

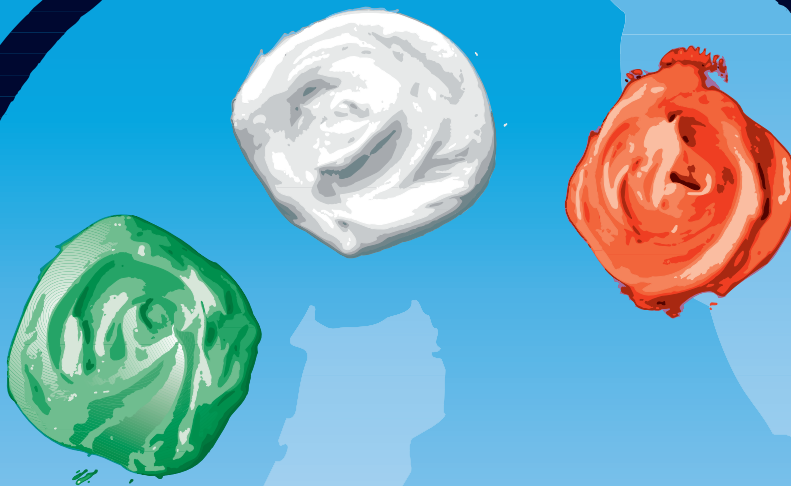


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I am very pleased to be writing my first editorial for the EWMA Journal. This issue contains papers reflecting the main theme of our 13<sup>th</sup> annual meeting which will be held in Pisa in May:

### **Teamwork in Wound Treatment: the Art of Healing**

This year's meeting brings together three societies deeply involved in wound care. We are really proud to organize a single meeting between EWMA, AIUC and AISLeC. In my opinion this is the best manifestation of teamwork. Caregivers and scientists work to advance our understanding of acute and chronic wound healing, and our field is blessed with a large array of information systems to communicate the scientific findings to the specialty. Research into the area of treatment is paramount to our care of patients and in this area the speed of scientific progress is greatest. We live in an age of tremendous new developments in the treatment of wounds: whether it be treatments for vascular ulcers, pressure ulcers, diabetic foot ulcers or inflammatory ulcers, the development of new treatments and increased understanding of established treatments are proliferating rapidly.

The EWMA Journal seeks to provide comprehensive coverage of advances in wound management, offering practical and important information that will help improve the care of patients with acute and chronic wounds. We can certainly confirm that healing of wounds is an art where everyone is contributing in a way that is affected by their cultural background, e.g. it incorporates their professional, regional, national and local, country or ethnic group. But probably the most important aspect of our specialty is that we are working as a team. This concept is well elucidated by an article from our Recorder Finn Gottrup who, last year during a meeting in Copenhagen, launched the fundamental aspects of the multidisciplinary approach in wound management. Christina Lindholm describes the messages that the depiction of wounds in art offers us and Carol Dealey illustrates the history of wound healing in the Mediterranean area. There are also papers on critical issues such as the influence of smoking in wound healing by Lars Sørensen, new concepts on the interaction between bacteria and topical treatments of wounds by Keith Cutting and a paper on the science behind compression therapy by Steve Thomas.

We hope that you will find this issue to be of both academic interest and practical use, and look forward to receiving your feedback and contributions to the EWMA Journal.

In the meantime I wish you a fantastic and fruitful EWMA meeting in our beautiful city of Pisa, where the Tower is leaning enough to welcome you all.

*Marco Romanelli*



# Multidisciplinary Wound Healing Concepts

## BACKGROUND

Non-healing wounds are a significant problem in health care systems all over the world. Unlike other areas of health care, wound management has not had the benefit of evidence-based, standardised treatment and referral plans, multidisciplinary collaboration, robust evaluations of treatments, adequate knowledge of health care personnel, patients and administrative persons, and appropriate treatment structures for the patients and basic, as well as clinical, research. An investigation of the primary health care sector in central Copenhagen documented that

- only 51% of people with a chronic wound have had a diagnostic examination
- 40% of people with venous leg ulcers had not been treated with compression
- 34% of people with a foot ulcer were not investigated for diabetes mellitus
- only half of the people with a pressure ulcer had an organised pressure relief strategy (1)

The lack of organisation seems to be a major problem; care appears to be delivered by individuals instead of a team, and this may not be in the best interest of the patient (2).

I believe that organisation of the wound management team is the most important problem we face. If this problem is not solved, then progress will cease and the present initiatives may disappear.

A team approach, with collaboration between all healthcare professionals, is required to facilitate good quality holistic care (3-6). Recognition of the talent and creativity of all members of the multidisciplinary team will increase the chances of success in establishment of the concept (7). There has been some debate whether the term multidisciplinary or interdisciplinary should be used (8); in this paper I have chosen to use the term multidisciplinary, because it focuses more

directly on equal collaboration with all disciplines, the end result being a team comprising of all the disciplines. This is in contrast to the term 'interdisciplinary', which focuses on the interaction between disciplines, with less focus on the development of a coherent team.

The idea of a multidisciplinary team and centre approach is increasingly being accepted as the optimum way to improve various aspects of health care, including wound management. The concept of multidisciplinary care is a well-established paradigm in medicine, and is not new to wounds; multidisciplinary burn teams have existed for years. Recommendations for the treatment of pressure ulcers and diabetic foot care have long included the need for a multidisciplinary team (4).

During the last ten years different types of multidisciplinary concepts for the treatment of problem wounds have been created (9-16). In the USA commercial wound centres and wound care clinics in University settings have been organised (17-24). Multidisciplinary approaches to wound care in the primary health care sector, as well as in hospitals, have demonstrated a reduction in home visits and the range of products used (21,22). Standardising treatment plans seems to improve healing of certain chronic wounds (16, 23-25). In one study, it was reported that there was an 84% reduction in the incidence of major lower extremity amputations after embracing the multidisciplinary concept (26). Similar results have been achieved in other institutions (5). It has also been shown that the multidisciplinary team approach decreased the incidence of pressure ulcers from 23% to 8% after three years in one institution and decreased the prevalence of nosocomial pressure ulcers by 15% in one year in another institution (6). ▶



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## WORKSHOP ON MULTIDISCIPLINARY CONCEPTS IN WOUND HEALING

To explore the international development of wound healing concepts the author organised and chaired a workshop on 'Multidisciplinary Concepts in Wound Healing' in Denmark in 2002 (Fig 1). This workshop was the first to focus on the international multidisciplinary treatment models and attracted 50 delegates from all over the world. The workshop focused on the direction in which the organisation of wound healing and care delivery should progress. It is of vital importance to all involved in clinical work, research and commercial activity within this area that best practice be defined and implemented.

In the meeting several opinion leaders and concepts were presented (Table 1). Different problems are related to the establishment of wound healing concepts:

- How should the team/centre be structured?
- Which type of staff should be involved
- Which group or medical speciality should be in charge?
- Who should be the team leader? (All teams should have a leader, but should the assigned leadership be based on position or talent for leading? In this respect problems could arise, because some physicians may not be interested in a team function, and possibly not at all if it is not lead by a physician (8).)
- What should the status be of the team/centre in the care system? Should it only be a small local team in one hospital, which will change or disappear, when the leader or others in the team move away? Or should the team/centre be organised as a concept, which has a status in the health care system comparable to a medical specialty like dermatology, internal medicine, and subspecialties in surgery?

**Table 1**

### Current centre/clinic and team organisation

(countries or specialties involved)

*Multidisciplinary: all types of wounds*

Independent expert department structure  
(Copenhagen Wound Healing Center, DK)

*Multi Speciality Structure*

(Univ. Center of Wound Healing DK, USA)  
Outpatient Clinics (+/- Beds) (DK, UK, US, D, S etc.)  
Data-network (D)

*Multidisciplinary Single Type of Wounds*

Diabetic Foot Teams (Intern Medicine, Surgery, Podiatry)  
Leg Ulcer Clinics (Dermatology)

*Other Models*



**Fig 1.**  
A Workshop on  
"Multidisciplinary Concepts  
in Wound Healing"  
was organised in  
April 2002 in Denmark.

From the author's point of view the area of wound healing and care is too multidisciplinary to be classified as a specialty. It is more appropriate to describe it as a type of independent, integrated, multidisciplinary expert area. The achievement of such a status is vital for future development of the wound area. At the workshop, topics like socio-economical aspects, education and training, and existing models for delivering wound treatment and care concepts were discussed.

### Socio-economical aspects:

John Posnett, professor in health economics at the University of York, UK, presented different models for cost effectiveness and clinical effectiveness. It was emphasised that cost effectiveness is not about saving money, but about maximising outcomes for patients within existing budgets. From the prevalence of different types of problem wounds in Scandinavia, Professor Posnett calculated the cost of chronic wounds in Scandinavia, including an estimate of 2.8 billion DDK (£260 million) annually for Denmark (population 5.2 million), to be a figure almost double earlier expectations. He concluded that treatment of chronic wounds is currently very resource intensive, and will only increase in the future. The main drivers of costs are the frequency of dressing changes, time to heal and incidence of complications. Finally, he found that clinical effectiveness and cost effectiveness are merely different sides of the same coin, as improving clinical effectiveness has the potential to reduce the time to healing, the number of treatment visits and the number of complications, and thus improve cost effectiveness.



### Education/training:

Christine Moffatt, at that time president of EWMA, presented a paper on wound care education in Europe. She focussed on the political forces involved in shaping the health care agenda. She reported that few politicians or clinicians are interested in wound care and in many areas of Europe moist wound healing is still not used. It was also emphasised that there is a lack of specialisation in this area, including low levels of research, minimal time spent on wound prevention or management in medical and nurse curricula, and almost no organisations that include dedicated wound healing centres. She also mentioned the problem of leadership in wound care – should the team be lead by doctors, nurses, physiotherapists or podiatrists?

Educational challenges include defining what needs to be taught and at what academic level. Internationally there are differences related to culture, coverage of health services, stage of development of wound care practice, access to modern products and reimbursement. Professor Moffatt reinforced the view that in developing effective educational programs, one also had to be aware of the political agenda. EWMA's Educational Development Project (led by Madeleine Flanagan and Finn Gottrup) is one way to help educationalists and clinicians advance appropriate training and education across Europe. It focuses on the production of a flexible framework for the delivery of wound management education across Europe without taking away professional autonomy in the different countries for determining standards. The objectives are to foster collaboration, develop a management curriculum framework, develop a quality assurance process in the form of benchmarking standards, and commission new EWMA educational material. Progress to date includes agreeing a timetable for the Group, recruiting more members and producing new material for some types of problem wounds.

Luc Teot from Montpellier, France, emphasised the importance of education for those people working practically with wounds. He described the French experience in wound management education, which is a three level education model, delivered in Montpellier and Paris. After finishing all levels the candidates have to pass a written examination and produce a thesis before they can graduate. The course is validated by the Universities of Montpellier and Paris and called 'University Diploma in Wound Healing'. In the first four years almost 500 candidates have been through the programme. An evaluation of the course is in progress and the long-term goals of the course are to increase the collaboration in performing clinical trials, produce a network of experts at regional level, redefine nurse practice, and provide a common language between practitioners.

Finally Kirsten Müller, vice chairman of the Danish Wound Healing Society, presented the Danish experience. A programme of nurse education in wound healing – 'the postgraduate education for nurses working with wounds' – started in 1997 and is a collaboration between the Danish Nurse Association and the Copenhagen Wound Healing Center. The programme lasts six months and consists of ►

four modules, plus a thesis. Almost 200 nurses have been through the programme. The long-term goals are similar to the French course, and a number of wound groups have been set up across the country by nurses graduating from the course.

### Concepts of organisation: Examples from Europe

This session was called 'Where are we now? Existing concept presentations'. In this session the Danish, German, UK and American models for wound management organisation were presented. The Danish concepts will be described in detail later.

Keith Harding described the UK model. Initially he described the general structures, and the strengths and weaknesses of the UK National Health Service. Focussing on the history of wound care he emphasised the problem of interested nurses working without support from interested doctors. Again the problems of who is in charge of wound care, and the dismissal of wound care as being only concerned with dressings were mentioned. This background was the main reason for the establishment of the Wound Healing Research Unit in Cardiff in 1991. This unit focuses on education, clinical work, administration and research, and its mission is to make wound healing accepted, respected and a legitimate speciality. The WHRU is funded by a number of external sources and has a high out-patient and research activity while no specific in-patient clinic has been established yet.

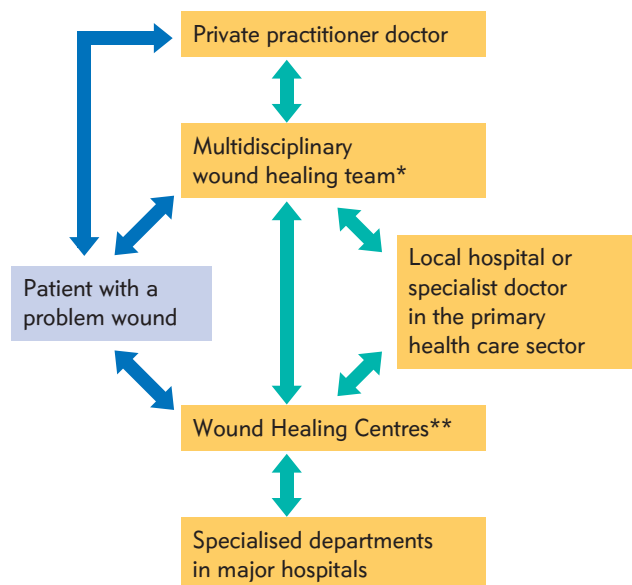
Problems include:

- no central recognition and support
- competition with cancer, heart diseases, mental health
- lack of management with vision
- a silo budgeting system
- innovation is a challenge
- whose wound is it anyway?
- fragmentation of services and dependency on individuals.

Vincent Falanga from Boston presented the US experience. The distribution of problem wounds and basic treatment models are similar to Europe. One of the main problems is that many specialities are treating people with chronic wounds and therefore many clinicians have too little experience in each type of wound.

Economically the major problem in wound care and wound healing centres is the lack of proper reimbursement by government and many private insurance companies for dressings, topical care, compression bandages and stockings, and new advanced therapies. If a patient has to be hospitalised this is carefully evaluated by the purchaser of care and may be disallowed, resulting in no payment

Fig 2.  
Suggestion for organisation of an expert function in wound healing and care: "Clinical Wound Healing"



(\*) One group for each geographic region in the health care system. Consists of specialist trained/educated doctors and nurses from both the primary and hospital sector.

(\*\*) E.g. Copenhagen Wound Healing Center, University Center of Wound Healing, Odense

for the patient. The only thing often paid for is home nursing. The organisation of the American health care system finances is quite different from most of the systems in Europe. In the US, as well as Europe, however, there are variations between the different parts of the country. Claims and appeals of payment are complicated and rules may differ across sites. Wound healing centres are often found in the US, with often more than one center in each city. As a result, there is substantial advertising of services and intense competition for patients. However, with some notable exceptions (i.e. Curative Health Services, Shriners Burn Centers), wound-healing centres in the US are fragmented, each one depending on the interest of particular institutions and individuals. In the USA practice of optimal care is often difficult, because of reimbursement issues and there is a perceived need for academic 'centres of excellence'. Falanga stated that there should be four or five centres of excellence in the US and they should distribute information, education and advanced research to other centres. The 'centres of excellence' could be funded by the state and by research funds from the US National Institutes of Health and Industry.

Gert Kövecker, from Tübingen, described a German innovation – a wound registration program (Wound Net). This database holds data from several thousands of wound patients, all entered by the private doctor or hospital caring for a patient with a chronic wound. Current challenges include the loss of data when patients are omitted from the register, despite each center recognising it as an es-



stantial part of documentation. This has resulted in fewer opportunities for evaluating effectiveness of various interventions and treatments, and making comparisons between centres.

In Denmark we have developed wound-healing centres with in-patient beds as well as outpatient facilities for the treatment of all types of problem wounds. Furthermore, a national concept of an expert in wound management is currently under development in Denmark. These models are unique and will be described in more detail below.

## **THE DANISH EXPERIENCE**

### **An expert function in wound healing**

In order to establish a truly national wound organisation both primary and secondary health care sectors should be involved. The speciality of 'Clinical Wound Healing' has been proposed in Denmark and been submitted to the Danish National Board of Health for recognition (Fig.2). The health care system in Denmark is socialised, and patients do not pay for diagnostic or treatment procedures in the public hospitals (> 98% of beds.) The Danish health care system is divided into 14 regions (Amter), each of which has a separate budget in relation to health care. In each of these regions a standardised 'Multi-disciplinary Wound Healing Team', consisting of local staff, should be established. The team should be the referral destination for wound patients in the local region, and should organise the plans for treatment in the primary and secondary sectors. A minority of the patients, however, will need more specialised treatment in a centralised Wound Healing Center. We estimate that in countries of the size of Denmark (5.2 million inhabitants and approximately 50,000 people with problem wounds) two specialised centres will probably fulfil this need. Since the wound healing teams also take care of the diabetic foot problems, the future survival of diabetic foot organisations might be secured this way.

At present, an organising group of the Danish Wound Healing Society, chaired by the author, is trying to create an expert area related to the speciality of surgery. However, representatives of all specialities interested or relevant can, and are welcome to, participate. In many of the 'Amter' local wound healing teams have been established, but the standardised organisation has yet to be established. The two specialist wound healing centres are, however, established, and their structure will be described.



### Wound healing specialist centres

Centralisation and standardisation are the most important issues in wound treatment and care (27-29). No single discipline can meet the multiplicity of needs that all patients may present (30). Organisation in the wound healing area raises the question how wide a range of wound types should be included in this treatment model. Presently most centre or team functions have been established in relation to a specialty department and specific wound types like diabetic foot ulcer clinics or teams (31-33). It is the author's belief that a wound healing team/model should include all types of problem wounds. Such multidisciplinary centre structures will result in a higher degree of continuity of treatment and allow the development of standardised treatment regimens (Fig 3). Unpublished studies have evaluated the treatments delivered by these centres and reported that 83% of treatment courses assessed by a Scandinavian expert group were 'satisfactory'. When patients were interviewed, 85% reported that their wound treatment was 'satisfactory' and 93% reported that the quality of care they received was 'satisfactory'. (Kjær et al, unpublished data).

### Copenhagen Wound Healing Center (CWHC)

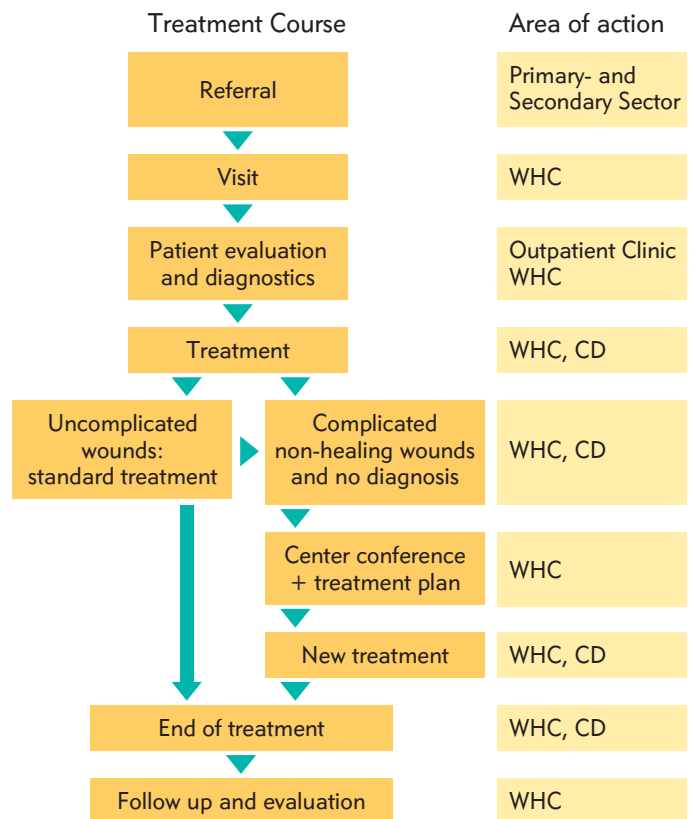
This model was established in 1996 as an independent, clinical, multidisciplinary department treating all types of problem wounds and housed in the Bispebjerg University Hospital, Copenhagen (16). The centre lost its independence in early 2003; today the centre is connected to the dermatological department of Bispebjerg University Hospital, and shares the in-patient facilities.

The centre consists of an outpatient clinic (30-35 patients a day) and an inpatient ward (15 beds). Collaboration with relevant departments is organised. The multidisciplinary staff consists of medical doctors, nurses, podiatrists, physiotherapists, secretaries and a hospital porter. The centre is surgically orientated with four types of specialised surgeons (vascular, orthopaedic, gastrointestinal and plastic surgery related) and a doctor in education. The nursing staff includes clinical as well as research nurses with different levels of specialisation. There is a two-year educational program, before the nurse is allowed to take care of all specialised functions. The podiatry staff produce pressure relieving shoes and boots, especially for diabetic foot ulcer patients and takes care of the treatment of complex foot problems.

### University Center of Wound Healing (UCWH)

This centre was established in Odense University Hospital in 2002, as part of the Department of Plastic and Reconstructive Surgery. A professor of Surgery from University of Southern Denmark has overall clinical responsibility for the centre.

Fig. 3. Treatment course in a wound healing center (WHC) and collaborating departments (CD).



The centre consists of an outpatient clinic and an inpatient ward of 11 beds. The outpatient clinic is connected to the general surgical outpatient clinics and will, when finished, include all patients referred to the hospital with a wound. The in-patient facilities are presently finished, while the outpatient facilities are expected to be in place at the end of 2003.

The multidisciplinary staff is similar to CWHC in regards to categories of personnel, but not all are employed full time in the centre; some work in the centre part-time and the rest of the week they work in collaborating departments like orthopaedic and vascular surgery, internal medicine and dermatology. Specialised medical doctors visit the wards daily and participate in a multidisciplinary round. In the outpatient clinic, medical doctors from the centre and the collaborating departments participate in seeing patients. The nursing staff includes clinical as well as research nurses with a different levels of specialisation. At present educational programs for nurses and the podiatry staff are under development.

### Advantages and disadvantages of these models

*The independent expert department model* may be the ideal concept of a wound-healing centre. This concept is based on a multidisciplinary, well-educated personnel working full time with wound problems and able to take care of patients with all types of wound problems during the entire treatment course. The original model of the Copenhagen

Wound Healing Center (CWHC) is an example, but there may be some problems in relation to its implementation within the existing Health Care System and in relation to the existing specialty system of medical doctors. For these reasons this model may be politically weak.

*The multi-speciality structure concept*, where the wound care delivery model is allied to an existing speciality department and some of the staff comes from collaborating departments has the advantage that all involved medical doctors, nurses etc. are still employed in existing departments. The concept, therefore, can be established without any need for changes in the existing structures of the Health Care System and acceptance from involved medical specialty

**Table 2. Present clinical problems**

Lack of:

Internally accepted wound classification  
Standardised and proven treatment regimen  
Registration of patient data  
Cost-effective calculations  
Quality assurance measurements  
Patient knowledge  
Education of health care personnel  
Basic and clinical research  
Prestige

organisations. At the same time this concept has most of the advantages of the independent department model. The disadvantages may be that having some of the medical staff coming from collaborating departments and specialties may increase the risk of slower decision-making and difficulty in achieving acceptance of standardised treatment plans. Future investigations evaluating outcome, patient satisfaction and cost effectiveness of the different concepts are planned and will provide the answer to these questions.

## SUMMARY AND CONCLUSION

The Workshop on Multidisciplinary Concepts in Wound Healing demonstrated that wound management is heterogeneous across countries with relation to structure: i.e. who is in charge, referral and reimbursement policies. However, in addition to these organisational problems, many clinical problems also have to be solved (Table 2).

I propose that the only way to meet and solve these problems is for a specialised national concept for wound treatment and care. The ideal way, I believe, is to establish standardised multidisciplinary specialised wound healing models as part of an expert function in wound healing, which are fully integrated and accepted in the national health care system. This would be of maximum benefit to the patients as well as society. These models can, with minor adjustments, be applicable to both industrialised and developing countries. ■

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# Smoking and Wound Healing



Figure 1. Abdominal wound following re-operation for surgical wound infection.

frequent. As a consequence, wound management is prolonged, the cosmetic result is poorer and the risk of re-operation higher. Wound necrosis is also more common in smokers after reconstructive breast surgery and mastectomy, where the risk of skin necrosis and wound infection has been shown to be up to 9 times and 4 times higher, respectively<sup>1</sup>. In orthopaedic surgery, healing of wounds and fusion of bones is delayed by smoking and the risk of wound infection is higher following hip- and knee alloplasty. Cobb *et al.* found that smokers have up to an 8 times higher risk of re-operation because of incomplete bone fusion<sup>2</sup>. Others have found that the incidence of pseudo arthrosis is increased in smokers after surgery on the spine. Following leg amputation, a higher incidence of delayed healing and wound infection has been found, including a 2.5 fold increased risk of re-amputation in smokers compared to non-smokers<sup>3</sup>.

Healing of abdominal wounds is generally more complicated in smokers and preliminary results from our group show that the incidence of wound infections and rupture of wound and fascia is higher in smokers than in non-smokers (figure 1). The connective tissue of the abdominal wall, which becomes weaker by age, heals more poorly in smokers than non-smokers. This is illustrated by formation of incisional herniation (figure 2) as well as recurrence of groin hernia within two years after herniotomy, which occurs over twice as often in smokers<sup>4</sup>. Disruption of anastomoses of the colon and rectum, which occurs 3 times more often in smokers, is significantly associated with re-operation and fatal outcome due to faecal contamination of the peritoneum causing peritonitis and intra-abdominal abscesses<sup>5</sup>.

Following other types of surgery the evidence of smoking as a risk factor for wound complications is weaker, but this is often due to small studies, which do not adjust for confounders in the statistical analysis. One example is wound complications following surgical revision of pressure ulcers where a small study did not find evidence of an association with smoking<sup>6</sup>.

## INTRODUCTION

In 1984 Rees and co-workers discovered that smokers who undergo a face-lift have poorer cosmetic results because of skin flap necrosis. Ever since then there has been an increasing focus on smoking as a risk factor for complicated wound healing.

Over the past decades more and more evidence has been produced to substantiate how smoking affects wound healing. Now, many recognize that smoking is a systemic risk factor in line with malnutrition and diabetes. However, smoking is by far the most important risk factor for complicated wound healing, since more than 25 percent of the adult population smoke.

## ACUTE WOUNDS AND SMOKING

Postoperative healing of surgical wounds includes healing of the skin, connective tissue, bones, tendons, muscles, vessels, intestines and other organs. The effect of smoking on acute healing is thus relevant to all surgical specialities.

The evidence of smoking as a risk factor is strongest in the field of plastic and reconstructive surgery. Skin grafts, skin flaps, and myocutaneous tissue flaps are vulnerable to necrosis and in smokers complications like skin slough, wound necrosis and infections, and ultimately flap loss are more



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## CHRONIC WOUNDS AND SMOKING

The evidence on smoking as a risk factor for healing of chronic wounds is sparse and at present it is unknown whether smoking affects the healing rate or the incidence of complications. However, as smoking leads to arteriosclerosis and arterial insufficiency, smoking is a risk factor for the formation of chronic arterial wounds (figure 3). Whether this is the case for the formation of diabetic foot ulcers or venous leg ulcers too, is unknown, as robust epidemiological evidence has not been produced.

## SMOKING HABITS AND WOUND HEALING

Numerous reports in the medical literature have shown that heavy smoking is associated with higher all cause morbidity than light smoking indicating a dose-response association<sup>7</sup>.

It is not clear if this is also the case for smoking and complicated wound healing, as the evidence is conflicting. Some studies have found that heavy smokers have more complications than light smokers, whereas others have found daily smoking to be associated with complications regardless of the level of consumption. We found that the risk of wound necrosis following mastectomy was 9,2 (2,9-29,3) [odds ratio (95% confidence interval)] in heavy smokers and 6,9 (2,0-23,9) in light smokers, in both cases compared to non-smokers. The risk of wound infection was 3,5 (1,5-7,9) in heavy smokers and 3,0 (1,1-8,2) in light smokers. However, as the relative increase in odds ratio was not significant, our findings do not prove heavy smoking to be worse than light smoking<sup>1</sup>.

No studies have examined whether cigarette smokers have a higher incidence of wound complications than pipe or cigar smokers. Similarly, the effect of passive smoking on wound healing has not been evaluated.

## PATHOGENIC MECHANISMS

Tobacco smoke contains over 4000 different compounds of particles or gases. Nicotine and carbon monoxide are well described but other toxic compounds are present as well, such as cyanide, heavy metals, additives and numerous different chemical compounds known as condensate.

Smoking has a striking effect on the metabolism and microenvironment of the tissue. Nicotine is absorbed within seconds and induces a central and peripheral release of epinephrine, which increases pulse and blood pressure and causes vasoconstriction of the peripheral vessels. Consequently, the blood flow in the peripheral tissue is reduced, as much as up to 40 percent, as shown by some studies. Carbon monoxide is absorbed even faster than nicotine and as carbon monoxide binds to haemoglobin with a 200 times higher affinity than that of oxygen, the presence of carboxyhaemoglobin in the arterial blood reduces the oxygen concentration. In addition, carboxyhaemoglobin changes the oxygen dissociation curve, which implies a



Figure 2. Incisional hernia.

reduced ability of oxygen to diffuse from the haemoglobin molecule to the peripheral tissue. Following smoking of one cigarette, the subcutaneous oxygen tension is reduced significantly for a period of 30 to 45 minutes<sup>8</sup>.

Reduction of oxygen supply to the tissue is considered to be the major risk factor for impaired wound healing in smokers, especially after a surgical trauma where the wound is in a state of hypoxia due to tissue damage and thrombosis of the blood vessels. In an experimental study on rabbits subject to smoke inhalation, the formation of connective tissue, bone tissue and remodelling was reduced<sup>9</sup>. In surgical test wounds smokers accumulate less collagen<sup>10</sup> and preliminary results from our group show that the synthesis of type I collagen is reduced. These observations may explain the higher incidence of wound and tissue dehiscence in smokers, as the tensile strength of the wound is dependent on an adequate collagen production.

The inflammatory response to wounding involves a cascade of cellular reactions in order to reduce the extent of the trauma, initiate wound healing and eliminate pathogens. Exactly how the inflammatory response is affected by smoking is not clear. Yet, smokers have a higher concentration of neutrophils, and being in a higher state of activation, they release proteases, which are known to degrade connective tissue and collagen<sup>11</sup>.

The incidence of surgical wound infection is higher in smokers presumably due to a reduced ability to resist infection. Preliminary results from our group show that the bactericidal mechanisms of neutrophils are impaired as the oxidative killing, which is the major defence against pathogens like *Staphylococcus aureus* and *Escherichia coli*, is reduced by up to 50 percent. The fact that hypoxia





Figure 3. Arteriosclerotic wound following amputation of the great toe.

predicts surgical wound infection and that neutrophils isolated from hypoxic wounds are less capable of eliminating pathogens suggest that healing of surgical wounds and smoking is a particularly bad cocktail.

### ARE WOUND COMPLICATIONS PREVENTABLE BY SMOKING CESSATION?

Complications of wound healing caused by smoking are in theory preventable by smoking cessation. In general, normal biological functions are restored when the pathogen is removed. Whether this is the case for smoking and wound healing, too, is uncertain, as smoking is known to cause irreversible damage to organs and tissues.

Few studies have examined the reversibility of pathogenetic mechanisms leading to complicated wound healing in smokers. Preliminary results from our group show that the oxidative killing of neutrophils is restored by three weeks of abstinence<sup>12</sup>. In contrast, we did not find collagen synthesis to be restored by three weeks of abstinence. Whether a longer period of abstinence may enhance collagen production is unknown, but studies are in progress.

These findings have been confirmed clinically by a randomised controlled trial, where we studied the effect of smoking and abstinence on complications to healing of surgical test wounds<sup>13</sup>. Smokers had a six-fold higher incidence of wound infections and a six-fold higher incidence of wound ruptures. After four weeks of abstinence, the wound infection rate in abstinent smokers decreased by 30 percent. Wound ruptures were not found to be affected by four, eight, or twelve weeks of abstinence.

The effect of preoperative smoking intervention

on postoperative complications has been studied and the results are conflicting. Patients undergoing hip and knee alloplasty had significantly fewer wound infections if they had been subject to 6-8 weeks of smoking cessation intervention prior to surgery<sup>14</sup>. Following colorectal surgery, no effect of smoking cessation intervention 2-3 weeks before surgery was found<sup>15</sup>. In both studies patients were randomised to either quit smoking while waiting for surgery until removal of skin sutures postoperatively or to continue smoking as usual.

Abstinence from smoking for more than one year has shown to decrease the risk of wound necrosis following reconstructive surgery in un-controlled studies. Following other types of surgery, however, there is no evidence to suggest that ex-smokers have fewer complications than current smokers.

### CONCLUSION

Smoking is an important systemic risk factor for complicated healing of acute wounds. In contrast, there is no evidence of an association between smoking and healing of chronic wounds, but the evidence is sparse. Four weeks of abstinence from smoking reduces wound infections, presumably due to enhancement of neutrophil oxidative killing mechanisms. At present there is not sufficient evidence to suggest whether abstinence has an effect on collagen production, delayed healing and wound and tissue dehiscence, but studies are in progress. ■

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# Wound Healing, Bacteria and Topical Therapies

Interruptions to wound healing occur for both intrinsic (arising from the patient) and extrinsic (arising from environment or procedures) reasons. One of the important extrinsic factors that may impinge on speedy resolution of a wound is the presence of bacteria. The mere presence of bacteria should not be construed as infection, as colonisation is considered a “normal” event with acute and chronic wounds being colonised by different populations of bacteria<sup>1,2</sup>. The survival and proliferation of these micro-organisms depends on the efficiency of the host’s immune system and the availability of the necessary chemical and physical factors required<sup>3</sup>. In order that the immune system functions as efficiently as possible an adequate local blood supply is required so that oxygen, nutrients and inflammatory cells are delivered to the wound as part of the wound bed preparation activity<sup>4</sup>.

Bacteria are the most abundant form of life on this planet and in order to guarantee maintenance of this position they have developed a number of adaptive systems. These include bacterial synergy, quorum sensing and biofilm formation.

Bacterial synergy (collective bacterial activity) can have a more potent effect on tissue (pathogenicity) than the sum of the behaviour of individual bacterial species. Current thought suggests that synergistic activity in multi-species populations leads to infection where individual species may not be pathogenic. Trengove et al found that there was a greater likelihood of poor healing if four or more species of bacteria were identified in a wound<sup>5</sup>.

Bacteria are capable of communicating with each other using signaling molecules that are released when a certain population density (quorum) is achieved. Bacterial communication in this way permits co-ordination of activity that includes among others expression of virulence factors such as toxins and enzymes.

Biofilm formation is another example of adaptation and survival<sup>6</sup>. Under certain conditions bacterial populations may protect themselves by producing a protective coat or biofilm. This exopolysaccharide coat affords protection from antibiotics and inflammatory cells. Within the biofilm the bacteria are undetectable using conventional means. While in this “quiescent” state virulence factors are produced which increases bacterial pathogenicity on release from the biofilm. Although biofilms exist, for example in the mouth and vagina, they have yet to be characterised in wounds.

Difficulty arises for the clinician in differentiating between levels of the bioburden; i.e. the continuum of contamination → colonisation → infection<sup>7</sup>. Contamination refers to bacterial presence without multiplication. Colonisation is bacterial multiplication without a host reaction whereas a wound is deemed infected when this multiplication induces a host reaction.

One approach to assist with identifying wound infection relies on the lower limit of  $10^5$  (100,000) viable organisms per gram of tissue (fewer bacteria = colonisation). Bowler has challenged the value of this laboratory guideline as a definitive diagnostic aid<sup>8</sup>. Nine years ago Cutting & Harding recommended that diagnosis of wound infection should be based primarily on the clinical signs present<sup>9</sup>. A developing concept is that of critical colonisation, a term meaning that the micro-organisms are interfering with wound healing without inducing obvious clinical signs of infection<sup>8</sup>. Critical colonisation refers to the inability of the wound to maintain a balance between the increasing bioburden and an effective immune system – the wound has become compromised, but is not yet demonstrating overt clinical signs of infection other than non-healing. Terminology referring to this state includes, indolent, recalcitrant and the possibly out-moded label ‘silent infection’. The



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**Table 1. Delivery systems for silver in wound management**

<b>Arglaes™ (Maersk)</b>	<b>Actisorb Silver 220™ (Johnson &amp; Johnson)</b>	<b>Acticoat™ (Smith &amp; Nephew)</b>	<b>Avance™ (SSL)</b>	<b>Contreet™ (Coloplast)</b>
a semi-permeable film dressing incorporating a complex of calcium and sodium phosphates from which a continuous release of silver ions is provided <sup>20</sup> .	contains metallic silver impregnated into charcoal cloth all of which is enclosed in a sleeve of non-woven nylon <sup>21</sup> .	presents as a polyester and rayon sheet sandwiched between a two-layer polyethylene net dressing. The outer dressing is coated with nano-crystalline silver and this provides a steady release of silver ions <sup>20</sup> .	is an absorbent hydro-polymer dressing with a silver compound bonded into it. It is claimed the silver zirconium phosphate is microbicidal to bacteria as the exudate is taken up into the dressing <sup>21</sup> .	provides a slow-release of silver as the wound exudate is absorbed. The carrier dressing in this instance is hydro-colloid but the exact nature of the silver compound has not yet been disclosed

need therefore exists to develop and validate clinical signs of infection in addition to those proposed by Cutting & Harding (1994) that will assist in identifying critical colonisation<sup>9</sup>.

It is not intended to discuss here the merits of systemic antibiotic therapy for spreading infection (cellulitis) but to consider the role of topical antiseptics in local infection.

The advantage of topical antiseptics is that they are able to assist in re-establishing the bacterial balance in a wound but may be harmful to healthy cells<sup>10</sup>.

According to Lawrence fashion has not, in recent years, encouraged the use of antiseptics when managing wound infection<sup>11</sup>. This trend is changing however and resurgence in their use may be seen with the increasing availability of dressings impregnated with the antibacterial agent silver, e.g. Arglaes™ (Maersk), Actisorb Silver 220™ (Johnson & Johnson), Acticoat™ (Smith & Nephew), Avance™ (SSL) and Contreet™ (Coloplast). Additionally silver possesses a broad-spectrum of activity and as an antiseptic, it has a far lower propensity to induce bacterial resistance than antibiotics.

The medicinal use of silver has been exploited for over 2000 years, but it has been in common use as an antimicrobial since the 19<sup>th</sup> century. It probably fell out of use in the latter part of the 20<sup>th</sup> century as silver was used in the form of silver nitrate solution that caused argyria (staining of the skin) and a burning sensation on application. Additionally toxicity is related to the delivery system used e.g. nitrate or sulphadiazine<sup>12</sup>. Today other forms of silver are available which do not have the disadvantages of earlier solutions. Modern dressings are capable of delivering silver through a slow yet sustained release mechanism. This helps to avoid toxicity yet ensures delivery of a therapeutic dose of silver to the wound. A systematic review of antimicrobials in chronic wounds found only three small randomised trials (up to 2000) evaluating the

clinical impact of silver-based dressings on venous ulcer healing and these had conflicting results, therefore more clinical trials are required<sup>13</sup>.

Silver sulphadiazine is commonly used in burn wound care and leg ulcer management. It is microbicidal against a broad range of antibiotic-resistant organisms<sup>14</sup> including *Pseudomonas aeruginosa* and *Staphylococcus aureus*<sup>15</sup>. Silver sulphadiazine cream should be changed every 24-48 hours depending on the level of exudate produced by the wound. Although relatively inexpensive the need for frequent dressing changes increases management costs with the additional nursing time required.

Topical silver possesses the distinct advantage over systemic antibiotics in that it is delivered directly to the target area. In locally infected wounds where there is an inadequate blood supply (e.g. ischaemia) the likelihood of a therapeutic dose (adequate concentration) of antibiotic being delivered is diminished. The topical route avoids this drawback. Additionally, if biofilm formation is demonstrated in wounds, antibiotic therapy may be ineffective due to the impenetrable exopolysaccharide coat. Silver may however be able to breach this defence. When considering silver loaded dressings applied topically, two possible actions exist in which they may be effective. The silver ions may be donated to the wound and thereby exert their microbicidal effect in situ or the bacteria may be sequestered into the carrier dressing and rendered ineffective there. Whatever mode of action exists, the availability of the silver is critical to the therapeutic effect of the dressing. It is unlikely that topical application of silver has any long-term effects with respect to the wound microflora. Cessation of topical silver in an at-risk wound would probably see a return to an otherwise unmanageable bioburden.

The sample of "new" silver dressings identified above indicates the novel delivery systems so far utilised. (Table 1).

Alternative options include hydrogel and Hydrofiber® carrier systems.

A new addition to the family of silver-containing dressings is the AQUACEL® Ag technology<sup>16</sup>. The manufacturer's claim that silver is delivered in low but effective concentrations and kills a broad spectrum of pathogens including antibiotic resistant bacteria<sup>14</sup>. One potential advantage of the Hydrofiber® delivery system is the high absorptive capacity, and gelling with consequent ease of removal<sup>17</sup>. Hydrofiber® dressings absorb fluid directly into the fibres and the associated bacteria are sequestered and retained within the dressing<sup>18</sup>. The addition of ionic silver to the Hydrofiber® carrier ensures that a wide range of pathogens are killed<sup>16</sup>. Extended wear time, decreased dressing changes and associated reduced nursing time should assist in lowering wound care costs. Additional considerations in dressing selection include; ease of application and removal, effect on ulcer pain and hence patient comfort. It would appear that Hydrofiber® technology is able to fulfil these functions<sup>17</sup>.

Infected wounds will often respond to an increased microbial load with a sudden rise in exudate production<sup>19</sup> and it is important that the dressing application is able to cope with this. This biological/bacterial imbalance (critical colonisation) increases the likelihood of infection. The opposite can be said for healing wounds (figure 1).

If a dressing application is to be of benefit in a microbially-challenged wound then it has to demonstrate that it can cope with a deteriorating situation. A combined antimicrobial/absorbent dressing would appear to offer advantageous therapeutic possibilities that will progress the wound towards healing.

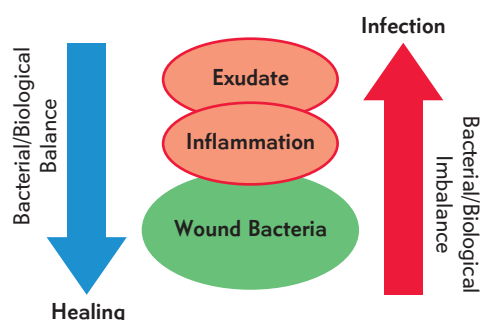


Figure 1:  
Relationship between bacterial balance, exudate and healing.

AQUACEL® Ag dressing appears to hold much promise in the management and prophylaxis of local wound infection. It will be interesting to see how it compares with other dressings with regards to bacterial sequestration, antimicrobial activity, and fluid handling, and their impact on wound infection and healing. ■

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## Notes:

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# The Use of the Laplace Equation in the Calculation of Sub-bandage Pressure

**Keywords:** Laplace's equation; sub-bandage pressure; compression therapy; bandage application

## Keypoints:

1. According to Laplace's law sub-bandage pressure is directly proportional to bandage tension, but inversely proportional to the radius of curvature of the limb to which it is applied.
2. In order to use Laplace's law to predict sub-bandage pressure it is also necessary to consider two further factors: the width of the bandage and the number of layers applied.
3. The other factor that plays an important role in determining initial sub-bandage pressure is the method of application.
4. The calculated value for sub-bandage pressure is the average pressure that will be exerted by a bandage on a limb of known circumference. Padding can be applied beneath compression bandages to reduce local variations in sub-bandage pressure.

## Abstract:

Compression has been used for many centuries in the treatment of oedema and other venous and lymphatic disorders of the lower limb and is the standard treatment of uncomplicated venous leg ulcers. Laplace's law can be used to calculate or predict sub-bandage pressure and hence the level of compression applied to the limb. The aim of this article is to explain how this equation was derived and illustrate how it may be used to predict the sub-bandage pressure in the clinical setting.

## INTRODUCTION

The degree of compression produced by any bandage system is determined by complex interactions between four principle factors – the physical structure and elastomeric properties of the bandage, the size and shape of the limb to

which it is applied, the skill and technique of the bandager, and the nature of any physical activity undertaken by the patient.

The pressure generated by a bandage immediately following application is a function of the tension in the fabric, the number of layers applied, and the radius of curvature of the limb. The relationship between these factors is governed by Laplace's law. This states that sub-bandage pressure is directly proportional to bandage tension, but inversely proportional to the radius of curvature of the limb to which it is applied.

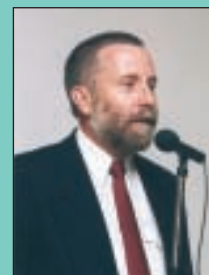
Despite the fact that Laplace's Law has long been quoted in this context<sup>1-3</sup>, it is not generally well understood. In 1990, a version of the equation was published which sought to address these issues<sup>4</sup>. This has since been well referenced in the literature<sup>5,6,7</sup>, although many who cite the equation fail to make reference to the units of measurement or attempt to explain how the formula may be used practically to predict sub-bandage pressure.

## THE LAPLACE EQUATION

The Laplace equation used to predict sub-bandage pressure is derived from a formula described independently by Thomas Young (1773–1829) and by Pierre Simon de Laplace (1749–1827) in 1805. This defines the relationship between the pressure gradient across a closed elastic membrane or liquid film sphere and the tension in the membrane or film<sup>8</sup>.

$$P_{\alpha} - P_{\beta} = \frac{2\gamma}{r}$$

In this formula  $P_{\alpha}$  and  $P_{\beta}$  are respectively the internal and external pressures at the surface,  $r$  the radius of curvature and  $\gamma$  is the tension in the film. The equation indicates that the pressure inside a spherical surface is always greater than the



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**Table 1: Conversion units**

Parameter	Coherent unit	Alternative unit	Conversion factor
Pressure	Pascal	mmHg	0.0075
Force	Newton	Kgf	0.102
Length	Metre	Centimetre	100
	Radius	Circumference	$2\pi r = (2 \times 3.142r)$

pressure outside, but that the difference decreases to zero as the radius becomes infinite (when the surface is flat). In contrast, the pressure difference increases if the radius becomes smaller and tends to infinity as  $r$  tends to zero. However, the equation breaks down before  $r$  reaches zero, and so in practice this situation does not arise.

When calculating pressures in the wall of a cylinder, a modified formula ( $P=T/r$ ) is required. This is because for a given vessel radius and internal pressure, a spherical vessel will have half the wall tension of a cylindrical vessel. (<http://hyperphysics.phy-astr.gsu.edu/hbase/ptens.html>)

The law finds application in many branches of science including physical chemistry, chemical engineering and life and health sciences. It may variously be used to explain the properties of small particles, for calculating the surface energy of metals in solid phase and, in medicine, for calculating the forces on blood vessels and the fluid-filled alveoli in the lungs<sup>8</sup>.

To use the simplest form of the equation (i.e.  $P=T/r$ ), it is necessary to use coherent units of measurement, i.e. units that relate directly to each other. This most commonly involves the use of the Pascal to measure pressure, the metre for linear measurements, and the Newton as the unit of force.

As none of these measurements is commonly used in medical practice, the practical value of the equation will be limited unless they are converted to more familiar units such as mmHg, centimetres and kilogram force (Kgf). In addition, the size of the cylinder (or limb) is expressed in the original equation as its radius, the direct measurement of which is virtually impossible in a clinical setting. For this reason, the more familiar measure of circumference is preferred. Conversion factors for these various units are shown in Table 1.

The use of non-coherent units also means that a constant will have to be introduced into the formula. This is in effect the product of all these conversion factors, resulting in an equation with the form  $P=TK/r$  where  $K$  is a constant value yet to be derived.

For this specific application of Laplace's law it is also necessary to consider two further factors: the width of the bandage and the number of layers applied. Although these variables may not appear initially to form part of the original Laplace formula, they are essential to obtain an accurate value of tension.

## IMPORTANCE OF BANDAGE WIDTH

In a balloon or blood vessel, the tension in the walls acts throughout the entire area of the structure. In contrast, in the case of a single layer of bandage applied to a cylinder or limb, the pressure is only exerted upon that area covered by the bandage fabric. This pressure will be determined by the total force applied to the fabric and the bandage width in accordance with the definition of pressure which states that Pressure = Force/unit area. This means that a 10cm wide bandage applied with a total force of 'F' Newtons, will produce only half the pressure developed beneath a 5cm wide bandage applied with the same force as the force is distributed over twice the area. Bandage tension must therefore be expressed in the Laplace equation as force per unit width, which is why a value for bandage width appears in the formula.

## NUMBER OF BANDAGE LAYERS APPLIED

The total tension developed in a bandage is the sum of the tension in its individual yarns. It follows, therefore, that the application of two layers of a bandage, applied with constant tension, will double the number of yarns over any particular point on the surface of the leg and thus, for all practical purposes, double the pressure applied. For this reason the number of layers of bandage applied ( $n$ ) must be considered when calculating sub-bandage pressure.

## DERIVATION OF FORMULA USING ALTERNATIVE UNITS OF MEASUREMENT

The way in which these factors inter-relate is shown in the following example. This also illustrates the derivation of a form of the equation that uses clinically relevant units of measurement. In this example all relevant measurements are first provided in coherent units with the equivalent values in the alternative units quoted in parenthesis.

Consider one layer of bandage 0.1 metres wide (10cm) applied to a limb radius 0.05metres (31.416 cm circumference) with a tension of 20 Newtons (2.04Kgf). Using coherent units of measurement, the sub-bandage pressure 'P' may be calculated as follows:

$$\text{Pressure (Pascals)} = \frac{\text{Tension (Newtons)} \times n}{\text{Radius (metres)} \times \text{Bandage width (metres)}}$$

$$P = \frac{20}{0.05 \times 0.1} = 4000 \text{ Pascals or } 4000 \times 0.0075 = 30 \text{ mmHg}$$

The equation is expressed using the alternative units of measurement to derive a value for the constant K:

$$\text{Pressure (mmHg)} = \frac{\text{Tension (Kgf)} \times n \times K}{\text{Circumference (cm)} \times \text{Bandage width (cm)}}$$

$$30 = \frac{2.04 \times n \times K}{(2 \times 3.1416 \times 0.05 \times 100) \times 10}$$

For a single layer of bandage (where  $n=1$ ) the equation produces a value for K of 4620. (The difference between this and the value of 4630 quoted previously is thought to be due to an earlier rounding error<sup>4</sup>).

The formula to calculate sub-bandage pressure can therefore be summarised as:

$$\text{Pressure (mmHg)} = \frac{\text{Tension (Kgf)} \times n \times 4620}{\text{Circumference (cm)} \times \text{Bandage width (cm)}}$$

## DISCUSSION

It must be recognised that the value for sub-bandage pressure obtained when using this formula only applies at the time of application. Most bandages lose a significant percentage of their initial tension over time, which will result in a reduction in applied pressure. The width of the bandage quoted in the formula also relates to the width of the fabric at the time and point of application. Some bandages reduce significantly in width as they are stretched, a phenomenon known as 'necking'. It is this measured width that should be used in any calculation, not the unstretched or nominal width of the fabric.

The other factor that plays an important role in determining initial sub-bandage pressure is the method of application. The calculations described above relate to a single turn of bandage applied at right angles to the limb. In practice most bandages are applied in the form of an overlapping spiral with the degree of overlap determining the number of layers of fabric that overlay a particular point on the surface of the limb. An overlap of 50% effectively provides two layers of bandage, but a 66% overlap will produce three layers of bandage for example. For this reason, particular care should be taken when applying highly elastic bandages with a significant amount of tension to ensure that the edges of the bandage do not overlap excessively as this can result in localised areas of very high pressure, possibly resulting in areas of tissue necrosis.

Finally the calculated value for sub-bandage pressure is the average pressure that will be exerted by a bandage on a limb of known circumference. If the bandage is ap-

plied to a cylinder of uniform cross section, the pressure underneath the bandage will be consistent over the entire surface area. However, a limb will exhibit marked differences in radius at various points around its circumference and pressure values determined using a direct measuring device at these locations will vary dramatically from the calculated average. The positioning of pressure sensors is therefore critical as these will produce different results depending upon where they are placed around the leg. This is why pressures determined experimentally do not always correlate well with predicted calculated values. For this reason it is usually recommended that padding is applied beneath compression bandages to fill concavities and protect more prominent areas to reduce local variations in sub-bandage pressure to acceptable values.

The clinical importance of compression and issues relating to the measurement of sub-bandage pressure have been discussed in a recent publication<sup>9,10</sup>.

## CONCLUSION

Due to practical problems of measuring sub-bandage pressure it is frequently desirable to use the Laplace equation to predict the average pressure that a bandage will produce with a given level of applied tension. The use of Laplace's law has hitherto been poorly understood, including the importance of bandage width and the number of layers applied. This paper has sought to address these issues and to explain Laplace's equation as used in clinical practice.

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# Wounds in Art



Fig. 2.  
Cave painting,  
Eastern Spain,  
25,000 years ago.



Fig. 1.  
Venus from  
Willendorf.



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When I was asked by EWMA to write an article about wounds in art I was delighted to take on the challenge. I remembered having seen numerous pictures depicting various wounds during visits to museums, and when reading books on Arts. However, after taking on the challenge, I realised that I could only take the reader through a modest personal journey as the subject is vast. If this article can inspire 'wound healers' to become 'art-watchers', the aim will then be fulfilled.

There are a number of ways of examining the depiction of wounds in art, and I have taken a chronological approach, moving from the earliest art in cave dwellings, right through to modern painters, concentrating on paintings rather than sculpture, video or other modern forms of installation.

## PRE-HISTORIC TIME

The earliest representations of humans are found between 25,000 and 30,000 years ago. The tiny stone sculpture of Venus from Willendorf dates from this period, and is described as an icon of prehistoric art. Probably the first picture of a wounded man is a cave painting dating back 25,000 years (fig 2). This was discovered in a cave in Eastern Spain. The early, graffiti-like pictures from this region and this time show similarities with cave-paintings discovered in the land of the Tuareg people around the Sahara, in the Atlas Mountains and the Libyan desert. At this time, the caves were not primarily places of habitat, but were places of religious worship. It is therefore believed that the picture, more than just describing a wounded man, is part of a religious rite aimed at frightening enemies.

## EGYPTIAN ART

Egyptian papyri emanating from the prehistoric and Thinitic periods (before 3000-2780 BC) describe several ways of treating wounds such as using dove blood, clay, raw meat, and honey but Egyptian illustrations of wounds from this period are rare. ►





Fig. 3. Detail from Bowl of Sosias (c.50B.C.) showing Achilles bandaging the wounds of Patroklos, a typical battlefield scene showing care for the injuries of others. Staatliche Museum, Berlin.

## GREEK ART

A big historical time-jump leads us to the classical Greek vase and bowl paintings, the technique being introduced 460 BC by the Niobid painters, and later refined into excellence. One of the best-known examples, in a detail of the bowl of Sosias (50BC), presents Achilles bandaging his friend and cousin Patroklos in the Trojan War. In this style of art, it was important to depict the 'polygnotic ethos' (Aristoteles) i.e., the 'noble spirit', and not only the action per se (fig 3).

## THE MIDDLE AGES

One of the best-known pictures displaying a leg ulcer emanates from the time around 1200, and can be seen in Servietenkirche in Vienna (fig 4). The picture presents the impoverished monk Peregrinus who lived in Northern Italy in the 13th century, who, because he avoided sitting and lying down, developed varicose veins as a result of standing still. These veins became so engorged that they ulcerated. Since no cure was available, a date for amputation was set. The legend says that during the night Peregrinus prayed intensely and an angel appeared to him. The next morning his ulcer had miraculously healed. Peregrinus was canonized and became Saint Peregrinus. In the Servietenkirche in Vienna there is a picture of St Peregrinus to which people with leg ulcers make pilgrimages and pray for healing.

## CRUCIFIXION AND WOUNDS

In the strong and blending Roman society, the first Christianity introduced the concept of man's salvation from sin by God's sacrifice of his own son Jesus Christ. In the year 313, Christianity was officially accepted in the Roman Empire and the crucifixion became one of the favourite motifs in religious art. Pictures of the crucified Christ from Roman times show Jesus Christ with a stoic face and his wounds looking minor and neat. There is very little bleeding from the wounds (fig 5).

In contrast, during the Gothic period of Art, following the Roman, the majority of the wounds are dramatically different, the wounds of the forehead are bleeding profusely from the crown of thorns, the side wound is major, bursting and bleeding, the hand and foot wounds caused by the nails are bleeding heavily. The face of Jesus shows unbearable pain and even horror (fig 6).

Fig. 4. Saint Peregrinus, the night of his revelation (c. 1200) Servietenkirche, Vienna. Picture kindly presented to the author by Professor Hugo Partsch.







Fig. 5. The stoic face, and the minor and neat side wound, 12th century, Väte church, Sweden.



Fig. 6. Dramatic suffering and bleeding, Crucifix from Halle Church, Sweden, first part of 16th century.

## RENAISSANCE

The renaissance period in art started in Italy in 1415, and somewhat later in the rest of Europe. Antique architecture and painting influenced the art. Renaissance artists include e.g. Leonardo da Vinci, Raphael, and Michelangelo.

### Leonardo da Vinci

Even though Leonardo da Vinci was obsessed by studies of the anatomy of the human body, it is hard to find wounds depicted in his detailed and beautiful paintings.

### Michelangelo Buonarroti 1475-1564

The breathtakingly beautiful pictures by Michelangelo are strikingly free from wounds and blood. In his famous painting of the crucifixion of Saint Peter (1545-50), not a drop of blood can be seen emanating from any of the wounds caused by the nails attaching Peter to the cross (fig 7).



Fig. 7 Detail from the crucifixion of Saint Peter, Michelangelo, in Pauline Chapel, Vatican, Rome.



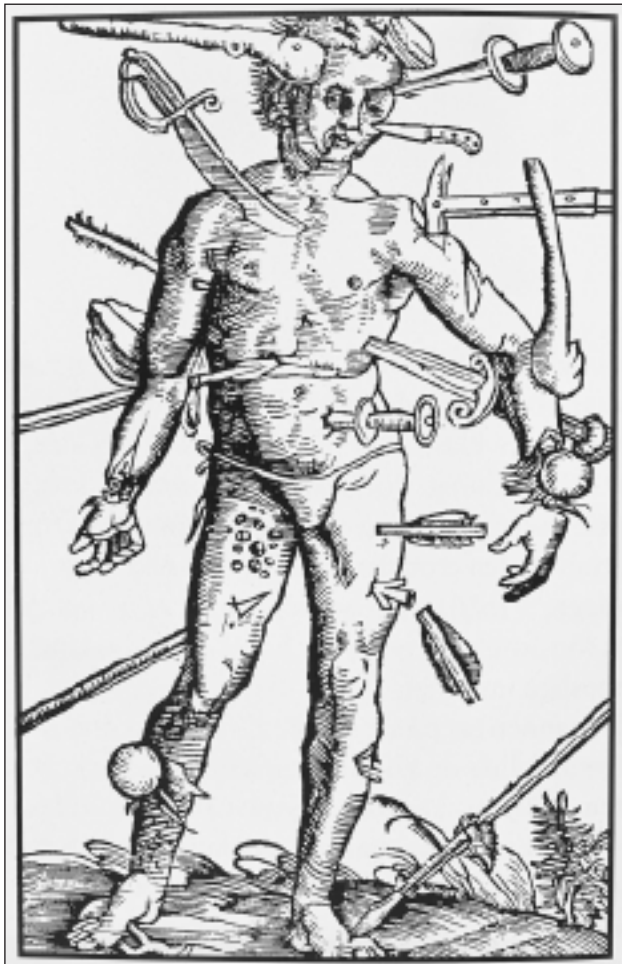


Fig. 8. The Wound Man From Hans von Gersdorff's *Feldbuch der Wundartzney* (1542).



Fig. 9. Sts Cosmos and Damian, the martyred twin physicians, shown in this 16th century painting attributed to Fernando del Rincon, performing their most famous miracle: the replacement of a sacristan's gangrenous leg with that of a dead slave. The Prado, Madrid.

### Wounds in anatomical and medical textbooks

Wounds as part of the more profane art are often seen in medical textbooks during this time. The Wound Man, displayed in the German barber-surgeon, Hans von Gersdorff's 'Feldbuch der Wundartzney', (field book of wound arts) (1542) shows several similarities with the cave painting, even though it is not likely that any original cave-painted wound man was known to him at this time. Several types and locations of acute wounds are displayed, and arrows, swords, bayonets, maces and knives are torturing the man. As a matter of fact, the 'Wound Man' contains an educational survey of weapons used at the time, and shows the types of wounds caused by these arms. Von Gersdorff was an authority in the art of amputations, and it is reported that he performed more than 200 of them himself. He became known for introducing opium before amputation and for his bandaging technique of stumps using a bandage made from the bladder of an ox.

### Amputation wounds

A favourite motif during this time was the suffering of people being amputated. The motif in figure 9 describes how the twin surgeons Cosmos and Damian (around 200), performed a miracle by transplanting a leg to replace the one which was affected by leg ulcers. This formidable medical achievement rendered the two brothers canonized, and they became saints. Later on their fame faded, and they were both decapitated.

Amputations were also a favourite motif for many other artists during this time, illustrated both in civil life and war. One can assume that chronic leg and foot ulcers caused life-threatening gangrene, and that trial and error had shown that amputation was the only solution. The pain of the patients is expressed by the horror reflected on the patients' faces. The surgery is depicted in a very naturalistic way, as seen in these illustrations from Guilielmus Fabricius Hildanus *Opera observationum medico-chirurgicarum* (1646) (fig 10 and 11).



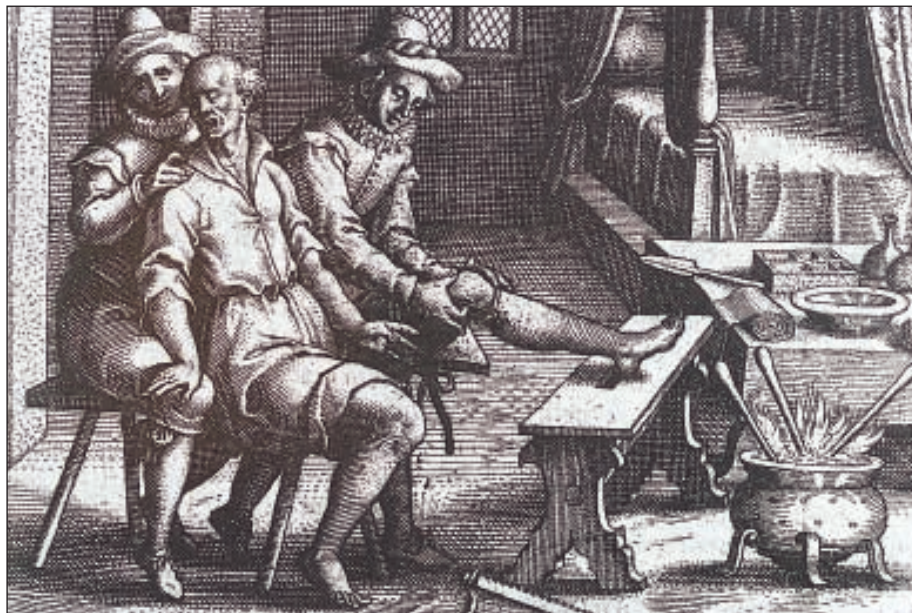


Fig. 10 and 11.  
Amputations in the 17th century.



Fig. 13. *Guernica*,  
Pablo Picasso.



## MODERN ART

### War and horror

Wounds in modern art can be seen as symbolizing mental suffering, like in *Picasso's* famous painting demonstrating the bite wounds of a bird, being caught by a cat (1939) (fig 12). Picasso never depicted the Second World War (1939-1945) itself, but he symbolized the cruelties and horrors of war, which can be seen in his monumental work *Guernica* (fig 13) (1937) and in his *Night-fishing in Antibes* (1939).

Modern artists have also revisited the classical depiction of war, e.g. Jake and Dinos Chapman and their version of the horrors of war, based on an original by Goya.



Fig. 12. *A bird, being caught by a cat*, Pablo Picasso.



Fig. 14.  
Francisco Goya  
(1746-1828).



Fig. 15 and 16.  
Jake & Dinos  
Chapman,  
present-day  
interpretations  
of the original  
Goya painting.



Horrors of war depicted by Francisco Goya (fig 14) (1746-1828) and Jake & Dinos Chapman (fig 15 and 16) (present-day interpretations of the original painting).

#### Frida Kahlo (1907-1954)

One outstanding artist, representing more Modern Art (recently depicted in the film 'Frida') has produced a number of pictures depicting wounds. Her famous painting, 'A few small nips' (1935) in oil on metal was influenced by a grisly murder, where the banner proclaimed that the mutilated woman had received only 'a few small nips'. Kahlo used this allegory to describe the pain that her husband's betrayal caused her (fig 17).

*The Broken Column* (1944), probably Kahlo's most famous picture, reflects the suffering after her streetcar accident. Beneath Kahlo's tear-filled eyes, her split and broken body is literally bound together with straps. Larger nails, placed over her heart, symbolize greater pain, both physical and spiritual (fig 18).

In June 1946, Kahlo travelled to New York City to undergo a bone graft operation at the Hospital for Special Surgery. This was a time of worry, pain and deep depression. One of the most startling self-portraits, *The Little Deer* (1946) evokes alarm by Kahlo's identification with the maimed animal. As usual, Kahlo's expression is stoic, and she looks directly at the viewer. One can see from the painting that her health is declining (fig 19).

Fig. 17. *A Few Small Nips*, Frida Kahlo (1935).

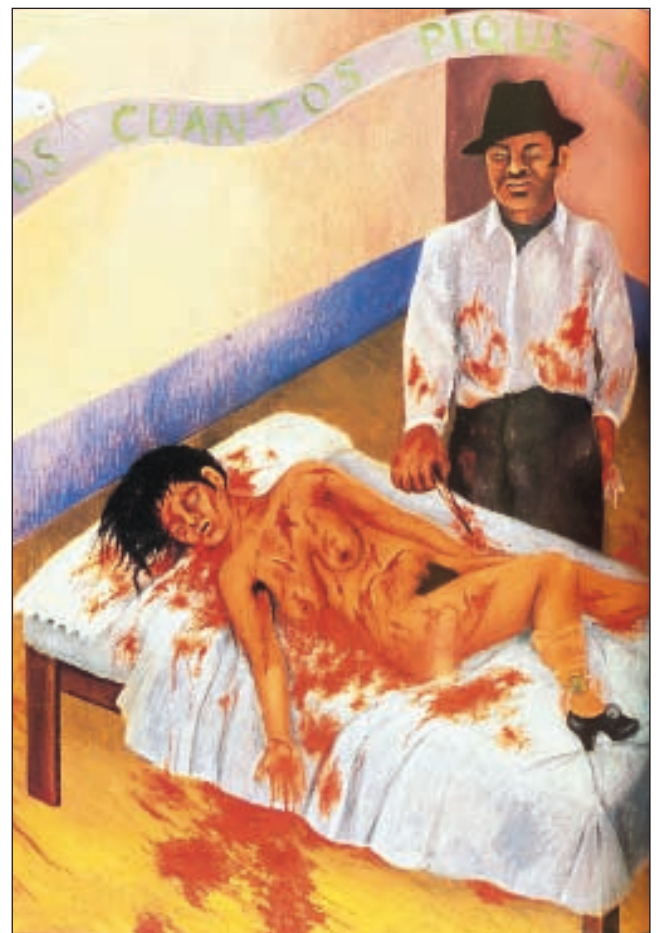






Fig. 18. *The Broken Column*, Frida Kahlo (1944).

## DISCUSSION

This short journey through a personal selection of paintings and sculpture shows how central wounds and suffering have been throughout human history of Art. It is also striking how often wounds have been symbols in religious life. Both the horrors of being hurt by the arrows or spurs of an enemy, and fears of wound complications such as infection, amputation or death are reflected. In the Greek history of art, here symbolized by the famous vase-paintings, we can see how art is no longer only depicting an actual event or case, but has symbolic sentiment, illustrated by the merciful bandaging of wounds as performed by Achilles.

The depictions of the crucifixion show differences between the Roman and the Gothic period, the latter revelling in blood and huge wounds and an expressive face showing pain, the former neutralizing the appearance of the wounds, and showing very little, if any, blood and a stoic endurance of pain expressed in the unaffected face. In modern art, in this survey symbolized by Pablo Picasso, Jake and Dinos Chapman and Frida Kahlo, the wounds are symbolizing horrors of war as well as unbearable mental and physical trauma.

Looking at the history of art through “wound-glasses” certainly opens up several opportunities to plunge deeper into the fascinating world of art. ■

Fig. 19. *The Little Deer*, Frida Kahlo (1946).







# Wound Healing in Medieval and Renaissance Italy:

## Was it Art or Science?

### INTRODUCTION

This paper sets out to describe the developments in wound healing in medieval and Renaissance Italy, roughly from the 11<sup>th</sup> – 16<sup>th</sup> Centuries. As previously discussed (Dealey 2002), the writings of a number of Arabian doctors, such as Rhazes, Avicenna and Albucassis, were translated into Latin during this period and so influenced doctors in many parts of Europe. However, change seems to have happened in a rather piecemeal fashion. It is interesting to see how the focus for development moves from one city to another, often due to the influence of individuals.

The Arabian physicians supported the views of Galen, a 2<sup>nd</sup> Century physician, and his belief in the importance of 'laudable pus', that is, a wound must suppurate (exude pus) before it can heal. If suppuration did not occur naturally, it was to be made to occur. This doctrine was also accepted by many medical commentators in Europe, in particular, the Church espoused this belief, which added to its perceived legitimacy and ensured it underpinned most aspects of wound care (Duin & Sutcliffe, 1992). Many of those undertaking translations of the works of Rhazes, Avicenna, Albucassis and others expounded upon the originals and added their own views in either support or rebuttal. Singer and Underwood (1962) suggest that this resulted in very wordy documents with no new ideas.

### THE EARLY YEARS IN SALERNO

Salerno is credited with being the first European university to have a medical school (Forrest, 1982). It was founded in the 9<sup>th</sup> Century and became the leading centre for surgical training in the 11<sup>th</sup> Century. Unlike most other universities that were under ecclesiastical control, Salerno was a lay university. This made it easier to include surgery within the medical curriculum as, at that time, members of the clergy were prohibited from prac-



Fig 1. Roger of Salerno and a patient.

tising surgery (Zimmerman & Veith, 1961). In 1140 the first examinations were introduced for doctors and, later, Salerno University was granted the sole right to grant licences to both physicians and surgeons within the domains of the Holy Roman Emperor Frederick II.

One of most famous works to come out of Salerno at this period is the 'Surgery of Roger', which was translated into 15 other languages and was in demand into the 16<sup>th</sup> Century (Paterson 1988). Roger approached his subject in a systematic way working his way down from the head to the feet. He described a method for treating sword wounds on the head involving lard. If the wound was superficial, he suggested applying the lard directly to the wound. If it was deep, then a thick dressing was to be made out of cloth soaked in molten lard in order to 'draw out the humour'. Roger did not recommend cleaning wounds, as he believed that it would delay healing because of water retention in the wound. He used dressings made from eggs and water, tow and salt, plasters and bandages of fine linen cloth (Paterson, 1988). Although other aspects of Roger's work indicate some advance in empirical observations, there was little new in his methods of wound management. Despite this, Roger is seen as an important figure in the history of medicine. Figure 1 shows Roger of Salerno as the wealthy surgeon with the patient as a supplicant.

However, the importance of Salerno in surgical and wound care development was short lived. By the 12<sup>th</sup> Century, Bologna University had become the new centre of excellence (Forrest, 1982).

### NEW DEVELOPMENTS IN BOLOGNA

#### Hugh and Theodoric

The School of Surgery at Bologna University was founded around the end of the 12<sup>th</sup> Century by Hugh of Lucca (1160-1257). He was considered to have been a very innovative surgeon, but he



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left no record of his work for posterity. However, we do have the writings of his famous pupil, Theodoric, (also known as Teodorico Borgognoni) to provide some insight. Theodoric (1205-1298) was a Dominican friar and university-trained both as a surgeon and a physician, a circumstance that was very unusual at the time (Zimmerman & Veith, 1961). Despite working as a surgeon, he eventually became Bishop of Cervia in 1262. In 1267 he completed his *Chirurgia* or surgical textbook, which Theodoric stated was based on the teachings of Hugh.

Theodoric's treatise contains a range of information such as different types of surgical procedures, management of fractures and dislocations, the best methods of extracting arrows and Hugh's principles of wound management. Both Hugh and Theodoric condemned the doctrine of 'laudable pus'. Theodoric considered that it hindered nature and prolonged healing (Zimmerman & Veith, 1961). Edwards (1976) described Theodoric as a medieval antiseptic surgeon who was unfairly denigrated by some of his colleagues and his successors.

It should be remembered that the most common types of wound at that time were likely to be traumatic injuries or war wounds. For these wounds, Hugh proposed that wound edges should be debrided and the wound cleaned of any matter, then wiped dry with fine lint that had been soaked in warm wine and rung out. The wound edges should then be approximated and held in place using compresses of fine clean lint soaked in warm wine and bound in place (Borgognoni, 1955). Theodoric suggested that unless there was excessive pain or heat, wounds should not be disturbed for 5-6 days in case contact with the air should cause suppuration.

Theodoric proposed a variety of treatments for other wound types. He suggested that chronic wounds should be should be cleansed with honey mixed with wine and water of holm-oak or vine ashes. Another alternative was the use of seawater, which could cleanse and dry a wound. Poisonous ulcers were to be washed out with 'desiccative medicine' which could be made from wild pomegranate flowers, oak galls, alum, rind of pomegranate, flowers of red poppy and barley meal. The green ointment of Almanzor (1 oz each of rose oil, pure vinegar, honey, long birthwort, feather alum, iris and white lead mixed with 3 oz of verdigris) could be used to 'eat away dead flesh'. Theodoric also considered that diet was important to 'strengthen nature and to generate good blood for rebuilding flesh' (Borgognoni, 1955). He advocated giving patients a diet



Fig 2. Dissection;  
professor overseeing the operation

that included chicken, capons, suckling kid, eggs and good white wine.

### William of Saliceto

William of Saliceto (1210-1280) was a contemporary of Theodoric and also taught surgery at the University of Bologna before moving to Verona. Like Hugh and Theodoric he opposed the doctrine of laudable pus and recommended simple dressings such as egg white and rose water (Singer & Underwood, 1962). William also published

a surgical textbook, which addressed all types of surgery of the time and also included a section on anatomy, the first such book to do so (Zimmerman & Veith, 1961). The introduction to the book included guidance on the behaviour of the surgeons, physicians and patients. His advice regarding the science and art of surgery was simple, but effective. The surgeon should be thorough in his examination and diagnosis, applying general operating principles to a particular case, but also comforting the patient by "gentle actions, soft words, agreeable and proper" (Zimmerman & Veith, 1961).

### Mundinus

A discussion of the developments in medieval and Renaissance Bologna is not complete without mention of Mundinus also known as Mondino de Luzzi (1275-1326). He was a professor of anatomy and surgery and wrote a treatise on anatomy in 1316 based on what he had learnt from undertaking dissection. Dissection had begun at Bologna in the first instance as a form of post mortem for legal purposes. It was commonplace for a professor to sit in an elevated chair to lead a discussion with the students whilst a menial undertook the dissection (Figure 2). Mundinus was unusual, in that he was his own demonstrator (Singer & Underwood, 1962), which adds to the authority of his work. He included a dissection manual in his writings as well as physiology and pathology. However, as by this time, Theodoric's teaching had been largely forgotten or discredited, Mundinus followed the prevailing doctrine of laudable pus as far as wound healing was concerned. In fact, most of his views were based on Galenic principles for it was believed that Galen had discovered all there was to know in respect of medicine.

### RENAISSANCE IN PADUA

In the 16th Century, the university in Padua was highly renowned and attracted students from across Europe. One such was Andreas Vesalius (1514-1564), a native of Flanders. Vesalius had previously studied medicine in Louvain



Fig 3. Textbook illustration by Van Kalkar.

and Paris where he was taught according to Galenic principles, before graduating as Doctor of Medicine “with highest distinction” at Padua (Zimmerman & Veith, 1961). The day after graduating he was appointed Professor of Surgery – at the age of 23 years. As part of his teaching duties, Vesalius was expected to teach anatomy and dissection. Like Munidinus, Vesalius undertook his own dissections and demonstrations, which were very popular. The more dissections he undertook, the more aware he became of the number of errors that Galen had made in his descriptions of anatomy. Eventually Vesalius realised that Galen had never dissected the human body and all his writings were based on the dissection of animals and his assumption that humans were the same (O’Malley, 1964). In 1543 Vesalius published his book on anatomy: *De humani corporis fabrica*. This book presented a new approach to anatomy with many beautiful illustrations by van Kalkar, an artist associated with the school of Titian. Figure 3 shows a typical illustration. Lucas (1993) observed that many artists of this time also undertook some dissection, probably the most famous being Leonardo da Vinci, although his anatomical drawings were not published until later.

Vesalius made a major contribution to surgery in general, however, he did not have any particular impact on current thinking in wound healing and management. Later in his career he acted as an army surgeon and had to deal with gunshot wounds. He greatly admired the work of Ambrose Pare and adapted his principles of managing amputation wounds with egg yolks, oil of roses and turpentine, rather than the usual boiling oil (Lucas, 1993).

Although there were further discoveries to be made, Vesalius had laid the foundations for modern study of the human body (O’Malley, 1964). Sadly for Vesalius, this was not recognised at the time his book was published and it raised a great furore, especially in Galenist circles. Ultimately, he died a sad and disappointed man.

## DISCUSSION

The title for this paper poses the question as to whether wound healing in medieval and Renaissance Italy was art or science. It is easy to make the assumption that there was a ‘lot of art about’ and precious little science, especially when considering some of the very beautiful anatomical drawings of the Renaissance. However, it is always important to look beneath the surface. This paper has described the work of some of the important figures of the period

and most of it seems to bear little resemblance to modern day wound management. But this is not necessarily the case, as can be seen from a story of the Second World War, told by Popp (1995).

In 1943 Allied troops (American and British) invaded southern Italy and gradually moved north, encountering heavy resistance from the Germans on the way. Eldridge Campbell was a neurosurgeon with the American 33<sup>rd</sup> General Hospital where they operated on many wounded soldiers. At the start of the war, standard military practice had been to debride the wound, cover it with sulphanilamide powder, pack with vaseline gauze and immobilise. The outcome was often sepsis, long convalescence and limb deformity. As a result a *new* treatment had been developed which involved thorough debridement and primary closure. Campbell was surprised to discover from some older Italian surgeons that this technique had actually been successfully used during the First World War. Further research and discussion at the University of Pisa, revealed that this treatment was actually that described by Theodoric and already described above. Campbell was so enthralled by this discovery that he later translated Theodoric’s writings from Latin into English.

This story can be used to support the argument that there was science (albeit limited) as well as art in the practice of wound management in medieval and Renaissance Italy. But it is reasonable to conclude that there was still much to be discovered. ■

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## Update Spring 2003

### European Wound Management Association

## EWMA Educational Project

The planning of the European Wound Management Association (EWMA) Educational Development Project first began in October 2000. The project aims to produce a flexible framework for the delivery of education focussing on wound healing/management across Europe, to raise the profile of wound care in a variety of health care settings while accommodating national variations in health care provision. In time, the EWMA Educational Development Project will produce an educational framework that will support a structured range of practice development support services for countries wishing to raise awareness of best practice in wound care.

The project group has now completed a needs analysis to identify wound management educational requirements across Europe. The following issues are recognised as important when developing an educational framework using a sample of European countries including Belgium, Sweden, Denmark, Portugal, Italy, Latvia, Hungary and the UK:

1. Definition of target audience
2. Level of education
3. Type and range of teaching learning materials produced
4. Acknowledgement of existing resources/expertise
5. Availability in variety of formats including web-based resources.

### Project progress

The information gained during the needs analysis is now being used to identify the curricula content of the EWMA educational framework. The project team is in the process of developing a curriculum framework that will meet these needs and has begun work on the second stage.

- |             |  |
|-------------|--|
| Stage One   | Needs Analysis                             |
| Stage Two   | Curriculum development                     |
| Stage Three | Identification of existing resources       |
| Stage Four  | Development of learning/teaching materials |
| Stage Five  | Define educational standards               |
| Stage Six   | Pilot curriculum model                     |
| Stage Seven | Achieve European accreditation.            |
| Stage Eight | Implementation – roll out programme.       |

### Stage two – curriculum development

Specific curriculum units are being developed and will cover a wide range of wound management and related topics. Each will specify the required:

- Learning outcomes
- Content

Units will be developed focusing on knowledge skills and attributes whilst recognising that in different countries and environments various health professionals may perform diverse roles. The first phase of module development (October 2002– April 2003) is as follows:

- Physiology of wound healing /tissue repair
- Acute wounds
- Leg ulcer management
- Diabetic foot ulcer
- Pressure ulcer – prevention and management
- Oncology wounds

The content and learning outcomes for each module is being formulated by a small group of advisors drawn from related wound organisations and key opinion leaders. Where possible these groups will comprise interdisciplinary and multi-national individuals. During the process of module development the content of each module will be circulated to relevant expert groups/organisations across Europe for endorsement and peer review. The aim is to have at least one affiliated wound organisation contributing to each curricula unit. The European



Pressure Ulcer Advisory Panel is currently collaborating with this project in the development of the Pressure Ulcer module.

Each module will form the basis of a flexible educational framework allowing different units to be combined in a variety of ways. This will allow the length and level of the learning experience to be adapted to suit the needs of the target audience. In this way, it is anticipated, for example, that modules could be extended from a short course delivered in a hospital setting to a longer programme delivered in a higher education environment.

The first two modules to be completed will be the Diabetic Foot Ulcer and the Leg Ulcer modules. The project team is currently piloting the use of each in the development of short courses and study days. If successful, these modules will then be used to formulate longer educational programmes. During the spring, the project team will also pilot the process of EWMA accreditation that it hopes to adopt. EWMA aims to conduct an educational audit at the time of course delivery to determine eligibility for accreditation. Accreditation will only be granted if EWMA's specified educational standards are achieved. Eventually, the project team aims to achieve accreditation with the European education credit rating (ECTS), a recognised measure of student effort across higher education establishments in Europe, for all modules within the framework. This would facilitate the uptake of EWMA endorsed modules into existing or new curricula.

### Length of courses

Due to the different academic requirements of varying types of educational provision it is likely that only universities and colleges of higher education across Europe will ever be in a position to develop longer wound management courses. These may range from the inclusion of a few modules in an undergraduate pre-registration professional degree or development of a new post-graduate specialist degree programme for health professionals. Hospitals and other organisations may be able to offer medium length educational programmes consisting of one or more modules. These will typically be developed for use with specific professional groups of health workers or for interdisciplinary mixed

groups. The content of this type of educational programme could be either basic or specialist depending on local need. Finally, the shortest, and potentially the most popular, form of educational activity is likely to be the study day. It is anticipated that this may be offered by a variety of providers including the commercial sector.

The project team is open to suggestions for topic areas for the second phase of module development and suggestions currently include: burns, lymphodema, and management of painful wounds. ■

If you would like to help with this project in any way at all, please contact us at [ewma@congress-consult.com](mailto:ewma@congress-consult.com).

The project team is particularly looking for input into the following areas:

- Specific content module development
- Institutions or organisations who could offer the opportunity to act as pilot sites
- Expressions of interest to use the EWMA curriculum framework to implement study days, short courses and longer programmes.

#### EWMA educational project – general aims

1. Provide students and health-care professionals with the knowledge and skills to equip them to perform their role in the delivery of optimal wound care.
2. Provide contemporary interdisciplinary wound management education that is endorsed by organisations affiliated to EWMA.
3. Provide quality standards against which other organisations can evaluate existing wound management programmes.
4. 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.

#### EWMA educational project – general learning outcomes

The overall EWMA educational framework provides opportunities for students and health professionals to develop and demonstrate knowledge, understanding, skills and other attributes in the following areas:

1. The aetiology, epidemiology, prevention and management of a variety of commonly occurring wounds.
2. The science of wound prevention/repair and associated problem solving and clinical research.
3. The management, treatment and care of people with wounds and related tissue problems.
4. The psychological, legal, ethical and economic impact that wounds have on the patient, family and society as a whole and the implications this has for health care.



# Health Technology Assessment (HTA) Monographs



A number of international organisations assess the impact of health care technology (defined as prevention and rehabilitation, vaccines, pharmaceutical devices, medical and surgical procedures and the systems with which health care is protected and maintained). A network of agencies involved in health technology assessment cooperates and shares information from different cultures – this network is called INAHTA – see [www.inahta.org](http://www.inahta.org) for more information.

In this edition of EWMA Journal we highlight the output of one of the HTA agencies – the UK NHS programme, coordinated from the University of Southampton. A number of their reports may be of interest to clinicians, educators and researchers in wound management, and we have listed these below. For more information on these reports (which are currently free to download from the web) go to [www.hta.nhsweb.nhs.uk](http://www.hta.nhsweb.nhs.uk) and click on *publications*.

## HTA Wounds Reviews available:

*Bradley et al*, The debridement of chronic wounds: a systematic review. Volume 3, number 17, part 1

*Bradley et al*, Systematic reviews of wound care management: (2) Dressings and topical agents used in the healing of chronic wounds. Volume 3, number 17, part 2

*O'Meara et al*, Systematic reviews of wound care management: (3) antimicrobial agents for chronic wounds; (4) diabetic foot ulceration. Volume 4, number 21

*Cullum et al*, Systematic reviews of wound care management: (5) beds; (6) compression; (7) laser therapy, therapeutic ultrasound, electrotherapy and electromagnetic therapy. Volume 5, number 9

*Lewis et al*, A rapid and systematic review of the clinical effectiveness and cost-effectiveness of debriding agents in treating surgical wounds healing by secondary intention. Volume 5, number 14

## HTA Surgery Reviews available:

Routine preoperative testing: a systematic review of the evidence (Munro). Volume 1, number 12

Effectiveness of hip prostheses in primary total hip replacement: a critical review of evidence and an economic model (Faulkner). Volume 2, number 6

Antimicrobial prophylaxis in colorectal surgery: a systematic review of randomised controlled trials (Song). Volume 2, number 7

Postoperative analgesia and vomiting, with special reference to day-case surgery: a systematic review (McQuay). Volume 2, number 12

Primary total hip replacement surgery: a structured review of outcomes and modelling of cost-effectiveness associated with different prostheses (Fitzpatrick). Volume 2, number 20

A systematic literature review of spiral and electron beam computed tomography: with particular reference to clinical applications in hepatic lesions, pulmonary embolus and coronary artery disease (Berry). Volume 3, number 18

Antimicrobial prophylaxis in total hip replacement: a systematic review (Glenny). Volume 3, number 21

Cost and outcome implications of the organisation of vascular services (Michaels). Volume 4, number 11

Intravascular ultrasound-guided interventions in coronary artery disease; a systematic literature review, with decision analytic modelling, of outcomes and cost-effectiveness (Berry). Volume 4, number 35

Extended scope of nursing practice: a multicentre randomised controlled trial of appropriately trained nurses and pre-registration house officers in pre-operative assessment in elective general surgery (Kinley). Volume 5, number 20

The measurement and monitoring of surgical adverse events (Bruce). Volume 5, number 22

A systematic review of the effectiveness and cost-effectiveness of metal-on-metal hip resurfacing arthroplasty for treatment of hip disease (Vale). Volume 6, number 15

The clinical effectiveness and cost-effectiveness of surgery for people with morbid obesity: a systematic review and economic evaluation (Clegg). Volume 6, number 12





## Co-operating Organisations Board

EWMA has in recent years strengthened its obligations towards national wound management organisations and institutions in Europe in order to secure the development within our rapidly growing area. The focus of this work is to cultivate relationships through the development of co-operative projects.

To encourage this, EWMA Council has established a Co-operating Organisations' Board.

The board, which is chaired by the EWMA Immediate Past President/ EWMA President Elect, consists of one person appointed by each Co-operating Organisation.

Furthermore, the Co-operating Organisations' Board will appoint two representatives to EWMA Council.

The Co-operating Organisations' Board will meet once a year during the annual EWMA conference, and for the first time at the joint EWMA/AisLec/AIUC conference in Pisa 22-24 May 2003.

*Christine Moffatt, Chair*

### Members of the Co-operating Organisations' Board

Representative	Abbr.	Country
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Luc Tèot	SFFPC	Belgium
Marco Romanelli	AIUC	Italy
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Mikael Bitsch	DWHS	Denmark
Rosine Van Den Buck	ABUSCEP	Belgium
Salla Seppänen	FWCS	Finland
To be decided	SSS	Sweden



## Language Programme

The language barrier has always been a major obstacle to the exchange of research methods within any scientific field. Many highly qualified researchers have stayed away from presenting at conferences solely due to nerves at presenting in a language different from their own. Due to the language barriers some even fail to attend conferences in foreign languages. This is a great loss to everybody in the field.

EWMA seeks in every way possible to help researchers meet and exchange ideas. The 2002 conference in Grenada was a bi-lingual conference with simultaneous translation of all sessions and symposia. The 13th EWMA conference in Pisa will also be bi-lingual.

To increase and stimulate active participation in EWMA conferences, EWMA would like to encourage national organisations and centres to establish training possibilities for presenting at international conferences. In the near future EWMA plans to assist with establishing good practices for presentation and presenting in English. Funding for such courses could likely be found in national industry.

A possible future EWMA initiative is to develop a tutor programme in which a national representative (Language Tutor) will be available to help their fellow countrymen with both scientific and practical matters related to the conference.

EWMA greatly welcomes any idea or initiative from the national organisations in the development of this programme.

Please contact the conference secretariat with thoughts and ideas.



# EWMA Activity Report

In this section you can find out about activities taking place within EWMA. Some of these projects are described in detail elsewhere in the journal.

## Recent activities

- 1st Conference of Latvian Wound Treating Association, October 24th 2002
- Meeting with the Czech Society of Wound Management, November 8th 2002
- Education meeting, January 10th 2003
- Sponsor meeting, March 11th 2003
- Structure Panel initiated, Spring 2003

## Future activities

- EWMA conference in Pisa in co-operation with AUIC and AISLeC, May 22-24th 2003
- EWMA Annual General Meeting, May 22nd 2003
- Johnson & Johnson education course on Leg Ulcers, June 23-24th 2003
- EWMA Council meeting, October 8th 2003
- Corporate Sponsor meeting, October 8th 2003



## EWMA 2005

The EWMA 2005 meeting will be held in Germany as a joint conference between ETRS and EWMA in cooperation with DGfW.



**www.ewma.org**

EWMA's website is currently being updated. If you click on to **www.ewma.org** you can learn more about the additions and renewals that have already taken place.

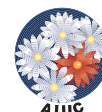
Information on EWMA conferences, structure, panels and conference abstracts are now available on the internet. The website will be further developed in the near future in regards to information, functionality and languages.

Please contact the web group if you have any comments and/or suggestions to the website: [jtorra@readysoft.es](mailto:jtorra@readysoft.es)

13<sup>th</sup> conference  
European  
Wound Management Association  
**PISA · ITALY** 22-24 May 2003

TEAMWORK IN WOUND TREATMENT:  
THE ART OF HEALING

IL LAVORO DI GRUPPO  
NEL TRATTAMENTO DELLE FERITE:  
L'ARTE DELLA CURA



## 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.

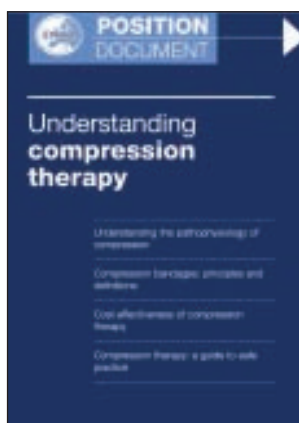
EWMA is also interested in receiving book reviews, articles etc.

Please contact the Journal Secretariat at [ewma@congress-consult.com](mailto:ewma@congress-consult.com)





## Understanding compression therapy



The potential impact of compression therapy on ulcer healing has been highlighted in numerous studies across the world during the last decade. Indeed, there can be few healthcare interventions that can claim such dramatic effects on outcome. Patients report improvements in pain, mobility and general quality of life as a consequence of their ulcer healing. It has been a salutary finding, therefore, in producing this second EWMA position document, that we are far from being able to establish pan-European standards for compression therapy.

The aim of a position document is to:

- provide clear clinical advice and recommendations for practice
- produce a literature review presented by international experts
- highlight future questions for research and practice
- have wide dissemination and availability in different languages

By producing this document, EWMA hopes to stimulate an international debate and help to promote a greater standardisation of compression therapy across Europe.

*'Understanding compression therapy' has been possible by an educational grant from Smith and Nephew and will be published in May 2003.*



## Volume 1, Number 1, Spring 2001

- Zinc Oxide**  
By Magnus Ågren
- Malignancy and Pre-Malignancy in Leg Ulceration**  
By Janice Cameron and Deborah Hofman
- The Meaning of Living with Venous Leg Ulcer**  
By Britt Ebbeskog
- Cost-effectiveness in Wound Management**  
By Peter Franks
- The Cochrane Wounds Group**  
By Michelle Briggs
- Pressure Sore References**  
By E Andrea Nelson



## Volume 1, Number 2, Fall 2001

- Experimental Wound Healing Research**  
By Finn Gottrup
- Larval Intervention in the Chronic Wound**  
By John C T Church
- An Update on Pressure Ulcer Management**  
By Jeen Re Haalboom
- Wound Closure**  
By David J Leaper



## Volume 2, Number 1, Spring 2002

- Health Related Quality of Life Measurement**  
By Andrea Nelson
- The use of Compression Therapy in the Treatment of Venous Leg Ulcers – a recommended Management Pathway**  
By Michael Stacey et al
- The Professional Role and Competence of Tissue Viability Nurses in Finland**  
By Salla Seppänen
- A Review of Advances in Fungating Wound Management since EWMA 1991**  
By Patricia Grocott
- Multi-center Research on Wound Management in Home Care in Italy**  
By Andrea Bellingeri



## Volume 2 – Number 2 – Fall 2002

- The Management of Pain Associated with Dressings Changes in Patients with Burns**  
By Jacques Latarjet
- Evaluating Australian Clinical Practice Guidelines for Pressure Ulcer Prevention**  
By J L Prentice
- Growth Factors and Interactive Dressings in Wound Repair**  
By David Leaper et al
- Contemporary Research in Pressure Ulcer Prevention and Treatment from the meta Register of Clinical Trials (mRCT)**  
By E. Andrea Nelson

Previous issues can be acquired for €7,50 per copy. Please contact:  
Congress Consultants, Martensens Allé 8, DK-1828 Frederiksberg C, Denmark  
Tel: + 45 7020 0305, Fax: + 45 7020 0315, EWMA@congress-consult.com



## The Leg Ulcer Reference CD

The Leg Ulcer Reference CD gives you access to the world of leg ulcer management.

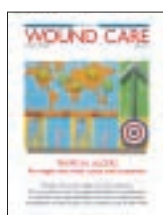
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## International Journals

In the attempt to increase the information flow within wound healing on a European level EWMA Journal invites other journals to submit material. Journal regularly prints the contents of *Journal of Wound Care* and the Danish journal *SÅR*. In this issue we are pleased to welcome *Journal of Tissue Viability* and hope to see more journals in the future. If you are interested in an article from one of these journals, please contact the EWMA Secretariat. We can also be of assistance in regards to translation. This way EWMA hopes to support the flow of information across the national borders.



English

### Journal of Wound Care, Vol 12, no 3 2003

**Tropical ulcers: a condition still hidden from the Western world.** P MacDonald, UK

**Management of chronic leg ulcers by nurses working in the community in Sweden and the UK**  
K Hjelm, Sweden; M Rolfe, UK; R M Bryar, UK;  
B-L Andersson, Sweden; M Fletcher, UK

**A comparison of the antimicrobial effects of silver-containing dressings on three organisms**  
S Thomas, UK; P McCubbin, UK

**A step-by-step guide to classifying and managing pretibial injuries**  
C S J Dunkin, UK; T P La H Brown, UK

**A reappraisal of the role of cerium in burn wound management**  
A B G. Lansdown, UK; S R Myers, UK; J A Clarke, UK;  
P O'Sullivan, UK.



English

### Journal of Tissue Viability, Vol 13, no 1, 2003

**Loss of self: A psychological study of the quality of life of adults with diabetic foot ulceration**

Kathryn Kimmond; Paula McGee; Stephen Gough;  
Robert Ashford, UK

**Medical pathology in patients with leg ulcers: a study carried out in a leg ulcer clinic in a day hospital for the elderly.** Maureen Schofield, Michael Aziz, Mary R Bliss, Richard H Bull, UK

**Evidence-based practice: justifying changes in clinical practice based upon the appraisal of evidence**  
Deb Thompson, UK



Scandinavian

### Wounds, Vol 11, no 1, 2003

**Silver in bandages: The history of silver.**  
Maj-Britt Skovsted

**When is it an advantage to use silver bandages?**  
Jane P Kruse; Brian Nielsen

**Effective wound care.** Susan Risvad

**Pinch grafting in primary care.** Rut F Öien

**Wound care centre, or not?**  
Wound Care Centre, Dep of Dermatology,  
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## EWMA Membership application

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## *First Graduates of the NUI*



Above is a photograph of the first graduates of the NUI, RCSI Higher Diploma in Wound Management and Tissue Viability. The graduates are pictured with their lecturer Zena Moore following their graduation at the Royal College of Surgeons in Ireland in November 2002. These graduates are the first recipients of this prestigious award in Ireland and the Dean and Staff of the Faculty of Nursing and Midwifery congratulate them and wish them continued success in their careers.

## *Links in Poland*



EWMA recorder Finn Gottrup has visited Poland, where a new wound organisation is being established. The society is named **Polish Wound Management Association (PWMA)** and the organising group includes Dr. Zbigniew Rybak, Dr. Mariusz Kozka, Dr. Lev Petkov and Dr. Anna Gorkiewicz. PWMA is very interested in a future collaboration with EWMA. The picture shows Dr. Zbigniew Rybak and Professor Finn Gottrup.

## *Correction*

The case study which appeared in the article entitled *Growth Factors and Interactive Dressings in Wound Repair* (EWMA Journal 2002 Vol. 2 No. 2) featuring hydro-selective dressings should have cited *E. Ricci, M.D., Università degli Studi di Torino, Italy*.

Our apologies to Professor Ricci for this oversight.







# EWMA Corporate Sponsor Contact Data

## Corporate A



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# Conference Calendar

Conference	Theme	2003	Place	Country
Woundcare Consultant Society Wound Conference		May 4-5	Utrecht	The Netherlands
European Wound Management Association	Teamwork in Wound Treatment: The Art of Healing	May 22-24	Pisa	Italy
4th International Symposium on the Diabetic Foot	Wound Care in Diabetes etc	May 22-24	Noordwijkerhout	The Netherlands
The 9th Annual Conference of the Canadian Association of Wound Care	Translating Knowledge into Practice	May 28-30	Montréal	Canada
Wound, Ostomy and Continence Nurses Society 35th Annual Conference		Jun. 14-18	Cincinnati	USA
Deutsche Gesellschaft für Wundheilung und Wundbehandlung	Woundcare and Cost Efficiency (German)	Jun. 26-27	Augsburg	Germany
ISL XIX International Conference of Lymphology		Sep. 1-6	Freiburg	Germany
New Zealand Wound Care Society Conference	Partnerships in Care	Sep. 20-22	Christchurch	New Zealand
7th National Conference of Wound Management Association of Ireland		Sep. 24-25	Cork	Ireland
APTF - International Symposium	Quality of Life in the Patient with Chronic Wound (Portuguese)	Sep. 25-26		Portugal
ETRS Annual Meeting	Wound Repair	Sep. 21-23	Amsterdam	The Netherlands
European Pressure Ulcer Advisory Panel	Pressure Ulcer Prevention & Management – Have we made a difference?	Sep. 3-6	Tampere	Finland
Third European Nurse Congress	Vulnerable Groups in Society: A Nursing Issue	Oct. 5-8	Amsterdam	The Netherlands
Czech Wound Management Society		Nov.	Hradec Králové	Czech Rep.
Wound UK 2003		Nov. 11-12	Harrogate	UK
Conference	Theme	2004	Place	Country
The Norwegian Wound Healing Association	Diabetic Wounds (Norwegian)	Feb. 5-6	Oslo	Norway
5th Australian Wound Management Association Conference		Mar. 18-20	Hobart	Australia
Tissue Viability Society		Apr. 20-21	Torquay	United Kingdom
2nd World Wound Union of Wound Healing Societies' Meeting		Jul. 8-13	Paris	France

## Use the EWMA Journal to profile your company

The EWMA Journal is a bi-annual European informational source within wound healing and management. 10,000 copies are distributed free of charge to all members of organisations co-operating with EWMA. This makes the Journal a unique communication channel from which your company could benefit greatly.

If you are interested in more information on rates and possibilities please contact:

### Congress Consultants

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*Please note that the deadline for next issue is September 1.*

## NEW EWMA SPONSORS



EWMA is pleased to welcome Hartmann and FAB as corporate B sponsors from 2003.



EWMA would like to thank the new corporate sponsors for supporting the organisation's efforts and looks forward to a successful co-operation.

EWMA recognises the importance of close co-operation with the corporate industry and is pleased to inform that it is now co-operating with eight corporate A-sponsors and four B-sponsors.

## ● Co-operating Organisations

Name	Abbr.	www.	Country
Portuguese Wound Management Association	APTF	aptferidas.no.sapo.pt	Portugal
Italian Nurses Cutaneous Wounds Association	AISLeC	aislec.it	Italy
Austrian Wound Association	AWA	a-w-a.at	Austria
Italian Association for Cutaneous Ulcers	AIUC	aiuc.it	Italy
Belgian Federation of Woundcare	BFW	befewo.org	Belgium
ABUSCEP	ABUSCEP	N/A	Belgium
Clinical Nursing Consulting	CNC	wondzorg.be	Belgium
Czech Wound Management Society	CSLR	cslr.cz	Czech Republic
Danish Wound Healing Society	DSFS	dsfs.org	Denmark
Deutsche Gesellschaft für Wundheilung und Wundbehandlung	DGfW	dgfw.de	Germany
Finnish Wound Care Society	FWCS	N/A	Finland
Grupo Nacional para el Asesoramiento en Úlceras por Presion y Heridas Crónicas	GNEAUPP	gneaupp.org	Spain
Latvian Wound Treating Association	LBAA	N/A	Latvia
Leg Ulcer Forum	LUF	legulcerforum.org	UK
Lymphoedema Support Network	LSN	lymphoedema.org	UK
Norwegian Wound Healing Association	NIFS	nifs-saar.no	Norway
Slovenian Wound Management Association	WMAS	N/A	Slovenia
Société Française et Francophone des Plaies et Cicatrisations	SFFPC	sffpc.org	France
Swedish Wound Healing Society	SSS	sarlakning.com	Sweden
Tissue Viability Society	TVS	tv.s.org.uk	UK
Wound Management Association of Ireland	WMAOI	wmaoi.org	Ireland

## ● Other Organisations

Name	Abbr.	www.	Country
American Academy of Wound Management	AAWM	aawm.org	USA
American Burn Association		ameriburn.org	USA
Association for the Advancement of Wound Care	AAWC	aawc1.com	USA
Australian Wound Management Association	AWMA	awma.com.au	Australia
British Burn Association		N/A	UK
Canadian Association of Wound Care	CAWC	cawc.net	Canada
European Burns Association		euroburn.nl	The Netherlands
European Pressure Ulcer Advisory Panel	EPUAP	epuap.org	Europe
European Tissue Repair Society	ETRS	etrs.org	Europe
Indian Society of Wound Management		woundindia.org	India
Infection Control Nurses Association	ICNA	icna.co.uk	UK
The National Decubitus Foundation		decubitus.org	USA
National Pressure Ulcer Advisory Panel	NPUAP	npupap.org	USA
Oxford International Wound Foundation		oxfordinternationalwoundfoundation.org	UK
Perse		technimediaservices.fr	France
South Australian Wound Management Association	SAWMA	wound.sa.edu.au	Australia
St. Charles Leg Ulcer Team		leg-ulcers.net	UK
The Wound Healing Research Unit		whru.co.uk	UK
World Union of Wound Healing Societies		wuwhs.org	
Wound Care Institute, Inc		woundcare.org	USA
Wound Care Society		woundcaresociety.org	UK
Wound, Ostomy and Continence Nurses Society		cocs.org	USA
Wound Healer		woundhealer.com	USA
Wound Healing Society		woundheal.org	USA
Woundcare Consultant Society		wcs-nederland.nl	The Netherlands





# AISLeC

## Associazione Infermieristica per lo Studio Lesioni Cutanee

### Italian Nurse Association for the Study of Cutaneous Wounds



**Andrea Bellingeri**, President  
**Battistino Paggi**, Vice-president

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**AISLeC is this year  
co-operating with EWMA  
to arrange the  
2003 EWMA meeting  
in Pisa**



#### Information on the Italian Nurses Cutaneous Wounds Association

Since the Nursing Association for the Study of Skin Wounds (A.I.S.Le.C) was founded, in 1993, it has set its objectives on promoting the quality of assistance through extensive research and up-to-date scientific referrals. In 1998 the Association became interdisciplinary.

AISLeC has trained over 10,000 health professionals and conducted four multi-centre studies involving many thousands of colleagues and patients from 330 wards. These studies have enabled AISLeC to inform the Italian people and the Italian Health Ministry about this important problem and to improve quality assurance.

In Italy in 1984, 8.6% of patients in hospital had pressure sore lesions. This caused their hospital stay to increase by 69 days and it also increased the cost by seven million liras per lesion. The total cost of the medical care was more than 5000 billion lira or 2500 million euro. AISLeC research has demonstrated that, by 1994, 50% more patients in hospital had pressure sores than in 1984; this represents a rise from 8.6% in 1984 to 13.2% in 1994. The study, conducted in 1996, showed the presence of pressure sore lesions to be 18.3% for those in the hospital setting and 32.19% for those in the home care environment. The studies that we made in 1999 and 2001 confirmed the presence of chronic wounds in over 40% of patients in home care. The research in 2001 involved wards in home care and in geriatric clinics. We analysed over 3600 patients in 86 districts and geriatric wards. In home care we experienced over 34% with pressure ulcer, 25% with leg ulcer and 10% with diabetic foot.

When we consider other skin lesions, the situation in Italy is surely not any better. We know from the literature on this topic that, in Europe, vascular lesions afflict 1% of the adult population. Among those less than 40 years old the percentage is low, but it increases with age, reaching its peak among those in the age group 70 to 90 years with a female to male ratio of 3:1. These figures are not comparable to those found in Italy, thereby demonstrating that, in the last 10 years, there has not been an adequate health care program in place in Italy. This is even more dramatic if one considers that the situation in Italy in this area is already well known across Europe.

#### Current Achievements

- Over 200 seminars and meetings covering the entire national territory including Sicily and Sardinia have been conducted, and, over 10,000 nurses and even more doctors will be following our courses.
- 200 colleges offer a university degree and specialist courses in wound-care. The national epidemiological data on PS has been extended on a national level through national media to the entire population see Panorama (24-3-95, page 147), Corriere Salute (22-01-96, page 10), Repubblica Salute, (6-5-99) and Sole 24 Ore Sanità (27-04-99). This is the first time that nurses in Italy have been involved in a national health audit. These studies have enabled us to inform the Italian Health Ministry about this important problem and to improve quality assurance.
- The Italian Health Ministry included the problem of chronic wounds in the Italian Health plan of 2001.
- We have won prizes for the research in the poster category at the EWMA conference held in Milan the end of April '97 and in the Congress promoted by the Italian Society of Quality Assurance in Rome in May '97.
- The first AISLeC brochure will be produced for customers and distributed in pharmacies and hospitals - over 30,000 copies will be distributed.
- We have translated all AHCPR documents and distribute over 10,000 copies of these to our colleagues.
- The AISLeC web site has been successfully established and can be accessed at [www.aislec.it](http://www.aislec.it)
- We collaborate with EWMA to distribute over 700 copies of the EWMA Journal in Italy.
- We are collaborating with WUWHS in the next world meeting on wound-management.
- We are making progress with the first network of ambulatory services on wound-management to create a database on chronic wounds to help research and evaluate the study in this field.

*Andrea Bellingeri*  
President

Over 400 members in 2003

Over 70 courses throughout Italy on wound management in 2003







## AIUC Associazione Italiana Ulcere Cutanee Italian Association for Cutaneous Ulcers

**Piero Bonadeo**  
President

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In the last years the problem of cutaneous ulcers (venous, arterial, diabetic, pressure ulcers) has assumed an increasing importance, above all due to the progressive increase in the elderly population and therefore of the prevalence of pathologies. Cutaneous ulcers represent an important clinician problem of growing importance.

*The Italian Association for Cutaneous Ulcers*, taking advantage of famous experts in the field, wants to be a center and national reference point for all those who daily engage and face the difficult challenge of cutaneous ulcers. It wants to be an organisation of major impact and focus on research, diagnostic and therapy of cutaneous ulcers. This will be done with a clinician-diagnostic approach in an interdisciplinary environment, where respect, professionalism and enthusiasm and the devotion to the area will come together.

### AIUC Council

**President** Piero Bonadeo  
**Vice President** Marco Romanelli  
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**AIUC is this year co-operating  
with EWMA to arrange the  
2003 EWMA meeting in Pisa**

13<sup>th</sup> conference  
European  
Wound Management Association  
**PISA · ITALY** Æ 22-24 May Æ 2003

**TEAMWORK IN WOUND TREATMENT:  
THE ART OF HEALING**

**IL LAVORO DI GRUPPO  
NEL TRATTAMENTO DELLE FERITE:  
L'ARTE DELLA CURA**



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### CNC Wound Management Organisation

is one of the major partners of the Belgian Federation of Wound Care Organisations. A charity funded in 1995, CNC WMO has 160 members made up mostly of nurses but also some doctors, and almost all based in the Dutch-speaking part of Belgium.

CNC WMO's goals are to bring wound reference nurses, wound care specialist nurses, dermatologists and surgeons together, to spread wound care, wound management and tissue repair knowledge as broadly as possible within the healthcare practitioners group. CNC WMO achieves these goals by organising several and multiple educational programs in collaboration with a number of Colleges of Higher Education in Belgium, by organising local symposia, and by hosting regular members' meeting evenings covering general, relevant subjects of interest.

CNC WMO has a very good and strong collaboration with all major and local wound care companies and, most importantly, the general nursing organisations in Belgium



## AWA Austrian Wound Association

Doz. Dr. Gerald Zöch  
Elected President

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The *Austrian Wound Association (AWA)* was founded in 1998 in Vienna. The AWA is a non-profit association working in the field of wound healing. It was organised by a group of physicians and nurses to approach the need for a coordinated co-operation in the area of wound treatment.

Treatment of wounds and its disturbances is not a specialized medical field but concerns several fields on an interdisciplinary level. Where acute and iatrogenic wounds are managed by the surgical field, chronic wounds are mostly taken care of by the conservative fields.

In contrast to North America where wound healing has gained a high status and numerous national and international societies offer further education, there has been no activity in Austria in the area of wound healing. Individual persons have previously been involved in this area, but a flow of information between them did not exist. The research within this area was rather scanty and not available to the public. News and innovations came only from the companies producing wound treatment products. These companies introduced wet wound treatment in Austria and continue to provide information on the most recent developments such as bioengineering products.

Poor healing and chronic wounds appear to be a therapeutic problem asking for special knowledge. The wound itself is mostly only a symptom – not a diagnosis. To recognise the context of the primary disease and the appropriate therapy is closely connected to the healing process. Precisely this makes interdisciplinary cooperation and nursing so important.

AWA seeks to advance the exchange of information and expert knowledge in the area of wound healing. Information on most recent therapies, therapeutic regimens and innovative approaches should be accessible to a wide forum. The Cupertino between doctors and nurses is to be improved.

The public is to be informed about the possibilities of active and preventive measures. By the means of further education, conferences and informational events for physicians and nurses, AWA wants to pass on expert knowledge to specialists and patients.

Members from either the doctoral or the nursing fields form the AWA Executive Board. Everyone working or interested in the area of wound treatment are eligible for membership. Companies with appropriate activities are welcome to become assisting members and can be reached through a link at our homepage. Application for membership is easily accessible at: [www.a-w-a.at](http://www.a-w-a.at)

The executive board is elected every second year at the AWA general meeting and was recently constituted as follows:

Elected President	Doz. Dr. Gerald Zöch
Vice-presidents	Erika Degendorfer and Prof. Dr. Norbert Sepp
Treasurer	Dr. Sebastian Reischle
Secretary	Dr. Susanne Siedler
Vice-secretary	Dr. Thomas Wild

The Executive Board is supported by the Scientific Board, an interdisciplinary forum of people who work and/or do research in the area of wound healing.

AWA hopes to enhance medical wound care in Austria with activities and to help those patients suffering from medical conditions with substantial impairments on quality of life.







## APTF

Associação  
Portuguesa  
de Tratamento  
de Feridas

Portuguese  
Wound  
Management  
Association



**Aníbal Justiniano**  
President  
General Surgeon



**Arminda Costeira**  
Secretary  
Specialist Nurse

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**The Portuguese Wound Management Association** (A.P.T.F.) was established on 5 November 1998, after a founding commission organised a National Congress on Wound Management in October 1998.

The members are all health professionals (medical doctors, nurses, pharmaceuticals, administrators and lawyers). At this moment we have 228 members. The society's directive council is elected every three years. The last election was in April 2002.

### Directive Council

**President:** Aníbal Justiniano, Surgeon  
**Vice-President:** Anabela Gomes, Nurse  
**Secretary:** Arminda Costeira, Nurse  
**Treasurer:** Fatima Carvalho, Nurse  
**Vocals:** Isabel Moscoso, Nurse  
Teresa Magalhães, Nurse  
Susana Duro, Nurse

### Every year the A.P.T.F. Council nationally organises three different levels of courses on Wound Management:

**First Level** – One-day workshop – duration 6 hours. This course introduces the basic principles of wound management.

**Delegates:** High Nurses Schools and Public Health Centres.

**Second Level** – Two days, 6 hours each day. This programme covers the basic principles of:

- Wound healing
- Factors that promote normal wound healing and modify the wound healing process
- Nutrition and wound management
- Pain and wound management
- Cleaning a wound: How and with what can I clean it?
- The types of wounds
- The types of dressings available for use
- Protocols of wound management

**Destination:** Medical Doctors, Nurses and Pharmaceutical professionals in Hospitals and Public Health Centres.

**Third level** – Sixty hours, two days each week, six hours each day.

The program is the same as the second level, but also includes specific sessions covering:

- The history of wound management,
- The psychological aspects of wound management,
- Pressure Ulcers, Leg Ulcers, Burns, Diabetic Foot: the Importance of wound management in Public Health.

**Destination:** Nurses based in Public Health Centres.

In October 2000, with the collaboration of the pharmaceutical industries, we organised, a symposium about "Chronic Wounds" with the

participation of George Cherry, Carol Dealey, Richard Bull, Alison Hopkins, Fran Warboys and a number of Portuguese medical doctors and nurses; five hundred participants attended.

In November 2001, we hosted the "1<sup>st</sup> International Wound Management Congress". The Congress was attended by Portuguese medical doctors and nurses, together with a number of distinguished foreign speakers including Christine Moffatt, Richard Bull, Joan Enric Torra-Bou, and Mike Edmonds. The subjects discussed were:

"Leg Ulcers, Burns, Diabetic Foot, Nutrition, and Portuguese and European Education in the Medical and Pharmaceutical Faculties and High Nurse Schools. The Congress was attended by over 600 delegates.

In November 2002 there was an International Symposium on Leg Ulcers. At this symposium, televised practical sessions were broadcast within the symposium venue for the first time. This was achieved through collaboration with Anneke Andriessen and Deborah Doherty, and enabled the information from the session to reach a wider delegate audience. The lecturers were: Christine Moffatt, Lynda Herbert, Peter Franks, John Mears, Anneke Andriessen and a number of Portuguese medical doctors and nurses recognised in this field of expertise; over 750 delegates took part in the auditorium.

In 2001 we introduced the APTF/Convatec Contest – a national contest for health professionals. The winner received a financial prize and the opportunity to attend a course by George Cherry in Oxford. This year we are running the second national contest, APTF/Convatec Contest 2003, with the same rules and prizes.

Currently APTF is organising a new International Symposium for 25-26 September 2003. The theme will be 'Quality of life in the patient with Chronic Wounds'.

APTF aims to involve all persons who have roles relating to Wound Management with the intention of changing the Portuguese view on this important health subject. At the same time, the APTF operates on an international level actively participating in international congresses organised within Portugal and across Europe.

The APTF Directive Council aims to raise the issues and knowledge of wound management as a field of expertise both nationally and internationally.



## LSN The Lymphoedema Support Network

**Anita Wallace**  
Chair

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### ***Lymphoedema Support Network***

Lymphoedema is an accumulation of lymph fluid in the body, often in one or more limbs but sometimes in the trunk, face or genitalia. The condition leads to swelling of the affected area, and an increased risk of infection.

Although lymphoedema cannot be cured, there is much that can be done with appropriate treatment, the swelling can be reduced and then kept under control. This is very important, because left untreated, the condition will deteriorate.

The LSN is a national charity which provides information and support to people with lymphoedema. It runs a telephone helpline, produces a quarterly newsletter and a wide range of fact sheets, and maintains an up-to-date website. It works to raise awareness of lymphoedema and campaigns for better national standards of care.



Česká společnost  
pro léčbu rány

## CSLR Czech Wound Management Society



**Milada Francu**  
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## Report from Czech Wound Management Society

*The Czech Wound Management Society* is organised as an interdisciplinary association and established not only for physicians and nurses from various fields of medicine, healthcare professionals in domestic care and social services, but also for scientists and non-healthcare professionals engaged in wound healing.

The objective of the CSLR is to improve the quality of care provided to patients with acute and chronic wounds. We have some clinics, centres, departments and outpatients wards where we can provide complex therapy, both general and local, utilising up-to-date therapeutic dressings. Our work is now to establish 'wound management rules' for hospital care as well as for outpatient and home care.

It is necessary, therefore, to ensure easy and frank exchange of knowledge and experience across different specialities of medicine focused on wound healing. We feel it is important that we take part in teaching and educational activities at secondary school and university level to raise the profile of wound management and treatment.

We anticipate that it will take us five years to match the level of west European countries in wound management care and treatment. However, growing interest on the part of the healthcare professionals, has confirmed the need for interdisciplinary communication and cooperation between professionals engaged in wound care.

Currently we are preparing for our annual spring symposium, which is to be held this year on April 5th in Brno at the Congress Centrum Hotel International. Themes to be discussed this year are: Outpatient and Home Care, and Chronic Wound Management. Also, in November, we will be hosting a two-day congress in Hradec Králové.

Our fields of interest are:

- teaching and educational activities – to bring 'wound management' into the normal practice of healthcare professionals
- the setting of standards for wound management and treatment
- the production of a textbook on wound management for use by both nurses and physicians – potentially to be published next year
- to establish projects and comparative studies involving nurses
- to participate in international projects in the future.



## DWHS Danish Wound Healing Society



**Finn Gottrup**  
President DWHS



**Mikael Bitsch**  
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# WOUND HEALING IN DENMARK

The official national health policy in Denmark is to reduce the number of medical specialities. The National Board of Health has, in the last few years, reduced the numbers of subspecialties. In the two major fields of internal medicine and surgery, the reduction is especially obvious. For the readers' information, a Danish specialist in surgery has qualifications, which satisfy the requirements of the Articles 30 - 35 of Directive No 93/16/ECC of the Council of the European Economic Community. The strategy of the National Board of Health is, therefore, in some instances, in conflict with some multidisciplinary medical areas such as 'wound healing and care'.

As described in the survey article on organisation in this issue of the EWMA journal, there is a need to clarify the national structure of the wound management field. This should include a definition and the background of the area, and how to educate the involved staff. Such expert areas are presently being established in Denmark for other multidisciplinary areas such as mammary and endocrine surgery. Such expert areas have recently been defined in Denmark and are called: "Fagområde". Instead of authorisation as a subspecialty, these areas are becoming part of the speciality 'general surgery'. Employment in a speciality department and documentation of different types of surgical skills are demanded. Surgery is also important in the wound management area. In the two major Danish wound healing centres – Copenhagen Wound Healing Center and University Center of Wound Healing (Odense) – all senior doctors have an authorisation in a surgical discipline. A high measure of surgery is performed in both centres. For this reason, the organising group of Danish Wound Healing Society has included the association in the general surgical speciality. In addition, supplementary education of relevant specialities like dermatology and internal medicine (diabetology and immunology) should also be part of the education of wound healing.

During the last decade there has been increased local activity in the wound healing and care fields in Denmark. Multidisciplinary groups have been established and they have had regular meetings and workshops. Nearly every region of Denmark has some sort of 'wound-healing program'. The Danish Wound Healing Society intends to coordinate these efforts and establish a Danish consensus for diagnostics and treatments of different types of wounds. Simultaneously it is our aim to relate the Danish standards to the international standards and guidelines. We are aware of the work in the sub-committees of EWMA and recognise that the educational- and cost effectiveness panels could be valuable to the Danish organisation. More projects and research are necessary in order to achieve more reliable and evidence-based standards, which could be implemented in clinical practice.

Educational programs for nurses have been established in Denmark, but no official authorisation has yet been obtained. The only course in wound healing for doctors is a voluntary course arranged for surgeons in training. The Danish Wound Healing Society is working towards the establishment of courses in other relevant specialities. In addition, the Danish Orthopaedic Society is considering implementing a course focusing on the diabetic foot.

The Internet is an effective way to distribute new knowledge, to discuss guidelines and debate scientific issues. The Danish Wound Healing Society has its own website ([www.dsfs.org](http://www.dsfs.org)) with a summary in English. Part of the website has an established 'Discussions forum' where members, as well as non-members, can take part in discussions related to wound care issues. The society has links to nearly all companies in the wound management industry. From [www.dsfs.org](http://www.dsfs.org) it is possible to follow links to most company websites and to many international wound healing organisations.





## FWCS Finnish Wound Care Society



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**The Finnish Wound Care Society** was founded in 1995 to increase health professionals' skills and knowledge in wound care. FWCS now has around 2000 individual and 30 corporate members. Compared to the Finnish population (5 million inhabitants) the number of members is high. The FWCS covers the whole of Finland and all professions in the field of health care are represented in the society.

### **The FWCS has three main activities:**

1. Arranging education in wound care for professionals
2. Publishing "Haava" (Wound), the Society's journal
3. Supporting development and research work in the field of wound care

The FWCS has organised network education in the management of leg ulcers and pressure ulcers. The network education is organised regionally to facilitate participation by as many professionals as possible. This year FWCS will arrange regional network education in the eastern and western parts of Finland. The theme this year is 'risk assessment, prevention and management of pressure ulcers'. The education is free for FWCS members.

Every year the FWCS arranges the National Wound Care Conference. This year it was held in Helsinki in February and was attended by 500 delegates. The theme was "Etiology and Local Management of Wounds". The programme included main sessions, plenary sessions, free papers, posters and exhibitions. The topics in main sessions were: Factors Affecting to Wound Healing; Growth Factors and Wound Healing; Dermatology and Leg Ulcers; Venous and Arterial Leg Ulcers; The Role of Tissue Viability Nurses in Vascular Outpatient Clinic; Sinus Pilonidalis – Etiology and Treatment; Debridement of Wound Bed, and Managing Traumatic Wounds in Outpatient Clinic.

The plenary sessions were focused on the practice of wound management. In one session participants discussed how to assess wounds and make the right decisions on local management of those wounds. The other session focused on nurses' adherence to wound management procedures – which issues increase and decrease the nurses' commitment to particular wound management procedures. In the sessions, the practice of wound management was presented through patient cases, which this year focused on the experiences of treating wounds with sugar. The national results of PE-PUS (Pan European Pressure Ulcer Study), and

of the Development of a Pressure Ulcer Risk Assessment Scale in Finland were presented as free papers, and, in addition, for the first time, posters were presented at the national conference; though the number of posters was not high their quality was very good. The exhibition was also very good and gave participants a wealth of information on available wound management products, and ultrasound debridement of wounds, as well as the prevention of wounds by special mattresses and good nutrition.

The journal *Haava* is published quarterly and each issue features a special theme. This year the themes are Children and Wounds, Etiology and Local management of Wounds – this is the special issue for the National Wound Care Conference, Wound Patient and Pain and the seventh European Pressure Ulcer Conference in Tampere.

A major role for the FWCS is to promote professional skills and competence in wound care. In spring 2002, FWCS called a specialist work group to develop the criteria for registration of Tissue Viability Nurses (TVN) in Finland. The TVN accreditation work group has members from nursing administration, practice and education as well as from the Ministry of Social and Health Care, and the Ministry of Education. As yet a qualification for TVNs does not exist in Finland, but many hospitals have identified nurses who perform the role. However, as unregistered TVNs, their educational background, clinical experience and knowledge vary greatly. FWCS aims to establish and support an officially recognised qualification for TVNs. There has been some success in this and in autumn 2003, the first qualified TVNs will be working in Finland.

The FWCS gives grants for its members to promote their professional development and to support research work in wound care. This year grants will be given for the participation fee to the European Pressure Ulcer Advisory Panel Open Meeting on the 3-6th of September in Tampere, Finland. The theme is: 'Pressure Ulcer Prevention and Management – have we made a difference?'

FWCS appreciates the international co-operation that is achieved and nurtured through organisations such as EWMA and EPUAP, and I hope to meet many international delegates from throughout Europe in Tampere.





## NIFS

Norwegian  
Wound Healing  
Association



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## News Bulletin from NIFS



*New board in NIFS, from left: Oddveig Haug, Marcus Gürgen, Eivind Witsø, Antonio Rosales, Kinia Remaut, Marie Gamlem, Leif Aanderud, Gunn Tove Solem, Kirsti Espeseth and Ingeleiv Falkeid. The photo is printed with kind permission from SÅR.*

**The Norwegian Wound Healing Association** (abbreviated NIFS in Norwegian) is a steadily growing organisation with close to 600 members nationwide. This year's annual meeting, which took place in February, was held in Stavanger on the Southwestern coast of Norway and was attended by 240 delegates. The main theme of the seminar was ulcers due to disturbed circulation – diagnosis and therapeutic strategies.

The next seminar will be in Oslo in February 2004, and the main theme there will be diabetic wounds.

In 2002, our annual seminar was held outside Trondheim, and covered many aspects of the sick patient with ulcers of different etiologies and treatment strategies. Two hundred and fifty persons participated in the seminar.

Our association is arranging wound treatment seminars for nurses and practitioners across the country. We have, together with the Norwegian Diabetes Association and their medical advisers, reviewed, translated into Norwegian and distributed diagnostic and treatment procedures for diabetic foot ulcers. We have also distributed material on the prevention of ulcers.

We participate in international meetings on wound care, and look forward to the meeting in Pisa. The organisation has the privilege of distributing grants from the industry for research and congress participation among its members, and we will work to supervise health personnel who wish to do research in topics related to wound treatment.

We will continue to work for better education in wound care and better care for our patients. One aspect of this is the fact that our patients with chronic wounds are charged with the costs of dressings, while for instance patients with enterostomies have these costs refunded. We are currently working with the health authorities to try to improve this situation.







## TVS Tissue Viability Society



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# THE TISSUE VIABILITY SOCIETY

The United Kingdom's **Tissue Viability Society**, formed in 1981, is probably one of the longest established associations dedicated to all aspects of the maintenance and repair of skin and soft tissue. Registered as a charity since 1994, the Tissue Viability Society has over 1300 members and is supported by over 100 commercial companies who have joined as members. Membership is open to anyone with an interest in the aims of the society, and members are drawn from all professions involved in wound prevention and management.

Each year the Tissue Viability Society hosts a two-day annual conference that attracts over 400 delegates and a strong commercial exhibition. In 2003 the annual meeting was held in Blackpool over the 8th and 9th of April with the theme of 'Same puzzle – more pieces'.

The meeting explored clinical specialities and challenges often overlooked when chronic wounds are considered – maternity, paediatrics and the particular challenges posed by the morbidly obese patient were much to the fore.

The conference also discussed the future of tissue viability research and clinical services; posing such questions as – Are we well placed to meet future challenges and what new problems and innovative solutions might we expect to encounter? The annual meeting in 2004 will be held in Torquay in the South-West of England over the 20th and 21st of April 2004.

Members of the Tissue Viability Society also receive copies of the *Journal of Tissue Viability*, a peer-reviewed journal that includes original research in all aspects of tissue viability, stimulating reviews, and reports on clinical developments and issues. The *Journal of Tissue Viability*, printed by Mark Allen Publishing, is issued quarterly and is indexed in MEDLINE and CINAHL. We welcome manuscripts from all persons and professions involved in tissue viability. Recent issues contained papers from colleagues as far afield as Israel and Japan.

The Tissue Viability Society has been well represented in the development of clinical guidelines in the United Kingdom, for example we had representatives in the guideline development group for the National Institute for Clinical Excellence, which prepared guidance on the use of pressure-relieving beds and mattresses. Through such participation the Society seeks to bring the concerns and interests of all of its members to the attention of those developing national and international guidelines that seek to shape clinical practices in wound prevention and management. The Tissue Viability Society, while strongly focused upon the needs of its UK members, is by no means a parochial organisation; contact with EWMA, representation within the European Pressure Ulcer Advisory Panel and active participation within the forthcoming World Union of Wound Healing Societies conference among other initiatives, illustrate our intention to contribute to the wider, international discussion on the shape of future tissue viability services and research.

*Helen Orchard*  
Chairman





## WMAOI Wound Management Association of Ireland



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**The Wound Management Association of Ireland (WMAOI)** was established in May 1996 by a multidisciplinary group of healthcare professionals interested in raising the profile of wound care within Ireland.

### **The aims and objectives of the association are:**

- The education and update of wound management in order to promote the highest standard of wound care possible
- To promote research into all aspects of wound management
- To encourage a multidisciplinary approach to wound management
- To issue reports and other publications on the works of the association.

The WMAOI has a constitution, drawn up by the Council, which was adopted at our first Annual General Meeting in September 1997. In order to fulfil its objectives, the association has organised itself into four (4) regions:

*Northern Region:* Antrim, Armagh, Cavan, Derry, Donegal, Down, Fermanagh, Leitrim, Monaghan, Sligo, and Tyrone.

*Midlands Region:* Galway, Kildare, Laoise, Longford, Louth, Mayo, Offaly, Roscommon, and Westmeath.

*Southern Region:* Carlow, Cork, Clare, Kerry, Kilkenny, Limerick, Tipperary, Waterford, and Wexford.

*Dublin Wicklow Region:* Dublin City, County, and Wicklow areas.

A member is free to choose whichever region they wish to join. Each region runs independently and self-finances its own regional activity. Each region has its own organising committee and reports to the Council. It was suggested that each region should host four activities throughout the year such as study evenings and one-day seminars. Some regions were, and still are, experiencing difficulties with travel because of the large geographic areas covered and have, subsequently, further subdivided their regions. Should the Council decide to reassess the Regional divisions to recognise these sub-divisions, our constitution will have to be changed and ratified by members at our next AGM.

The WMAOI is governed by a Council consisting of three representatives from each of the four regional divisions. The Council has four officers: President, Secretary, Treasurer, and Membership Secretary. The current president is Bernadette Kerry (Midlands Branch), and former presidents include James Kelly (Northern Branch), Helen Strapp (Dublin Branch) and Joseph Baron Hall (Northern Branch).

From the outset, the association aimed to be multidisciplinary and is therefore open to any person interested in wound-care and supportive of the above stated objectives.

Membership benefits include information on the Association's educational activities, publications, seminars, study evenings, and major conferences. At the time the association was formed the Council decided we were not in a position to publish a journal for the WMAOI. In lieu of this we sought out other wound-care organisations that were already publishing their own journals and proposed subscriptions for WMAOI members. WMAOI members are presently affiliated members of the Tissue Viability Society (TVS) and receive all the journals issued by the TVS. We are presently reviewing this situation and looking to work with other organisations that might further benefit our members.

In May 2002 we launched our website [www.wmaoi.org](http://www.wmaoi.org), on which visitors will find information regarding our association and where they can download membership forms for the organisation. We are in our infancy with the web page, and hope to add to it and build it up, so that it can be used as a positive resource for all our members. We will be delighted to advertise any upcoming conference seminars, study days etc. on the site.

The past six years have seen the WMAOI evolve, grow stronger and become more independent. During the first three years, our National Conference was organised and funded by Smith & Nephew in association with the WMAOI. In 1999 we made the big leap forward and took on this mammoth task ourselves with the Dublin Region hosting the very successful 4<sup>th</sup> National Conference in 1999 in Dublin. In 2000, the Northern Branch hosted the 5<sup>th</sup> National Conference in Belfast.

In 2001 we did not have our Annual Conference as we were approached by EWMA, which was planning on having its Annual Conference in Dublin. EWMA invited us to co-host this event, which was held in May at the RDS Pavilion in Dublin. The WMAOI Council arranged for a local working committee from the Dublin Region to assist the EWMA conference organisers to source venues, hotels and social events for the Conference. It was a wonderful conference and thoroughly enjoyed by all.

Last year, the 6<sup>th</sup> Conference of the Wound Management Association of Ireland was hosted by the Midlands Region on September 25<sup>th</sup> and 26<sup>th</sup> in Tullamore County. For this con-

ference we looked beyond our own island and organisation, and brought renowned, international, expert speakers to impart their knowledge and clinical expertise to the conference delegates. We had speakers from a variety of international organisations from different countries. These included:

*Peter Vowden*, president of EWMA, and *Kathryn Vowden*  
*Professor Keith Harding*, University of Wales and WHRU  
*Gary Sibbald*, Canadian Wound Care Association

*Dr Liza Ovington*, president of the American Academy of Wound Management, USA

*Professor Davina Gosnell*, Dean of Kent State University, OHIO, USA

*Professor David Leaper*, University Hospital of North Tees, UK  
*George Cherry*, EPUAP and the Oxford Wound Healing Institute, UK

*Ruth Ludwick*, associate professor of Kent State University, OHIO, USA

*Maureen Benbow*, tissue viability nurse, UK

*Patrick Glackin*, director of Nursing & Midwifery Planning & Development Units MHB, Ireland

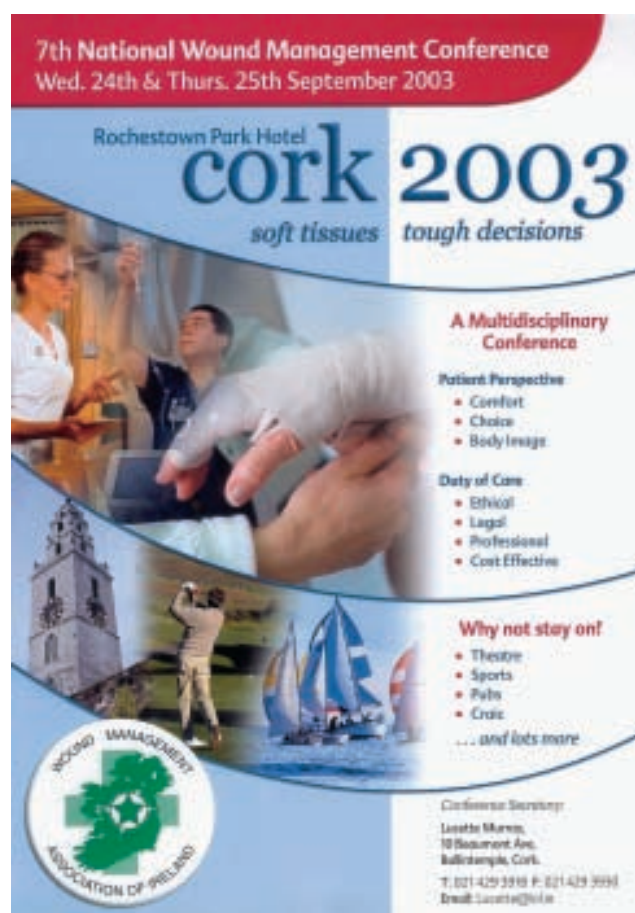
The theme was 'Wound Management Updates and Recommended Best Practice'. Topics included updates on pressure ulcers; diabetic foot and leg ulcer management and prevention; the use of antiseptics; evaluation of pressure ulcer risk assessment tools, and effectiveness of current pressure ulcer prevention strategies; wound watching and assessment; wound bed preparation, and the role of MMPs in wound healing. Additional topics included the importance of managing exudate and controlling moisture balance; how to use modern technology to keep updated with new advances and reports in wound healing, and how to progress from practice to publishing. Delegates also discussed topics such as 'What is happening in wound care today and the future?' and 'How can we achieve clinical nurse specialist roles in wound healing?'

The conference was well attended with delegates from all over Ireland and some delegates travelling from the UK and the USA. All delegates found it both thought provoking and stimulating. Our special thanks go to our five major sponsors Convatec, Coloplast, Johnson & Johnson, Meditec Medical, and Smith & Nephew, and to all the exhibitors at the conference.

At the Conference gala dinner on Wednesday night the guest speaker, Minister for Foreign Affairs Mr. Brian Cowen, was followed by live entertainment from renowned, international singer and songwriter Brendan Keeley who gave what can only be described as a fantastic performance and had everyone dancing into the early hours of the morning. The gala dinner was greatly enjoyed by all.

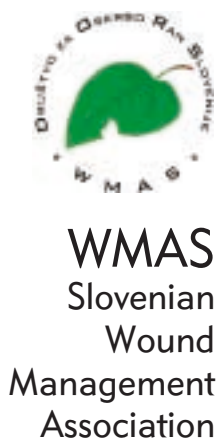
For those organisations that have not yet added us to their links page please do so and let us know. We will be also delighted to add your organisation to our web site. We naturally recognise that networking is the key to furthering knowledge.

On behalf of the WMAOI  
*Bernadette Kerry*, President of WMAOI.



This year's conference will be hosted by the Cork Branch of the WMAOI and will be held in Rochestown Park Hotel Cork on 24<sup>th</sup> & 25<sup>th</sup> September 2003. Further details will be available on the website at a later date.





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## REPORT FROM WMAS

### Slovenian Wound Management Association - healing our own wounds

Regular readers of our reports to the EWMA journal are very well aware of the rocky road we have to overcome in Slovenia. For those of you reading for the first time about our association, may I briefly summarise our history?

The Slovenian Wound Management Association was founded in October 2001, so it is a very young association. The association was founded after some of our nurses participated in the EWMA Congress in Stockholm in May 2000, where they met key EWMA leaders. These EWMA leaders encouraged this small group to start activities to set up an association that would include all health care providers dealing with wound care; doctors, nurses, physiotherapists, pharmacists etc. The nurses worked very hard to gather representatives of all these groups in initial set-up meetings. EWMA representatives visited Slovenia at these meetings and provided a lot of support in this process. Unfortunately, only days before the official foundation of this association, some differences in opinion arose between different health care groups, mainly doctors and nurses, causing the separation of most medical doctors from this group. The differences of opinions arose around issues like who should lead the Association, and what are the roles of the different professions etc. The separated doctors formed another association – the Association for Wound Healing. This association was formed with the support of the Medical Chamber of Slovenia.

These two associations worked separately for over a year and the work of the SWMA was hindered by the above, described events. But, they kept their contacts with EWMA, attended the Granada Congress and got much encouragement there, especially from other countries facing similar problems. However, with the difficulties that occurred, they weren't able to start some of the other activities set up as part of their programme at the initial foundation. They lacked the support of all health care groups and this was the main obstacle to their work.

The Association for Wound Healing organised some seminars and started with some activities to improve reimbursement possibilities for wound care products. But, all this time, they were also aware that only the united efforts of different health care professionals could improve and standardise wound care in Slovenia.

As a result, both associations expressed interest in joining forces and there have been intensive talks about this issue for a few months now. A lot of people feel empowered with these events and are now motivated more than ever to make this project work. The talks are not finalised yet and we can't report the final results. However, we are happy that we are all sitting at the same table again and talking through this issue.

The SWMA was invited to join the Association for Wound Healing and at our last meeting we agreed to it if the following conditions were accepted:

- The representative of the current SWMA will be a vice president in the joint association.
- Representatives of the current SWMA will be equal on the executive board of the joint association.
- The international contact person of the current SWMA will remain in position in the joint association.
- The name of the association will change from 'The Association for Wound Healing' to 'The Association for Wound Healing and Wound Treatment' (wound management doesn't fit in the Slovenian language when it comes to wounds), however the English name stays the same – The Slovenian Wound Management Association.
- The logotype of the current SWMA will be used for the joint association.

Our first impression is that members of the Association for Wound Healing are keen on our proposal and hopefully we will be able to update you very soon with the good news that we have joined forces, overcome our obstacles and are working full speed towards our common goal - excellent wound care for a better quality of life for our patients.



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