNOS knockout model. A different aspect herein is the function of arginase, an enzyme sharing the substrate with nitric oxide synthase, the NO-synthesizing enzyme. We investigated these regulatory mechanisms at the cellular level using different cell lines.

A particular interest is the regulation of the collagen synthesis during wound repair. Since collagen synthesis is crucial for successful healing, it is of major interest. Chronic wound healing is often accompanied by inadequate collagen synthesis.
Radiation injury is one example of impaired healing. We therefore chose this model to study the influence of radiation on collagen metabolism. Using cell culture as well as whole animals after wounding we investigated the influence of external radiation on wound healing. An appropriate model to investigate this aspect is the dorsal incisional wound since it allows us to study functional parameters and cellular events at the same time. In an animal study we studied the effects of retinoids and glucocorticosteroids on TGF-ß and IGF levels and collagen synthesis in wound healing.

**CONCLUSION**

The dual existence of the wound healing clinic as well as the basic research laboratory is advantageous for both since it allows to directly transpose the clinical problem into a basic research investigation and vice versa. It involves the clinician in basic research which keeps him open for new scientific progress. On the other hand, the wound healing clinic not only allows to easily perform clinical trials but also to recruit samples for analysis. One such example is the establishment of a cell culture bank of different human biopsy samples. We believe that the coexistence of a basic research laboratory and a specialized clinic for wound healing is beneficial for both in advancing our knowledge of wound repair.

**CLINICAL WOUND CARE CENTER**

In Germany there is no standardized wound care for patients with chronic wounds in specialized centers. We have established a wound care unit for the past 6 years. The principal concept of therapy was characterized by standardized local surgery, moist wound dressings and concomitant treatment of the underlying disease. We perform local therapy, coordinate the interdisciplinary treatment and developed a new wound documentation system for quality control. We established a close network, integrating general practitioners and home care organisations to realise a mainly outpatient treatment supported by short hospital therapy. An exclusive outpatient treatment was performed in 42% of all patients.

The follow up of all patients is documented in a special wound documentation system. According to our prospective data, we achieved an improvement of wound care. Wounds, resistant to therapy for a mean of 30 months healed within 12 month after therapy according to our protocol. Our data strongly support the importance of local surgery: Neither wound depth nor wound infection had any influence on the healing rate, when performing radical excisional debridement of necrotic tissue.

We could also show, that the mesh grafting enhances the healing of large venous ulcers with a high graft take and demonstrated an effective strategy for diagnostics and therapy of osteomyelitis on diabetic foot ulcers. The study of efficacy and effectiveness of new local therapies is one priority of the clinical wound care unit. We could demonstrate some beneficial aspects of the platelet releasate and participated in several multicenter trials for growth factor application (TGFß3, PDGF-BB, PDWHF).

Today we have 3 specialized nurses and 3 residents treating approximately 25 patients a day in the wound care unit. The documentation of the follow up of a high number of patients offers us now the opportunity to control standards and perform clinical trials with a sufficiently high number of patients.

**Reference List**


This article was first printed in the ETRS Bulletin.
The prevalence of leg ulceration: a review of the literature

INTRODUCTION

This paper describes the burden of leg ulceration on individuals and health care organisations by presenting a critical review of the current knowledge relating to the extent of leg ulceration. A summary of the prevalence studies undertaken over the past 20 years is presented. To produce this review Medline, CINAHL, Embase and all evidence-based medicine reviews (including Cochrane Database of Systematic Reviews (DSR), Central Controlled Trials Register (CCTR) and the Database of Abstracts & Reviews of Cost-effectiveness (DARE) were searched in March 2003 using the following key words; "leg ulcer$" or "venous ulcer$ or arterial ulcer$ or chronic wound AND epidemiolog$ or prevalence or incidence or population survey". Reference lists of retrieved articles were then scrutinised for further relevant studies.

THE PREVALENCE OF LEG ULCERATION

When considering any health care problem it is useful to have a clear impression of the scale of the problem and the burden of care it represents. This can be achieved through prevalence studies. The prevalence of leg ulceration has been the subject of study for more than 20 years. These studies indicate that leg ulceration is a common problem. The precise prevalence is difficult to report as estimates generated from Scotland, Ireland, England, Sweden and Australia range from 0.11% - 4.3% (see Table 1 and 2). The wide variation can be explained by a close examination of the methods employed such as the definition of the term "prevalence" and "leg ulcer" within each study as well as the choice of age groups in the sample and the approaches to patient identification.

Definition of Prevalence

The first variation arises from the definition of prevalence. Chronic leg ulceration can be expressed as a point prevalence (the number of patients with open, active ulcers at one time point) or overall prevalence (the number of patients who suffer from leg ulceration which includes active (open) and inactive (healed) ulcers (Adhikari et al 2001). The typical course of leg ulceration is one of ulceration followed by a period of remission (time following healing which could last months or years) and then ulcer recurrence. Recurrence rates are high with estimates in the range of 59%-67% (Callam et al 1987; Nelzen et al 1994; Baker and Stacey 1994).

Point prevalence estimates do not reflect the true number of patients suffering from leg ulceration, since only those with active ulceration are included as opposed to all with a history of ulceration. As a result, point prevalence estimates should be lower than overall prevalence estimates as only 10-20% of patients who suffer from leg ulcers will have an active ulcer at a single time point. This is reflected in the studies, for example, Andersson et al (1984); Callam et al (1985); Cornwall et al (1986); Nelzen et al (1994); Baker and Stacey (1994); Ebbeskog et al (1996) and O’Brien et al (2000) report point prevalence estimates and broadly agree (range 0.11% - 0.2%). Overall prevalence figures are reported by Dale et al (1983); Nelzen et al (1996 (a) and (b)) and Margolis et al (2002). These estimates are higher, ranging from 0.63% -1.9%.

This suggests that 0.1%-0.2% of the population will have an open ulcer at a single point in time and that overall 1-2% of the population will suffer from the chronic disabling condition of leg ulceration. However, there are studies that do not fit this picture and this is probably due to other methodological differences. For example, analysis of the epidemiological data shows that there are variations in the definition of a chronic leg ulcer.
Table 1: Overall prevalence of leg ulcers (all ulcers healed and open)

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Method of patient identification</th>
<th>Site of ulcer</th>
<th>Venous or all ulcers</th>
<th>Duration of ulcer</th>
<th>Age</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dale et al 1983</td>
<td>Scotland</td>
<td>Questionnaire to patients on GP lists</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 6 weeks</td>
<td>65-75 years</td>
<td>0.8% total population</td>
</tr>
<tr>
<td>Lees and Lambert 1992</td>
<td>UK</td>
<td>Questionnaire to District Nurses only</td>
<td>Leg only</td>
<td>All</td>
<td>&gt; 0 weeks</td>
<td>Over 45 years</td>
<td>0.19%</td>
</tr>
<tr>
<td>Nelzen, Bergqvist and Lindhagen 1996(a)</td>
<td>Sweden</td>
<td>Postal survey to households</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 6 weeks</td>
<td>50-89 years</td>
<td>0.63% (CI 0.52% - 0.72%)</td>
</tr>
<tr>
<td>Nelzen, Bergqvist Fransson and Lindhagen (1996) (b)</td>
<td>Sweden</td>
<td>Postal survey to factory workers</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 6 weeks</td>
<td>30-65 years</td>
<td>1.9% of the sample</td>
</tr>
<tr>
<td>Margolis, Bliker, Santanna and Baumgarten (2002)</td>
<td>USA</td>
<td>Cohort study using UK database of GP practices</td>
<td>Leg only</td>
<td>Venous</td>
<td>&gt; 0 weeks</td>
<td>65-95 years</td>
<td>1.69% (CI 1.65% - 1.74%)</td>
</tr>
</tbody>
</table>

Variations in case definition

There is a lack of clarity and consensus about case definition in the studies reviewed. There has been considerable variation in what has been included as a chronic leg ulcer in terms of aetiology. A leg ulcer is not a discrete disease with clear diagnostic criteria; rather it is the consequence of various kinds of underlying disease processes. These disease processes provide the environment where leg ulceration is possible although not inevitable.

The range of diseases and conditions with the potential for leg ulceration is broad and includes:
1. venous and arterial vascular disease
2. rheumatological disorders (e.g. rheumatoid arthritis
   (Rh.A.)
3. haematological disorders (e.g. sickle cell anaemia, thalassemia)
4. metabolic disorders (e.g. diabetes mellitus)
5. pressure sores
6. traumatic ulcers
7. dermatological disorders (e.g. malignancy)
8. infections.

Table 3 outlines the proportion distributions reported in the literature. Since a wide range of diseases predispose people to leg ulcers, this means a wide range of health care professionals can be involved in the care of patients with leg ulcers. This range includes vascular surgeons, dermatologists, rheumatologists, diabetologists, haematologists, GPs, and nurses (including tissue viability specialists, specialist nurses in vascular, diabetes and dermatology and community nurses), pharmacists and podiatrists. This complicates attempts to gain prevalence data because the source of the data will influence the proportion estimates generated.

For example, Lees and Lambert (1992) reported an overall prevalence rate of lower limb ulceration in a Newcastle community health district at 0.19%. This is closer to other point prevalence rates. However, it is likely that this is an underestimate because of the methodology used. Questionnaires were only sent to District Nurses working in Newcastle Community Health District with an active caseload (n = 70) and the district nurses (DNs) used computerized records of care to complete the questionnaires. Only 59 DNs replied (84% response rate).

The study is likely to provide an underestimate of the overall prevalence as only one data source was used (DNs) and they were relying on retrospective notes. Although this is likely to represent the largest group of professionals caring for leg ulcer patients it is not the only group. There are other limitations such as relying on the reporting of cases by a number of professionals who may assess leg ulcers differently and the accuracy of the data recorded by the district nurses was not tested.

In another example, Andersson et al (1984) generated an estimate of the number of foot and leg ulcers patients in Gothenburg using a review of medical records of patients. Dermatologists, surgeons, (general orthopaedic and plastic) were included but not vascular surgeons. The inclusion of primary care practitioners is unclear. They reported the identification of 940 patients with leg and foot ulcers and an estimate of prevalence of 0.2% - 0.4% is cited in the abstract. However, the results section is poorly reported with no information in the paper on how this figure was generated. This makes comparison with other studies difficult. The exclusion of vascular surgeons and the paucity of details relating to the prevalence calculation mean that this estimate should be viewed with caution.

Another factor related to aetiology is the choice to include only people with “venous ulcers” and exclude people with “non-venous” ulcers. Other exclusion criteria could also differ; for example, site and duration of the ulceration are not consistent across the studies.

It is evident that the most common cause of a leg ulcer is venous disease (range 37% - 76%), however this percentage will depend on how many of the other groups of ulcers have been included. Some prevalence studies concentrate...
on only venous ulcers others include all ulcers on the leg irrespective of aetiology (Margolis et al 2002).

People with lower limb ulcers can be typically divided into two groups with respect to wound site; people with ulcers on the leg and people with foot ulcers. The decision to include or exclude foot ulcers will affect the estimates. This may be less of an issue when only venous ulcers are included as approximately 70% of ulcers on the leg are venous whereas only 3% of ulcers on the foot are venous (Nelzen et al 1991(b)). However, if ulcers of all aetiologies are included then excluding foot ulcers could reduce the prevalence rate.

For example, Nelzen et al (1991(b)) reported figures from a Swedish study that indicated that out of 463 ulcerated legs 353 ulcers occurred above the foot and 110 were isolated to the foot. The majority of causes for the foot ulcers were non-venous. In the studies reviewed, however, reduced prevalence for leg only studies is not evident. In fact, in the studies where only leg ulcers have been included the prevalence estimates are higher than those studies where leg and foot ulcers are included. Johnson (1995), Franks et al (1992), Cornwall et al (1986), and Henry (1986) all had inclusion criteria that stated “leg ulcers only”. However, the point prevalence rates were 0.95%,

Table 2: Point prevalence estimates of leg ulcers (only open ulcers)

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Method of patient identification</th>
<th>Site of ulcer</th>
<th>Venous or all ulcers</th>
<th>Min. duration of ulcer</th>
<th>Age</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andersson, Hansson, and Swanbeck 1984</td>
<td>Sweden</td>
<td>Retrospective review of notes</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 0 weeks</td>
<td>Not stated</td>
<td>0.2% - 0.4%</td>
</tr>
<tr>
<td>Callam, Ruckley, Harper and Dale 1985 Callam, Harper, Dale and Ruckley 1987</td>
<td>Scotland</td>
<td>Health professionals questionnaire</td>
<td>Leg or foot</td>
<td>Not forefoot ulcers</td>
<td>All</td>
<td>&gt; 4 weeks</td>
<td>No age limit</td>
</tr>
<tr>
<td>Henly 1986</td>
<td>Ireland</td>
<td>Household questionnaire</td>
<td>Leg or foot</td>
<td>Venous</td>
<td>&gt; 0 weeks</td>
<td>Adult</td>
<td>1.5%</td>
</tr>
<tr>
<td>Cornwall, Dore and Lewis 1986</td>
<td>UK</td>
<td>Questionnaire to health professionals</td>
<td>Leg only</td>
<td>All</td>
<td>&gt; 0 weeks</td>
<td>No age limit</td>
<td>0.18%</td>
</tr>
<tr>
<td>Baker et al 1991 Baker and Stacey 1994</td>
<td>Australia</td>
<td>Survey health professionals, and self referral from local adverts</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 4 weeks</td>
<td>Adult</td>
<td>0.11%</td>
</tr>
<tr>
<td>Nelzen, Bergqvist, Hallbook and Lindhagen 1991a</td>
<td>Sweden</td>
<td>Survey of health professionals</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 6 weeks</td>
<td>Over 64 years old</td>
<td>1.4%</td>
</tr>
<tr>
<td>Franks et al 1992</td>
<td>UK</td>
<td>Questionnaire to a random sample of GP caseloads</td>
<td>Leg only</td>
<td>All</td>
<td>&gt; 0 weeks</td>
<td>35-70 years</td>
<td>4.3% of the sample</td>
</tr>
<tr>
<td>Nelzen, Bergqvist and Lindhagen 1994</td>
<td>Sweden</td>
<td>Survey of health professionals</td>
<td>Leg or foot</td>
<td>Venous</td>
<td>&gt; 0 weeks</td>
<td>Not Stated</td>
<td>0.16% (CI 0.15%-0.18%)</td>
</tr>
<tr>
<td>Johnson 1995 a</td>
<td>Australia</td>
<td>Secondary analysis a health survey</td>
<td>Leg only</td>
<td>All</td>
<td>&gt; 0 weeks</td>
<td>Over 60 years</td>
<td>0.95% of sample</td>
</tr>
<tr>
<td>Ebbeskog, Lindholm, and Ohman 1996</td>
<td>Sweden</td>
<td>Questionnaire to health professionals</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 0 weeks</td>
<td>Not stated</td>
<td>0.12% (CI 0.08%-0.16%)</td>
</tr>
<tr>
<td>O’Brien, Grace, Perry and Burke 2000</td>
<td>Ireland</td>
<td>Questionnaires to health professionals</td>
<td>Leg or foot</td>
<td>All</td>
<td>&gt; 0 weeks</td>
<td>Not stated</td>
<td>0.12%</td>
</tr>
</tbody>
</table>

Table 3: Aetiology of chronic leg ulcers

<table>
<thead>
<tr>
<th>Author</th>
<th>Country</th>
<th>Proportionate distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Venous</td>
</tr>
<tr>
<td>Baker et al 1991, Baker and Stacey 1994</td>
<td>Australia</td>
<td>57%</td>
</tr>
<tr>
<td>Callam et al 1987</td>
<td>Scotland</td>
<td>76%</td>
</tr>
<tr>
<td>Cornwall et al 1986</td>
<td>UK</td>
<td>52%</td>
</tr>
<tr>
<td>Ebbeskog et al 1996</td>
<td>Sweden</td>
<td>42%</td>
</tr>
<tr>
<td>Graham 2002</td>
<td>UK</td>
<td>51%</td>
</tr>
<tr>
<td>O’Brien et al 2000</td>
<td>Ireland</td>
<td>81%</td>
</tr>
<tr>
<td>Nelzen et al 1994</td>
<td>Sweden</td>
<td>54%</td>
</tr>
<tr>
<td>Nelzen et al 1996a</td>
<td>Sweden</td>
<td>37%</td>
</tr>
<tr>
<td>Salaman and Harding 1995</td>
<td>UK</td>
<td>58%</td>
</tr>
</tbody>
</table>

N.B. Causes overlap so percentages do not add up to 100%. Diabetes and Rh A are % of patients with disease rather than the primary cause of the ulcer.
4.3%, 0.38%, 1.5%, which were all substantially higher than point prevalence estimates from the leg and foot ulcer studies, which ranged from 0.1% - 0.2%.

One explanation is the different inclusion criteria in relation to duration of ulceration. Some studies have attempted to only include chronic ulcers by defining a minimum duration of the ulcer. This minimum duration ranges from 4 - 6 weeks. The rationale for this is that some wounds on the leg and foot could be traumatic in origin (e.g. blisters, cuts, abrasions, pre-tibial lacerations) and these should heal uneventfully within approximately six weeks. Therefore, by restricting inclusion to wounds that have been present for more than six weeks the likelihood of including these traumatic wounds is reduced. However, examination of the studies in Tables 1 and 2 shows that the variation in the minimum duration for inclusion does not appear to account completely for the variation in prevalence estimates.

There are two further issues in the interpretation of the prevalence data that may be relevant and explain the variations. One is the choice of the age groups studied and the other is the approach taken for patient identification.

**Choice of age groups**

In order to compare prevalence rates it is necessary for the estimates to be drawn from comparable populations. The studies included in this review differ in terms of populations studied. Some studies do not limit case identification by age others do. For example, Andersson et al (1984); Callam et al (1985); Cornwall et al (1986); Baker and Stacey (1994); Nelzen et al (1994); Ebbeskog et al (1996) and O’Brien et al (2000) did not report age restrictions and included the total adult population. The estimates for these studies broadly agree between 0.1-0.2%. However, both Nelzen et al (1991 (a)) and Johnson (1995 (b)) restricted their studies on the basis of age (over 60 years) and the prevalence estimates increase (1.4% and 0.95% respectively).

This is because there appears to be a clear association between age and chronic leg ulceration. Data suggest that the prevalence of leg ulceration progressively increases with increasing age. Ten studies report prevalence estimates in age bands and all show an increase in prevalence with each decade of life Cornwall et al (1986); Henry (1986); Callam et al (1987); Baker et al (1991); Baker and Stacey (1994); Nelzen et al (1994); Nelzen et al (1996 (a)); Nelzen et al (1996 (b)); O’Brien et al (2000) and Margolis et al (2002).

Three studies reported data in comparable age bands and these data are summarized in Figure 1. This clearly shows an exponential rise in prevalence with increasing age. This represents a true increase in prevalence rather than a cumulative increase as these studies only measure open ulcers and not open and healed ulcers.

This explains some of the variation in estimates. For instance, Callam (1992) argues that the estimate from Perth, Australia, which is lower than those from the UK, may be due to the relative youth of the Australian population compared to the UK (only 12.4% over 65 years). Therefore, age demographics of the population from which the prevalence estimate is derived will have a significant impact on the resulting estimate.

This does not, however, completely explain the higher prevalence estimate in Dublin (Henry 1986). This estimate is ten times higher than the other point prevalence estimates. The population included was the total adult population and not only older people and it is seems unlikely that Dublin has higher than average elderly...
population to warrant a ten fold increase in prevalence. A more tenable explanation is that the approach to patient identification has led to an over-diagnosis of cases.

**Approaches to patient identification**

Broadly, there are two feasible methods to identify people who have leg ulcers.

1) Approach the general population (or a representative sample) and ask them directly whether they have or have had ulcers on their legs
2) Approach the health care professionals who care for people with leg ulcers and asked them to provide data on the number of cases seen.

The studies using the first approach (Henry (1986); Franks et al (1992); Johnson (1995 (a)) and Nelzen et al (1996 (a) and (b))) have consistently produced higher prevalence estimates than the second approach for a number of reasons.

The first reason is that reliance on self-reporting can lead to a high rate of false positives. Dale et al (1983) followed up respondents who replied “yes” to the question “Do you have a leg ulcer now?” They found that only 60% actually had a leg ulcer. The most common explanations for the false positives were ulcer of the gastro-intestinal tract, minor trauma to the leg and eczema.

Nelzen et al (1996 (b)) clinically examined 131 individuals who indicated on a postal questionnaire that they suffered from leg ulcers. The true positive rate was 36%. Therefore 64% had given false positive answers. The common reasons for false reporting were, again, skin conditions like eczema and fungal infections. With such a high false positive rate, studies, which rely on self-reporting without clinical follow up, are open to bias and are likely to grossly over estimate the prevalence.

This is likely to explain the higher estimates from Henry (1986) and partly explain the inflated estimate from Franks et al (1992). Henry used non-medical interviewers without clinical follow up and Franks et al, attempted clinical follow up but only 35% of cases attended. Of the cases that attended seven were true cases and 16 were false positives.

Another problem with the estimate from Franks et al (1992) is that the figure of 4.3% was generated by dividing the number of people with leg ulcers by the number of people who responded to the questionnaire. The sample in this study comprised every third patient aged between 35 and 70 on three GP caseloads and Franks et al (1992) achieved a 64% response rate. The denominator used for this calculation is not the total population cared for by the GPs and using this inflates the estimate. Based on the figures reported in the paper, the total number of people on the three GP caseloads was in the region of 6309. If this is used as the denominator to calculate the prevalence of ulceration the figure generated is 0.92%, which more closely agrees with the other estimates.

With this information, it is reasonable to assume that the second approach is a more reliable method of estimating prevalence. However, by using data generated by health professionals the risk is that the true prevalence will be underestimated. In the Swedish population based studies in Skaraborg, Malmo and Skövde, (Nelzen et al (1996 (a)and (b))) it was suggested that by only reporting leg ulcers patients known to health care professionals we risk excluding from the calculation those who are self-caring. They presented data from the Skaraborg and Malmo survey of 12,000 inhabitants, which indicated that in 44% of cases (36/82) the people, treated the ulcer themselves without regular health professional involvement. This percentage increased when the group was split into pre-retirement and post retirement. In the pre-retirement group 68% were self-caring.

In a further study Nelzen et al (1996 (b)) surveyed a group of factory workers (n = 2785) in Skövde aged between 30-65. The prevalence estimates were thirteen fold higher than expected in below 50 years (0.4 versus 0.03) and a seven-fold increase beyond expected was seen in the 50-59 year olds (1.0 versus 0.14). In 98% of positive responders the answers were validated by clinical examination. The false positives were highlighted and the prevalence adjusted accordingly. Nelzen et al (1996 -(b)) argue that leg ulceration in people of working age had been underestimated because they are often self-caring, for example 75% of the cases identified in the factory study said they dressed their ulcers without help from health professionals.

**CONCLUSION**

In summary, epidemiological studies have provided some information about the burden of leg ulceration on individuals and health care organisations but there are variations in the estimates. These differences in leg ulcer prevalence between various studies may have several causes, such as the use of overall or point prevalence; the inclusion and exclusion criteria used; the age distribution of the patient sample and the methodology for identifying patients.

It appears that a combination of questionnaires to health professionals and questionnaires to a random sample of the population provide the best method of establishing the true prevalence. This is dependent on resources being available to follow up all positive responders in order to exclude false positives.

From the data available, using the most reliable estimates from a methodological perspective, we can conclude that:
- The prevalence of patients with open leg ulcers receiving treatment from health professionals is in the region of 0.11% - 0.18%. The percentage of
people who suffer from recurrent leg ulceration is likely to be 1-2% of the population.

- The true prevalence is likely to be higher because these estimates do not include people who are self-caring.
- The leg ulcer burden for people of working age is under represented in the published studies, as they are more likely to be self-caring.
- Leg ulceration has multiple causes. The most common cause is venous disease with estimates ranging from 37% - 81% depending on the methods used for diagnosis. Other causes include rheumatoid arthritis, diabetes, arterial disease, trauma, and malignancy. Patients can have leg ulcers with a single aetiology or with multiple causes.

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In this issue of EWMA Journal we would like to introduce you to a new section:

**Evidence-Based Wound Management**

Here you can find reports on *current research*, *clinical practice guidelines* and *systematic reviews*.

With this section EWMA wishes to focus on research that is based on conscientious, explicit and judicious evidence. The practice of evidence-based healthcare facilitates an integration of clinical expertise, patient preferences and constraints imposed by limited resources with the best available external clinical evidence from methodical research.

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**EXPERIENCES OF TWO (first-time) COCHRANE REVIEWERS**

The process of preparing and maintaining a Cochrane Review is quite different from publishing a paper in a journal. On the one hand, reviewers are very well supported in their work right from their very first steps of formulating a review title, and on the other hand, reviewers have a duty to keep a review up-to-date after first publication. When we decided to perform a review in the area of wounds, we first contacted the Review Group Coordinator of the Cochrane Wounds Group to talk about our plans. We discussed a rough outline of the proposed title, which included the outcomes and interventions we wanted to examine. We finally decided to review the effect of nutritional interventions in preventing and treating pressure ulcers. We decided this was ripe for a systematic review as there was no existing review and yet guidelines and expert opinion recommend the use of nutritional supplements in many care settings.

We were both experienced trainers in the methods of evidence-based nursing and had attended courses at the German Cochrane Centre on ‘How to Develop a Protocol’ and ‘How to Enter Data into RevMan’; RevMan is the software used to prepare a Cochrane Review. These training days were very useful, and are free of charge to registered Cochrane reviewers. We were familiar with pressure ulcers and their assessment, but had less knowledge of the many complicated nutritional interventions becoming available. In one way, this could have been a perfect situation, because we had no strong opinions about the relative effect of the various supplements (so we weren’t biased for or against any treatments). However, in another way, our lack of knowledge in this area required us to spend a lot of time familiarising ourselves with the information on the various treatments on offer.

We found the website [http://www.jr2.ox.ac.uk/bandolier/booth/Palliative/Cochreq.html](http://www.jr2.ox.ac.uk/bandolier/booth/Palliative/Cochreq.html) gives helpful advice on upcoming questions and the need for specialised skills on a Cochrane review. In addition, the Cochrane Reviewers’ Handbook [http://www.cochrane-net.org/openlearning/HTML](http://www.cochrane-net.org/openlearning/HTML), gives guidance on matters such as developing relevant questions and the Handbook soon became a close friend of ours. When choosing additional co-reviewers to work with you on a review, you may want to consider recruiting people with the skills needed to complete the review, for example, those with expertise in statistics, health economics, epidemiology, clinical care or policy making. In our experience this concept of a review team is especially useful to minimise bias in the review as each team member approaches the topic from a different point of view.
Cochrane reviews are prepared in RevMan software (free to anyone from the Cochrane website www.cochrane.de; technical support provided to Cochrane reviewers from their review group). The software should be downloaded and learned. One of the challenges we found was in exchanging and processing the different versions of our review files between authors and the Review Group; we sometimes found it difficult to manage this process to ensure that everyone was always dealing with the most up to date version of the review.

We found working with the Coordinating Editor, Review Group Coordinator, and Trials Search Coordinator very supportive at all stages of the process. Firstly, they commented on our search strategy and found some additional references. Secondly, the internal and external refereeing process was quick and they provided a really helpful summary of the comments of the referees. The referees comments forced us to discuss several points, such as the precise definition of inclusion and exclusion criteria, re-checking the methodological quality of single studies and how we had planned to present the collected data.

The amount of time required for a complete Cochrane review is not to be underestimated. We did not manage to meet the first estimated deadline for submitting the review and we asked to postpone the date. As Cochrane Reviews are published in electronic format (web or CD) we were guaranteed publication when the review was ready, rather than having to wait until a space in the publication was available. From the first draft of the final review to the final version took another seven months. Our review has now been submitted for inclusion in the Cochrane Library, Issue 4, 2003. Having finished the review, we are very grateful not only for the work of our co-reviewers, the help from the Co-ordinating Editor, and the Review Group Coordinator but also for the editorial help of Nicky Cullum, Sally Bell-Syer, and Andrea Nelson.

**EWMA welcomes applications for awards.**

In 2004 awards will be handed out within the following areas:

**Research**
- Salary support
- Research expenses
  - The Award will not cover overheads or capital grants
  - The agreed term of the Award should provide for preparation of a final report to EWMA.

**Education**
- Expenses incurred by wound care courses e.g., purchase of books, travel, subsistence.
- The Award will not cover course fees, overheads or conference registration fees.

**EWMA Panel Awards**
EWMA Council occasionally donates grants to relevant projects in order to further the objectives of EWMA Panels. The grant could be given for a research project that would focus on e.g. cost-effectiveness, education etc. For more information on the Panels and the objectives, please see www.ewma.org.

**Eligibility**
All members of the European Wound Management Association (EWMA) are eligible to apply for an award. For non-members, please see www.ewma.org for details on Membership. The annual membership fee is £15.

**Application**
Full details and application forms will be available at www.ewma.org. For other questions, please contact the Secretariat.

**Application date**
Closing date for applications: 1 March 2004.
Preoperative fasting for adults to prevent perioperative complications

Brady M, Kinn S, Stuart P


SYNOPSIS
Most people can safely drink clear liquids until two hours before surgery, although more research is needed for some groups of people.

General anaesthetic reduces the reflexes that stop regurgitated gastric juices reaching the lungs. As this can be dangerous, people are often advised to have nothing to eat or drink from the midnight before surgery. However, the review of trials found that drinking clear fluids up to a few hours before surgery did not increase the risk of regurgitation during or after surgery. Some people are considered more likely to regurgitate under anaesthetic, including those who are pregnant, elderly and obese or have stomach disorders. More research is needed to determine whether these people can also safely drink up to a few hours before surgery.

ABSTRACT
Background: Fasting before general anaesthesia aims to reduce the volume and acidity of stomach contents during surgery, thus reducing the risk of regurgitation/aspiration. Recent guidelines have recommended a shift in fasting policy from the standard ‘nil by mouth from midnight’ approach to more relaxed policies that permit a period of restricted fluid intake up to a few hours before surgery. However, the evidence underpinning these guidelines was scattered across a range of journals, in a variety of languages, and used a variety of outcome measures and methodologies to evaluate fasting regimens that differed in duration, type and volume of intake permitted during a restricted fasting period. Practice has been slow to change.

Objectives: To systematically review the effect of different preoperative fasting regimens (duration, type and volume of permitted intake) on perioperative complications and patient wellbeing (including aspiration, regurgitation and related morbidity, thirst, hunger, pain, nausea, vomiting, anxiety) in different adult populations.

Search strategy: Electronic databases, conference proceedings and reference lists from relevant articles were searched for studies of preoperative fasting in August 2003 and experts in the area were consulted.

Selection criteria: Randomised controlled trials that compared the effect on postoperative complications of different preoperative fasting regimens on adults were included.

Data collection & analysis: Two reviewers independently extracted details of the eligible studies and, where relevant information was unavailable from the text, attempts were made to contact the authors.

Main results: Thirty-eight randomised controlled comparisons (made within 22 trials) were identified. Most were based on ‘healthy’ adult participants who were not considered to be at increased risk of regurgitation or aspiration during anaesthesia. Few trials reported the incidence of aspiration/regurgitation or related morbidity but relied on indirect measures of patient safety i.e. intra-operative gastric volume and pH. There was no evidence that the volume or pH of partici-
pants’ gastric contents differed significantly depending on whether the groups were permitted a shortened preoperative fluid fast or continued a standard fast. Fluids evaluated included water, coffee, fruit juice, clear fluids and other drinks (e.g. isotonic drink, carbohydrate drink). Participants given a drink of water preoperatively were found to have a significantly lower volume of gastric contents than the groups that followed a standard fasting regimen. This difference was modest and clinically insignificant. There was no indication that the volume of fluid permitted during the preoperative period (i.e. low or high) resulted in a difference in outcomes from those participants that followed a standard fast. Few trials specifically investigated the preoperative fasting regimen for patient populations considered to be at increased risk during anaesthesia of regurgitation/aspiration and related morbidity.

**Reviewers’ conclusions:** There was no evidence to suggest a shortened fluid fast results in an increased risk of aspiration, regurgitation or related morbidity compared with the standard ‘nil by mouth from midnight’ fasting policy. Permitting patients to drink water preoperatively resulted in significantly lower gastric volumes. Clinicians should be encouraged to appraise this evidence for themselves and when necessary adjust any remaining standard fasting policies (nil-by-mouth from midnight) for patients that are not considered ‘at-risk’ during anaesthesia.

## Nutritional interventions for preventing and treating pressure ulcers


**SYNOPSIS**

Dietary supplementation may prevent pressure ulcers (bed sores) in acutely ill older people, but more research is needed.

Pressure ulcers (also called bed sores) are sores on the skin caused by pressure or rubbing at the weight bearing, bony points of immobilised people (such as hips, heels and elbows). Poor nutritional status or dehydration can weaken the skin and make people more vulnerable to developing pressure ulcers. Nutritional interventions to try and prevent or treat pressure ulcers include providing additional nutrition and dietary supplements, including zinc and vitamin C. The review of trials found that although there is some evidence that nutritional interventions may be able to reduce the number of people who develop pressure ulcers, more evidence is needed to identify effective dietary interventions.

**ABSTRACT**

**Background:** Pressure ulcers affect 10% of people in hospitals and older people are at highest risk. The correlation between nutritional intake and the development of pressure ulcers is suggested by several studies, but the results are inconsistent.

**Objectives:** To evaluate the effectiveness of enteral and parenteral nutrition on the prevention and treatment of pressure ulcers.

**Search strategy:** The Cochrane Wounds Group Specialised Trials Register and the Cochrane Central register of Controlled Trials were searched in September 2002. An additional search of PubMed and Cinahl and a hand search of conference proceedings and journals were performed. Bibliographies of relevant articles were also examined and experts in the field as well as manufacturers were contacted in order to find additional literature that may be relevant.

**Selection criteria:** Randomised controlled trials evaluating the effectiveness of enteral or parenteral nutrition on the prevention and treatment of pressure ulcers by measuring the incidence of new ulcers, ulcer healing or changes in pressure ulcer severity. There were no restrictions on patients, setting, date, publication status or language.

**Data collection & analysis:** Abstracts were independently inspected and full articles of potentially relevant studies were obtained. In cases of disagreement, advice was sought from a third person (AK). Data extraction and assessment of quality were undertaken by the three reviewers independently.
Main results: Only eight randomised controlled trials out of 16 potentially relevant articles were included. However, most of the eight trials included are small and of poor methodological quality.

PREVENTION: Four studies compared a combination of nutritional supplements, consisting of a minimum of energy and protein in different dosages, for the prevention of pressure ulcers. The largest study found that nutritional supplements reduced the number of new pressure ulcers (Bourdel-M 2000). The three smaller studies lacked power.

TREATMENT: Four studies evaluated the effects of nutritional supplements for the treatment of existing pressure ulcers: one trial examined mixed nutritional supplements, one trial examined zinc, another the effect of proteins, and two studies compared ascorbic acid.

The trials included are heterogeneous with regard to participants, interventions and outcomes; therefore it was considered inappropriate to perform a meta-analysis.

Reviewers’ conclusions: It was not possible to draw any firm conclusions on the effect of enteral and parenteral nutrition on the prevention and treatment of pressure ulcers. Further trials of high methodological quality are necessary.

Gauze and tape and transparent polyurethane dressings for central venous catheters


SYNOPSIS
Not enough evidence is available on the effects of different types of dressings for central venous catheters used in intravenous drips that are placed in large veins.

A central venous catheter is a small tube inserted into a major vein (in contrast to the majority of drips which are placed in peripheral veins e.g. in the hand or arm) to allow medications and other fluids to be ‘dripped’ into the vein over a period of time. This avoids the need for repeated injections. Several different kinds of dressing are used for protection of the central venous catheter, including gauze, tape and transparent polyurethane dressings. These dressings can vary in their durability, ease of use, ability to prevent infections and skin reactions. However, the review of trials found there is not enough evidence to determine the effects of different types of dressing for central venous catheters.

ABSTRACT
Background: Central venous catheters facilitate venous access, allowing the intravenous administration of complex drug treatments, blood products and nutritional support, without the trauma associated with repeated venepuncture. However, central venous catheters are associated with a risk of infection. Some studies have indicated that the type of dressing used for central venous catheters may affect the risk of infection. Gauze and tape or transparent polyurethane film dressings such as Tegaderm®, Opsite® or Opsite IV3000® are the most common types of dressing used to secure central venous catheters. Currently, it is not clear which type of dressing is the most appropriate.

Objectives: To compare gauze and tape and transparent polyurethane central venous catheter dressings in terms of catheter-related infection, catheter security, tolerance to dressing material and dressing condition in hospitalised adults and children.

Search strategy: The Cochrane Wounds Group Specialised Trials Register (October 2002), the Cochrane Controlled Trials Register (4th Quarter 2002) and the databases; MEDLINE (1966-December 2002), CINAHL (1982-October 2002) and EMBASE (1980-December 2002) were searched to identify any randomised controlled trials comparing the effects of gauze and tape and/or transparent polyurethane dressings for central venous catheter sites. Additional references were identified from bibliographies of published literature and were also sought from other sources.

Selection criteria: All randomised controlled trials evaluating the effects of dressing type (i.e. gauze and tape and/or transparent polyurethane dressings) on central venous catheter related infection, catheter security, tolerance to dressing material and dressing condition in hospitalised patients.

Data collection & analysis: Twenty-three studies were reviewed. Two members of the review team extracted data from each paper independently and the results then compared. Differences were resolved either by consensus or by referral to a third member of the review team. Authors were contacted for missing information.
**Main results:** Of the 23 studies reviewed, 14 were excluded. Nine studies were included. Data was only available for meta-analysis from six of the nine included studies. Of the six included studies with available data, two compared gauze and tape with Opsite IV3000, two compared Opsite with Opsite IV3000, one compared gauze and tape with Tegaderm, and one compared Tegaderm with Opsite. There was no evidence of any difference in the incidence of infectious complications between any of the dressing types compared in this review. Each of these comparisons was based on no more than two studies and all of these studies reported data from a small patient sample. Therefore it is probable that the finding of no difference between dressing types is due to the lack of adequate data.

**Reviewers’ conclusions:** There is a high level of uncertainty regarding the risk of infection with the central venous catheter dressings identified in this review. Therefore, at this stage, it appears that the choice of dressing for central venous catheters can be based on patient preference. To identify the most appropriate central venous catheter dressings, further research is necessary. It is paramount that any future studies investigating this issue be rigorously performed randomised controlled trials.

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**Therapeutic touch for healing acute wounds**

O’Mathuna DP, Ashford RL


**SYNOPSIS**

No strong evidence of benefit from ‘therapeutic touch’ therapy (using hands to find and correct imbalances in ‘life energy’) for healing acute wounds.

Therapeutic touch is an alternative therapy that is gaining popularity for helping wounds to heal. Practitioners enter a meditative state and pass their hands above the patient’s body to find and correct any imbalances in the patient’s ‘life energy’ or chi. Scientific instruments have been unable to detect this energy. The review found contradictory evidence about the effects of therapeutic touch. Some trials showed a benefit while others suggested that the process slowed the rate of healing. The review concluded that trials do not show therapeutic touch to be beneficial in healing wounds from minor surgery.

**Main results:** Four trials in people with experimental wounds were eligible for inclusion. The effect of TT on wound healing in these studies was variable. Two of the studies (n = 44 & 24) demonstrated a significant effect of TT. However the results of the two other trials favoured the control group (n = 15 & 38), one of these trials demonstrated a significant effect in favour of the control group.

**Reviewers’ conclusions:** There is insufficient evidence that TT promotes healing of acute wounds.
The New Zealand Wound Care Society was formed in 1995 and has had its ups and downs, but is presently growing steadily with nearly 200 individual members and several corporate. A problem in New Zealand is the geographical nature of the country with 2 separate islands, and a lack of motorways and railways. This makes meetings difficult and expensive to attend. As a result of this it was decided that one island would host the committee for a period of 3 years, at the end of which time another island would take over. This way at least the President, Secretary and Treasurer are, on occasion, able to meet face to face.

The aim of the society is:
To promote wound care knowledge and best practice amongst health care professionals in New Zealand.
This is achieved by providing:

Seminars, study days and meetings
This is done by individual area co-ordinators, and these people also make up the committee, which meets by teleconference every other month. Many co-ordinators put a huge amount of their own time and effort into ensuring meetings and seminars take place. Study days are extremely popular whenever they are run, and with sponsorship from companies, entrance costs are kept very low and are reduced for members. Speakers from all health disciplines take part in these.

Quarterly Newsletter
*Tissue Issue* provides an invaluable way for members to keep in touch with what is happening around the country and includes reports from all areas. It is also an ideal way for people to start into print by writing up exemplars and local initiatives.

The *Primary Intention Journal* is supplied to all members quarterly since we became affiliated with the Australian Wound Management Association a couple of years ago, and this in itself increased membership. The addition of The *EWMA Journal* this year, has been much appreciated by all existing members.

Access to resources and expert knowledge
All area co-ordinators provide access to expert knowledge through meetings and study days as described above, and additionally, the NZWCS has started running study days around the country using local expertise to deliver a standardised programme, which among other things, assists isolated practitioners to improve their practice. There are also now two Nurse Practitioners in Wound Care in New Zealand, one is myself and the other an ex-president of the society.

NZWCS is also asked to comment on national initiatives, such as leg ulcer guidelines and critique education leaflets, which are often produced by commercial companies.

Until recently, any nurse wanting education in wound management has had to study overseas, by distance learning or in person, and this is usually one of the Australian courses, although a few hardy souls have gone to the USA or UK. This year saw two courses commence for nurses. These were a result of NZWCS members, clinicians involved in wound care, working in partnership with educational providers. One is at post-registration level and the other post-graduate, and while they are only single courses at this stage, this represents a huge step forward for New Zealand nurses in terms of accessibility where some of the specific local issues, such as funding, can be covered. In the near future, we hope to establish a web site for the society.

In November of this year The New Zealand Wound Conference is taking place in Christchurch, with keynote speakers from Australia, Britain and New Zealand. It will be Spring here, and well worth a trip to escape the dark and cold of Europe! Dates 20-22 November.

www.conference.co.nz/woundcare2003

New Zealand is a small country in terms of population, and we are often the last to see new dressings (if they reach here at all!) and innovations, but thanks to the commitment of members and especially past committees and area co-ordinators best practice in wound care is slowly progressing.
**Title**: Antiseptic Wick: Does it reduce the incidence of wound infection following appendectomy?


**BACKGROUND**
The authors provide an adequate background for the study. They suggest that wound infection rates vary between 6-33% in patients who have undergone surgery. Therefore, the prevention of infection in this patient group is challenging. The administration of prophylactic antibiotic therapy is now an established practice, however, the most appropriate management of contaminated wounds at the time of surgery remains unclear.

**AIM**
The aim of the study was to compare subcuticular skin closure with wound wick technique in patients undergoing appendectomy for definitive appendicitis. Outcome measures were described as wound infection rates, time to healing, patient discomfort and cosmetic result.

**METHODS**
This randomised controlled study was undertaken at a large urban university hospital in the department of surgery. All patients with a presumed diagnosis of appendicitis were eligible to participate. The participants gave informed consent, however, the nature of this consent, i.e. written or verbal, is not explicitly stated. The allocation schedule was done by computer and the allocation information was stored in sealed envelopes. Statistical analysis of the data was conducted using Mann-Whitney U for nonparametric data.

**Pre Operative care:**
The authors state that risk factors for wound infection were recorded, however, these are not specifically stated. Antibiotic prophylaxis was given at time of induction of general anaesthesia, using a standard protocol. The protocol comprised both single dose metronidazole and cefuroxime, for patients with penicillin allergy erythromycin was given instead of cefuroxime.

**Perioperative care:**
Surgery was performed using a Lanz incision and at this point patients without appendicitis were excluded from the study. The degree of appendicitis was recorded as acute inflammation, gangrenous or perforated appendicitis (subsequent histological examination confirmed appendicitis). Bacteriological swabs were obtained from the wall of the appendix, purulent peritoneal fluid and the subcutaneous fat layer. In patients with purulence the peritoneal cavity was lavaged with 1-3 litres of saline and following closure the wound was also lavaged. The patients’ wounds were then managed in one of two ways:
- Subcuticular skin closure using continuous braided 4/0 polyglycolate
- Wound wicks soaked in 1% povidone iodine inserted between interrupted nylon sutures in a corrugated fashion, reaching from the deep fascia to the skin

**Postoperative care:**
In the second group, wicks were soaked daily in 1% povidone iodine. All wounds were inspected daily. The surgeon in charge decided the duration of antibiotic therapy based on the degree of infection noted at time of surgery and the patients’ clinical condition and the surgeon would have been aware to which group the patient belonged.

**Follow up:**
Patients were reviewed in the outpatient clinic four weeks following discharge and the following were noted:
- Any evidence of infection since discharge and at the visit time
- Wound discomfort as reported by the patient on a scale of 1-10
- Cosmetic result as reported by the patient on a scale of 1-10

Patients who did not attend the clinic were followed up by telephone call and questioned re the above.
Results:
The number of patients included was 181 (n=88 suture alone group, n=86 wick group) and data were obtained from 174 patients. The infection rate was higher in the wound wick group than in the suture alone group (n=10 wick group, n=5 suture alone group), however this was not statistically significant. No statistically significant difference was noted in either wound discomfort or cosmetic scoring as reported by the patients. Data on time to healing, one of the study outcome measures, was not presented. The relatively small size of the study means that it may have lacked statistical power to detect a clinically important difference in outcomes as statistically significant.

APPRaisal OF THE STudy/IMPLICATIONS FOR PRACTICE
In view of the persistent request for wound wicks soaked in 1% povidone iodine, by many surgical teams, this study is of interest and the authors attempt to assess whether there is any potential benefit of such wound management in clinical practice. Some aspects of the study are worth noting. Firstly, ethical approval for the study is not referred to therefore this needs to be clarified. Furthermore, antibiotic therapy was continued postoperatively at the discretion of the surgeon and this could lead to bias as they were aware which group the patient was in.

In their discussion, the authors suggest that the purpose of the wound wick is to allow the free drainage of fluid from the wound and in turn, the povidone iodine is released into the deep fascia. Given the supersaturated nature of the wick on insertion, it is unlikely that significant amounts of fluid could be drained out of the wound via this mechanism. Furthermore, the ability of povidone iodine to remain in an active state in the presence of blood, pus and organic material is questionable; further research is needed in this area. Therefore, it is interesting that the authors should choose to explore this area of practice. Indeed, the findings of this study suggest no statistical difference between the groups, indicating that the use of wound wicks may be unnecessary.

SÅR discusses interdisciplinary co-operation in wound healing and the patient as a whole. It argues that to obtain the best wound care, the patient should be observed as a whole and from a multi-professional view.

The book uses 500 references and covers both acute and chronic wounds. SÅR deals with many different topics: the healing process, acute and problem wounds, pain, infections, alternative healing possibilities, health-economic perspectives and so on. The introduction of the book is a chapter on wounds from a historic perspective.

SÅR is useful for educational purposes and is addressed to all specialists who, in one way or the other, are in contact with wounds.
The Cost Effectiveness Panel has been working to inform and assist clinicians in the area of cost effectiveness and reimbursement. At the EWMA meeting in Pisa we were pleased to present a plenary session entitled „Cost effectiveness & Reimbursement across Europe”.

Professor Nick Bosanquet offered a paper on the changing face of cost effectiveness up to 2010. In his paper he argued that the burden of wound care will increase over time, particularly with respect to the increased longevity in the population, with a greater pool of patients requiring surgery, and the greater numbers of patients who are likely to suffer from hospital-acquired infections. This would also be compounded by changes in lifestyle that will lead to increased risk of chronic wounds, changes such as increased obesity with an increase in the prevalence of diabetes. The deterioration in general mobility of patients would increase the risk of venous and pressure ulceration. Pressures on earlier discharge will lead to a greater burden on the community health services.

Professor Peter Franks presented a paper from the EWMA Position Paper on Compression Therapy. Whilst there is little information on the comparative cost effectiveness between compression and no compression, studies have been undertaken to evaluate the introduction of compression into health systems and comparisons with usual care. Collating the available evidence into a cost model demonstrated lower costs when using compression (€1,205 versus €2,135), and improved outcomes of treatment (71% versus 60% over 52 weeks), with improved cost effectiveness from €3,558 to €1,697 per healed ulcer.

Dr Marco Masina offered a paper that examined the reimbursement issues in Italy. Modern wound dressings are considered as prostheses, and, as such, only patients with a disability certified by Government Commissions are allowed through reimbursement systems. In particular, patients with venous ulcers or patients who acquire a pressure ulcer following an acute period of immobility (such as hip fracture) are excluded from receiving modern wound dressings. Local healthcare units (ASLs) provide standards of treatment using clinical protocols that allow only for the cheapest product within a category to be provided. Where cost effectiveness arguments have been used, modern wound dressings are made available, but this is highly dependent on the individual ASLs. To most patients, traditional gauze is the only treatment option available to them.

More recently, the CE panel has been working to assist clinicians in providing cost effective care to their patients in Slovenia. At present, only traditional gauze is made available to patients. Literature on the use and potential cost effectiveness of modern wound products has been examined in a variety of countries and in a number of clinical situations. In general, it indicates the potential for modern wound dressings to provide both a cost reduction and a more cost effective option for treatment. The cost reductions are made by providing information on total costs of care that include the cost of nursing time. These nursing costs can be dramatically reduced with appropriate dressing and bandaging materials. Even without enhanced healing rates, these products demonstrate cost effectiveness due to this overall cost reduction.

In May, the newly established Co-operating Organisations Board met during the EWMA/AisLec/AlUC conference in Pisa. Before the meeting all EWMA co-operating organisations were asked to elect a representative to become a member of the Co-operating Organisations Board (Co-op Org Board). All organisations, except one, were represented at the meeting in May. The Co-operating Organisations Board is chaired by Christine Moffatt, who opened the meeting by setting out the aims of the Board.

The Board elected Salla Seppänen from the Finnish Wound Care Society and Stephan Coerper from Deutsche Gesellschaft für Wundheilung und Wundbehandlung (Germany) to the EWMA Council.

New Co-operating Organisations
EWMA is proud to present two new EWMA Co-operating Organisations: The Polish Wound Management Association – PWMA
Grupo Associativo de Investigação em Feridas – Gaif (from Portugal)

ACTIVITIES
Slovenia. The Wound Management Association of Slovenia (WMAS) has invited council member Prof. Peter Franks to visit Slovenia in November to discuss wound management with various public institutions. The programme of the visit is very comprehensive and consists of the following meetings/topics:
- Clinical centre, University hospital.
- Ministry of health: How to standardise and improve Slovenian wound care approach.
- Government reimbursement agency: Models of reimbursement in different countries.
- Round table discussions with different groups of wound care professionals: family doctors, homecare nurses, dermatologists, surgeons and others.
- Seminar of WMAS.

EWMA is very happy to be able to help the WMAS in its work on wound management. The outcome of the visit will be reported in the next issue of the EWMA Journal, which will be published in the spring 2004.

Czech Republic. On 28-29 November, the National Conference of the Czech Wound Management Society will be held in Pardubice, Czech Republic. Salla Seppänen from the Finnish Wound Care Society will speak at the conference, and represent EWMA.

The subject of the conference is wounds and systemic disease, burns, scars, infection and wounds.

Poland. The Polish Wound Management Association’s (PWMA) influence in Poland is increasing and the association is expanding quickly. The cooperation between PWMA and EWMA is also growing. EWMA recorder, Prof. Finn Gottrup has held meetings with PWMA, this time in Oxford, UK to discuss the possibility of future programmes of education for professionals on modern wound management.

For further details on PWMA, please see the information on page 52 in this issue of the EWMA Journal.
This paper provides an update on the progress of the EWMA Educational Project. The alert reader will notice that Madeleine Flanagan, the usual author, has not written this paper. Madeleine is currently enjoying maternity leave following the birth of her son Max in May. The project group would like to congratulate Madeleine and Ed on this happy event.

The overall aims of the project are:
1. To provide students and healthcare professionals with the knowledge and skills to equip them to perform their role in the delivery of optimal wound care.
2. To provide contemporary interdisciplinary wound management education that is endorsed by organisations affiliated to EWMA.
3. To provide standards against which other organisations can evaluate existing wound management programmes.
4. To achieve European acceptance by developing an educational framework that harmonises with the European Commission’s educational initiatives in order to disseminate best practice in wound care.

During the last six months, the project group has continued to make progress in achieving the aims of the project, particularly with aims 2 and 3.

Completed Modules
Three modules have now been completed: Diabetic Foot Ulcer, Leg Ulcer and Pressure Ulcers. Each of these modules has been developed by a small working party that has included recognised experts from across Europe belonging to a range of disciplines. The module content uses the same framework throughout, ensuring continuity in approach. Thus each module describes the specific module aims, learning outcomes in terms of both intellectual skills and practical skills, teaching and learning strategies, assessment methods as well as the module content and unit specific learning resources. The European Pressure Ulcer Advisory Panel has endorsed the Pressure Ulcer Module and endorsement from other European groups is being sought for the other modules.

Standards for Courses
It is anticipated that any EWMA accredited course will need to vary in content depending upon the aims of a specific course and the existing skills and knowledge of the participants. As a result some items listed in a module content may be delivered in great detail on some courses but not on others in order to meet specific academic requirements. This is entirely appropriate and the EWMA Education Group has agreed a range of academic levels at which courses may be accredited. They are: fundamental, intermediate and advanced levels for either theory or practice or both. Thus, a university course in Tissue Viability at Masters level might be accredited at advanced theory level whereas a short course on leg ulcer management that concentrates on assessment and bandaging skills could be accredited at either fundamental or intermediate skill level depending on specific content.

Piloting the Accreditation Process
An essential part of the development plan has been to pilot the accreditation process. The pilot has been undertaken in collaboration with the European Surgical Institute (ESI) based in Hamburg, Germany, which was developing a two-day leg ulcer course for experienced medical practitioners. The process is in several stages
- Completion of a preliminary form to indicate planned course content by ESI.
- Assessment of course content by EWMA and agreement to proceed with the accreditation process.
- Evaluation of the course by a member of the EWMA Education Group using the previously developed audit tool.
- Review of the outcomes by the EWMA Education Group and agreement on the content of the EWMA report to ESI, accreditation level and length of time the course will be accredited.
Circulation of EWMA certificates to course members. As with any process, a number of areas where the process can be refined were identified and will now be introduced. Our thanks go to ESI for its willingness to be involved in this very successful pilot.

The EWMA Education Project is making steady progress and it is hoped that it will make a valuable contribution to developing the skills and knowledge of a great number of healthcare professionals across Europe, thus assisting in enabling EWMA to meet its charitable aims.

**EWMA Activity Report**

In this section you can find information on activities taking place in EWMA. Some of the projects are described in detail elsewhere in the journal.

**Recent activities**
- EWMA conference in Pisa in co-operation with AISLeC and AUIC, 22-24 May 2003
- Co-operating Organisations’ Board meeting, 23 May 2003
- EWMA Annual General Meeting, 25 May 2003
- EWMA Education meeting, 7 October 2003
- EWMA Executive meeting, 7 October 2003
- EWMA Council meeting, 8 October 2003
- Corporate Sponsor meeting, 8 October 2003

**Future activities**
- Peter Franks, visit to Slovenia, 25-28 November 2003
- Salla Seppänen, visit to Czech Republic, 28-29 November 2003
- EWMA Executive meeting, January 2004
- EWMA Educational Panel meeting, February 2004
- EWMA Corporate Sponsor meeting, March 2004
- 2nd WUWHS Meeting, Paris – France 8-13 July 2004
- EWMA Council meeting, July 2004
- EWMA Annual General Meeting, July 2004
- EWMA Executive meeting, October 2004
- EWMA Council meeting, October 2004
- EWMA Corporate Sponsor meeting, October 2004
- ETRS/EWMA/DGfW Conference in Stuttgart, Germany, 15-17 September 2005

**New Co-operating Organisations**

EWMA welcomes the Portuguese organisation, Grupo Associativo de Investigacao em Feridas and the Polish Wound Management Association and look forward to the co-operation.
**EWMA Membership Application**

Surname: ____________________________

First name(s): ____________________________

Profession:  
- [ ] Physician  
- [ ] Surgeon  
- [ ] Dietician  
- [ ] Nurse  
- [ ] Pharmacist  
- [ ] Other

Work Address: ____________________________

Address for Correspondence (if different from above): ____________________________

Tel: ____________________________

Fax: ____________________________

E-mail: ____________________________

Payment accepted in pound sterling only, drawn on UK bank.

I enclose a cheque of £15. Please indicate cheque no.: ____________________________

Please make cheques payable to: European Wound Management Association

Or:

Please debit my account by £15:

Credit Card type: (Delta, Master Card or Visa)

Credit card no: ____________________________

Expiry Date: ____________________________

Exact name and initials on the credit card: ____________________________

Please return form and enclose cheque to:

EWMA Secretariat  
PO Box 864, London SE1 8TT  
United Kingdom  
Tel: +44 207 848 3496  
ewma@kcl.ac.uk
International Journals

The section on International Journals is part of EWMA’s attempt to exchange information on wound healing in a broad perspective. Three journals have been added to the list in this issue: Advances in Skin and Wound Care; The International Journal of Lower Extremity Wounds and Zeitschrift für Wundheilung.

English

Advances in Skin & Wound Care
The Journal for Prevention and Healing
September/October 2003, Volume 16, Number 5
www.woundcarejournal.com

Clinical Management Extra
Orchestrating Wound Healing: Assessing and Preparing the Wound Bed
Cathy Thomas Hess and Robert S. Kirner
The Measurement of Leg Ulcer Pain: Identification and Appraisal of Pain Assessment Tools
Kathleen A. Nemeth, Ian D. Graham and Margaret B. Hamilton
Zinc Supplementation: Yeast or Noy?
Nancy Collins
5 Questions – and Answers – about Off-loading
Lawrence A. Lavry
Herpesvirus Infections and Herpetic Wounds
Jennifer T. Trent and Robert S. Kirner
Hyperbaric Oxygen Therapy 2003 Medicare Coverage Decision
Kathleen D. Schauum
How to Prevent and Manage Skin Tears
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Annemarie Sims and Rachel McDonald
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B. Loos, M. G. Jeschke, J. Kopp, W. Lang und R. E. Horch*
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Prevalence examination of pressure ulcers at Bispebjerg Hospital
Susan Bormark
A potential pressure ulcer patient’s experiences with pressure relieving – a case study
Maria Plaschke
Experiences with a newly developed device for cleansing and debridement of ulcers
Jorunn Maude Nedland, Marcus Gurgan

SUGGESTION BOX

EWMA values your opinion and would like to invite all readers to participate in shaping the organisation. Please submit possible topics for future conference sessions. EWMA is also interested in receiving book reviews, articles etc.

Please contact the Journal Secretariat at ewma@ewma.org
Use the EWMA Journal to profile your company

Deadline for advertising in the next issue is 15 March 2004.
In September the 13th annual meeting of ETRS was held in Amsterdam, the Netherlands. In total, 382 people from 22 countries attended. Without being immodest, we can say that the meeting was very successful: enjoying a high scientific level of content, excellent attendance and a great location at ‘De Meervaart’. The industrial exhibition was situated in the central hall of the meeting venue, which allowed good exposure and made it easy for the delegates to visit the exhibition.

Scientific programme
The scientific programme committee succeeded in presenting a broad spectrum of topics concerning wound healing.

The scientific programme was opened with a lecture on embryonic stem cells by Prof. Dr. Christine Mummery, entitled: Embryonic Stem Cells: a Future in Tissue Repair.

During three teaching sessions the basics of the clinical as well as the scientific aspects of wound healing were discussed by some of the top scientists in the field. In the first teaching session different extracellular matrix components and their role in tissue repair were addressed with an emphasis on collagen synthesis, cross-linking and remodelling. In the second basic scientific teaching session the role of different cell types in wound healing was explored. Apart from fibroblasts, keratinocytes and inflammatory cells, such as macrophages, the role of stem cells in wound healing becomes more and more evident. In the third teaching session the emphasis was on clinical developments in tissue engineering in different tissues, such as urologic tissue, hepatic tissue, the nervous system and bone. In addition to scaffold materials the importance of manufacturing strategies, such as mechanical loading and the role of cells were also reviewed.

Two plenary sessions comprised review presentations by invited speakers. The “clinical practice” session did not focus solely on treatment, but also on economical aspects such as cost effectiveness in relation to chronic wounds. Overviews were given on burn wounds and the importance of local therapeutics in these wounds. In the other plenary session fundamental scientific reviews about tissue substitution and the role of growth factors, signal transduction and other molecular processes in scar formation and angiogenesis were presented.

During sponsored symposia leading and new companies in the field of wound healing were given the opportunity to present the latest developments in their field. Three companies composed and presented thought-provoking programmes to interested delegates.

Ample time was scheduled for free presentations: 108 abstracts were selected for oral presentations, these abstracts were divided over 14 sessions, ranging from tissue engineering to quantitative measurements and inflammation to extracellular matrix organization. The young investigators award presentation session saw the six best abstracts submitted by ETRS members younger than 40 years being presented to delegates and a jury composed of five members of the ETRS board. The jury was unable to appoint a single winner so Dr. Sorensen from Copenhagen in Denmark and Dr. Patel from Cardiff in the UK shared the best presentation prize. All presenters in this session received a £500 travel award and an attractive souvenir while both winners received an extra prize of £250 each.

Authors of the other 83 abstracts were invited to present their work as a poster, 20 of these were then selected to expound on their work in a three-minute bullet talk. Furthermore, the three best posters submitted by ETRS members were selected for an award by a jury from the board. The winners were Dr. Toriseva from Turku, Finland, Dr. Chassot, from Nice, France and Dr. Dalton from Bristol, UK. They all received an award of £500 and an attractive souvenir.

Luckily, the Amsterdam weather offered a warm welcome to our guests; we experienced one of the last good summer weekends of this year. The welcome reception and the conference dinner offered ample opportunity for enjoying relaxing moments and good company. The dinner was held at the magnificent ‘Marble Hall’ in the Royal Tropical Institute.

Thanks to the submission of very good abstracts and the enthusiasm of the delegates, we can look back on a meeting that enjoyed a high scientific quality and a very good atmosphere; we would like to thank all participants for their contribution to making this event such a success.
The 7th Open Meeting of the European Pressure Ulcer Advisory Panel

3-6 September 2003, Finland

Over 500 people participated in the seventh open meeting of the EPUAP in the ancient city of Tampere in Finland. The city is known for being the centre of research, education, culture, sports and business in Finland and thus was ideal for our congress, which was held in the beautiful Tampere Hall. In addition to Finland and other Nordic countries, European participants came from Great Britain, Belgium, the Netherlands, France, Germany, Italy and Spain. Participants also attended from countries outside Europe like Japan, Australia and the U.S.A. The exhibition was extremely versatile and interesting, and there were over 20 exhibitors. The theme of the congress was ‘Pressure Ulcer Prevention and management – have we made a difference?’

Lectures held in the congress were high quality and varied covering topics ranging from prevention to surgical treatment. Tom DeFloor introduced an educational programme of classification of pressure ulcers (PUCLAS). Participants found this interactive lecture very interesting. Workshops, which dealt with dressing difficult wounds and equipment selection, were also very popular. In conjunction with the congress, a comprehensive poster exhibition was arranged. Prior to the main meeting being held, four satellite symposiums sponsored by Convatec, Johnson & Johnson, KCI and Smith & Nephew were organised while the Finnish Wound Care society organised a pre-session for the Finnish decision-makers and the press dealing with prevalence and care of pressure ulcers in Finland. The congress arrangements succeeded extremely well and our high technology ensured that all equipment worked well. Received feedback has been exuberant and the social events with the theme “Finnish tango” were greatly enjoyed.

In the opening ceremony, chairperson of World Medical Doctors Kati Myllymäki wished, on behalf of the Ministry of Social Affairs and Health in Finland, for a successful congress. “Through the eyes of administration or a tax-payer we see that savings made in the wrong place – like cut backs in rehabilitation, devices for the paralysed, lack of hospice personnel and up-date professional knowledge can lead to increased expenses, hospitalisation and greater human suffering.”

It is delightful to see that the European Pressure Ulcer Advisory Panel is working hard to develop deeper understanding and evidence-based knowledge of this problem and also is striving to spread this information to all professionals working in this field.
Globally we see the rapidly changing age structures of many populations will lead to changing risk profiles in the coming decades. National social and health care services are challenged by aging populations, and increasing health care costs and – luckily – also by improving medical technology.

This spring the World Health Organisation general assembly unanimously accepted the Framework Convention on Tobacco Control and I am sure this expert audience here is very well aware of the effect of smoking on our skin and surface blood circulation and the ability of our tissues to heal and recover when lacking oxygen. A diabetes epidemic is also underway. As the number of people with diabetes grows worldwide, the disease takes an ever-increasing proportion of national health care budgets. Without primary prevention, the diabetes epidemic will continue to grow. Even worse, diabetes is projected to become one of the world’s main disablers and killers within the next twenty-five years. Immediate action is needed to stem the tide of diabetes and to introduce cost-effective treatment strategies to reverse this trend. And you surely know what diabetes does to vulnerability to skin problems and ulcers!
The 13th EWMA Conference took place in beautiful Pisa, Italy. The sub-title – the Art of Healing – appropriately linked the theme of the conference to charming and picturesque Pisa and created a scene where scientific research could easily blend with historical and architectural experiences.

The conference was officially opened on the first day by EWMA President, Peter Vowden; the presidents of the national organisations, Piero Bonadeo (AIUC) and Andrea Bellingeri (AISLeC); local Chair Marco Romanelli; EWMA Recorder Finn Gottrup; the dean of the School of Medicine Luigi Murri and the director of the Pisa Main Hospital Antonio Bizzari. During the following three days the delegates were invited to attend a wide range of sessions, symposia and workshops. The 1300+ participants created a lively atmosphere while moving through the conference centre, Palazzo dei Congressi di Pisa, on their way to the various auditoria or the poster presentations upstairs. A total of fifty sessions took place during the three-day period and 191 posters were presented – quite an impressive programme.

The scientific content of the 13th EWMA conference presented some of the most recent research in the area of wound healing and management and demonstrated a continuous progress in the treatment of problematic acute and chronic wounds.

The theme of the conference – Teamwork in Wound Healing – was discussed in a plenary session on Thursday morning chaired and introduced by one of the authors Finn Gottrup. At this session, Richard Bull discussed whether the multidisciplinary approach is helpful or not and Paola Di Giuio looked at ‘the role of the nurse in the treatment of decubitus wounds’. The afternoon offered research on the Management of Scarring and Burn Wounds chaired by Luc Teot and Giovanni Micali. Here Esther Middelkoop presented new developments in skin substitutes and Luc Teot argued that greater awareness today implies better management tomorrow.

On Friday Luc Gryson and Massimo Fornaciari chaired the plenary session ‘Cost-effectiveness and Reimbursement across Europe’. Nick Bosanquet highlighted how changes will come across in cost-effectiveness dilemmas within wound healing and Marco Masina introduced the listeners to the availability of advanced dressing in Italy. Luca Chinni chaired the afternoon’s plenary session on Systemic Diseases, Wounds and Inflammatory Ulcers in company with the other author Marco Romanelli. Here Vincent Falanga spoke on inflammatory ulcers and wounds related to vascular tissue diseases and Massimo Papi concluded the session with a speech on microangiopathic ulcers.

Mike Edmonds and Alberto Piagessi chaired the plenary session on Diabetic Foot Management that took place Saturday afternoon. Kathryn Kinmond suggested bringing the patient’s personal experience and expertise into play more often in the treatment while Alberto Piagessi argued that infections in the diabetic foot are the most expensive of complications and can cause an amputation. The concluding plenary session linked to the Diabetic Foot meeting, which took place concurrently in Nordwijkerhout.

Speakers, chairs and poster presenters contributed with research of significant quality completing this year’s conference programme. The conference attracted many international delegates and, by offering translated sessions, EWMA also appealed...
to many local presenters and attendees. In Pisa the official conference languages were English and Italian and, as a result, the number of Italian participants was notably high this year.

Simultaneous translation was introduced for the first time in Grenada last year to address the challenge of language barriers across Europe. This turned out very successfully and simultaneous translation is now incorporated in EWMA’s standard conference programme.

Over 1300 participants as well as 200 exhibitors attended the conference in Pisa travelling from 45 different countries. Most of them came from Italy and the United Kingdom, but Denmark, The Netherlands and Germany were also well represented. Altogether the conference welcomed delegates from over thirty European nations. EWMA noted with special delight the increasing participation from Central and Eastern European countries – one of the main focus areas of the organisation. The number of participants from the rest of the world was also noticeably high – close to 8% of the delegates came from non-European countries.

EWMA conferences have grown into a gathering place for wound organisations throughout Europe. The 2003 conference focused on the importance of teamwork and co-operation and for the first time the national co-operating organisations had the opportunity to meet and discuss the future. At Pisa 2003, two new members were elected to the EWMA Council – Salla Seppänen from Finland and Stephan Coerper from Germany. Their appointments will strengthen the European focus of EWMA. The co-operation of our member organisations is vital to the establishment of the European network EWMA aims to develop and the now established Co-operating Organisations’ Board is a major step towards creating closer bonds within European Wound Healing and Management.

While the conference programme offered many opportunities to stimulate the participants intellectually, the atmosphere of Pisa inspired delegates to stroll along the river Arno, take an espresso at one of the many sidewalk cafes and enjoy a stracciatella ice cream. The conference dinner took place Friday night and, to set the mood, it was preceded by a concert in beautiful Pisa Cathedral. The celebrated Maggio Musicale Fiorentino Orchestra played classical pieces and received standing ovations for their marvellous performance. When leaving the magnificent cathedral, the participants were met by the enchanting sight of the impressive Dome and the famous Leaning Tower silhouetted against the dark blue sky.
At Stazione Leopolda a fantastic show of torches and dancers in colourful dresses welcomed the participants. The old train station, dating back to the 1840s, had been transformed into an exquisite dinner restaurant illuminated by thousands of candles. The excellent dinner offered a selection of Italian appetizers followed by a four-course supper. During the dinner EWMA Secretary Brian Gilchrist announced the poster prize recipients.

Soon after the last bite of delicious vanilla and chocolate semifreddo had gone, the dance floor filled with happy people enthusiastically joining in with the band. No previous EWMA conference has been witness to so many dancing people before!

POSTER PRIZES

P28 Recurrent Difficult Wounds: a Case of Calciphylaxis in a Patient in Dialysis.
Bulckaen, M.; Capitanini, A; Giuntoli, F; Petrini, N; Petrone, I

P53 Hemangioma: A Unique Set of Concerns.
Dohle, S.

P128 Wound Healing in Fine Art: What is Possible to Learn?
Papi, M.; Chinni, LM; Coppi, C; d’Ari, A; Sordi, D; Viviano, MT

P145 The Metabolism of the Diabetic Foot.
In Vivo Investigation with Microdialysis.
Riegers-Nielsen, P; Stolle, L

P168 Histological Examination of the Distribution Change of Myofibroblasts in Wound Contraction.
Tanaka, A.; Kitegawa, A; Nakatani, T; Sanada, H; Sugama, J; Tanaka, S; Yamazaki, M

FIRST TIME PRESENTER PRIZE

14 Treatment of Chronic Leg Ulcers with Tissue-Engineered Human Dermis – a case study of 114 Patients.
Anne Leena Hjerppe

In Saturday’s lottery Markku Heiskanen from Finland won a free registration to the World Meeting in Paris in 2004. After the lottery drinks and snacks were served on the rooftop terrace making a grand finale to EWMA Pisa 2003. Three days of scientific sessions and workshops were now over and 1300 hundred delegates could now return home – hopefully feeling updated on current research studies and ideas within wound healing.

EWMA greatly enjoyed hosting the conference in Pisa and would like to thank the chair of the local organising committee – Marco Romanelli – and the two national hosts – AIUC and AISLeC – for their tremendous work.
Conference Calendar

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<th>Month</th>
<th>Day</th>
<th>Place</th>
<th>Country</th>
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<td>DGfW (German)</td>
<td></td>
<td>Nov.</td>
<td>20-21</td>
<td>Hamburg</td>
<td>Germany</td>
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<tr>
<td>New Zealand Wound Care Society Conference</td>
<td></td>
<td>Nov.</td>
<td>20-22</td>
<td>Christchurch</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Slovenian Wound Management Association (Slovenian)</td>
<td></td>
<td>Nov.</td>
<td>28</td>
<td>Ljubljana</td>
<td>Slovenia</td>
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<tr>
<td>ETRS Focus Group Meeting</td>
<td>Topical Negative Pressure Therapy</td>
<td>Dec.</td>
<td>4-6</td>
<td>London</td>
<td>United Kingdom</td>
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<tr>
<td>Scientific Symposium honoring Thomas K. Hunt, MD</td>
<td></td>
<td>Dec.</td>
<td>5-6</td>
<td>San Fransisco</td>
<td>USA</td>
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<td>The Norwegian Wound Healing Association (Norwegian)</td>
<td>Diabetic Wounds</td>
<td>Feb.</td>
<td>5-6</td>
<td>Oslo</td>
<td>Norway</td>
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<tr>
<td>Burn and Wound Healing Symposium</td>
<td></td>
<td>Feb.</td>
<td>23-27</td>
<td>Maui</td>
<td>Hawaii</td>
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<tr>
<td>Copenhagen Wound Healing Center Symposium</td>
<td>Different aspects of the venous leg ulcer</td>
<td>Mar.</td>
<td>12-13</td>
<td>Copenhagen</td>
<td>Denmark</td>
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<tr>
<td>5th Australian Wound Management Association Conference</td>
<td></td>
<td>Mar.</td>
<td>17-20</td>
<td>Hobart</td>
<td>Australia</td>
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<tr>
<td>Tissue Viability Society</td>
<td></td>
<td>Apr.</td>
<td>20-21</td>
<td>Torqay</td>
<td>United Kingdom</td>
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<tr>
<td>AISLeC 3rd Convention (Italian)</td>
<td></td>
<td>Apr./May</td>
<td>29-1</td>
<td></td>
<td>Italy</td>
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<tr>
<td>17th Annual Symposium on Advanced Wound Care</td>
<td></td>
<td>May</td>
<td>2-5</td>
<td>Lake Buena Vista</td>
<td>USA</td>
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<tr>
<td>2nd World Wound Union of Wound Healing Societies’ Meeting</td>
<td></td>
<td>July</td>
<td>8-13</td>
<td>Paris</td>
<td>France</td>
</tr>
<tr>
<td>4th Scientific Meeting of the Diabetic Foot Study Group – DFSG</td>
<td>Advancement of knowledge on all aspects of diabetic foot care</td>
<td>Sep.</td>
<td>2-5</td>
<td>Stuttgart</td>
<td>Germany</td>
</tr>
<tr>
<td>DGfW (German)</td>
<td></td>
<td>Sep.</td>
<td>23-24</td>
<td>Weimar</td>
<td>Germany</td>
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<tr>
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<tbody>
<tr>
<td>Conference in co-operation between ETRS, EWMA and DGfW</td>
<td></td>
<td>Sep.</td>
<td>15-17</td>
<td>Stuttgart</td>
<td>Germany</td>
</tr>
<tr>
<td>Woundcare Consultant Society Wound Conference</td>
<td></td>
<td>Nov.</td>
<td>4-5</td>
<td>Utrecht</td>
<td>The Netherlands</td>
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<tr>
<td>Ninth Annual CAWC Conference</td>
<td>Empowering Patients for Optimal Wound Care</td>
<td>Nov.</td>
<td>6-9</td>
<td>Toronto</td>
<td>Canada</td>
</tr>
<tr>
<td>GNEUAPP (Spanish)</td>
<td></td>
<td>Nov.</td>
<td></td>
<td>Oviedo</td>
<td>Spain</td>
</tr>
<tr>
<td>RCN Annual Pain Conference</td>
<td>Integrated Care Pathways in Pain</td>
<td>Dec.</td>
<td>1</td>
<td>London</td>
<td>United Kingdom</td>
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2005 Conference

Stuttgart, Germany
15-17 September 2005
Polish Wound Management Association – strategy for developing modern wound healing

Poland used to be one of the few countries that did not have an organisation comprising people involved in wound healing. This had resulted in the common practice of traditional wound management, lack of knowledge on modern wound healing methods and lack of modern products on the market. The other significant disadvantage of the status of current wound healing methods in Poland is patient situation. People with chronic wounds – e.g. leg ulcers, pressure sores, recognised by a doctor as a chronic ulceration – may collect the modern wound healing products, on a doctor’s prescription, from a pharmacy but they have to cover at least 50% of the retail price of the product. That is not very helpful to elderly patients who often suffer from number of systemic disorders.

A number of people have recognised this unfavourable situation and tried to encourage development of modern wound management lecturing at different conferences and workshops. They have represented different specialities and therefore the impact of their experiences was limited to narrow groups of similar specialists involved with an interested in wound healing. To speed up the development of modern wound healing, an assembly of wound healing professionals established the Polish Wound Management Association.

PWMA’s initial interest was to influence practices in wound healing in Poland. It also aimed to become part of EWMA and encourage aligning standards in Management of Wound Healing (MWH) the way it has already been done in other countries. PWMA recognised the work done by EWMA and its comprehensive approach to wound healing presented at annual EWMA conferences. Our approach to MWH encompasses the best practice and experiences, gathered from countries that have already established MWH practices. However, we have some differences in our health care system and we therefore need to apply solutions applicable to our conditions. The PWMA has an appointed constitution, which summarises its activities. Basically these are: education of medical professionals on modern wound
management introducing principles of MWH to programs of education for doctors and nurses, co-operation with other medical associations for constant education and establishing standards in wound healing, discussion with reimbursement authorities on principals of reimbursement for wound healing products which are proven to be cost and clinically more effective than traditional dressing products.

In its first activities the PWMA especially wants to focus on education for medical professionals. We must bear in mind that Poland has 38-million citizens and there are no wound specialists for patients with wounds. Patients are therefore confused and often do not receive relevant help or sometimes do not even look for it. We assume that as a primary undertaking we should aim to give the basics of modern wound management to people who most often see patients with wounds and who should and wish to take responsibility for managing chronic wounds. That group would encompass some specialists who deal with more complicated wounds but also general practitioners and community nurses who see all those patients at their surgeries. PWMA tactics will be based on an educational program targeted for each group. To further develop MWH in Poland we plan to establish outpatients units – Ulcer Healing Centres - for treatment of chronic wounds. Specialists based in these clinics would be able to manage wounds, especially the more complicated cases and to educate medical staff in their regions in the techniques of MWH and spreading the knowledge further. We look forward to co-operating with EWMA in our challenges and undertakings. We have already learned much from the EWMA speakers who have visited us in Poland. Professor Finn Gottrop came to Poland for a Phlebological Conference; the lecture received a great welcome and generated much interest amongst the audience. In the future we would like to organise a conference in close co-operation with EWMA.
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Salla Seppänen

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