



EUROPEAN PRESSURE ULCER ADVISORY PANEL

Trustees of the European Pressure Ulcer Advisory Panel

Mission Statement The European Pressure Ulcer Advisory Panel's objective is to provide the relief of persons suffering from, or at risk of pressure ulcers, in particular through research and the education of the public.

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GUIDELINES AND THE FUTURE



Dr George Cherry

THE EPUAP, with this year's 12th Annual meeting in Amsterdam, will be continuing to meet its mission statement: 'To provide the relief of persons suffering from, or at risk of pressure ulcers, in particular through research and the education of the public.' In fact, our third meeting was held at the Academic Medical Center in Amsterdam with the local organiser Dr Maarten Lubbers who is also hosting this year's meeting.

Some of our first achievements were Guidelines on Prevention, Treatment and Nutrition with reference to pressure ulcers, as well as a prevalence study in a number of European countries. These were associated with the PEPUS study under the direction of Dr Christina Lindholm as was the publication of a major textbook, *The Science and Practice of Pressure Ulcer Management*, with Dr Marco Romanelli as Editor in chief.

However, the major project in which the EPUAP has been involved since February 2007 has been the updating of the prevention guidelines (which Carol Dealey reports in her letter) and the resulting 'Quick Reference Guidelines' are to be found in this issue. This undertaking has been a particularly expensive endeavour.

The majority of the costs of the project were met through the income generated by the annual meetings organised by the Business Office, as well as support from a number of our corporate sponsors.

Obviously the next challenge is dissemination of this work by the EPUAP as well as understanding what role that the NPUAP will play in distributing both sets of guidelines.

The translation of the Prevention Guidelines has already been started by a number of our trustees from various countries and, as with the original guidelines, funding will be sought from Industry for the publication of these translations.

In this issue of the *EPUAP Review* we also have an article by Dr Cees Oomens describing the work carried out in his laboratory, as well as the direction he would like to follow as the new President of the EPUAP.

And finally, there is an interesting article from one of our corporate sponsors – ArjoHuntleigh – describing this dynamic company who have been actively involved with EPUAP since its beginning.

Dr George W. Cherry
Treasurer
EPUAP Business Office





FROM THE RETIRING PRESIDENT



Dr Carol Dealey

I am writing this final report as President of EPUAP with mixed feelings of achievement but also an awareness that there is still more to do. However, it is always good to start with the positive.

During the last four years, EPUAP Trustees have worked very hard alongside NPUAP colleagues to review all the current literature on pressure ulcers and develop International Pressure Ulcer Guidelines. What has sometimes seemed like an impossible dream has finally been achieved. I would first of all like to acknowledge all those who have been involved in this endeavour: the Joint EPUAP/NPUAP Guideline Development Group (GDG) (see Box 1); the Small Working Groups for Prevention (see Box 2) and the Small Working Groups for Treatment (see Box 3). Without them we would never have achieved this outcome.

Box 1:
The EPUAP/NPUAP
Joint Guideline
Development Group

EPUAP Members	NPUAP Members
Dr Carol Dealey	Dr Janet Cuddigan
Dr Michael Clark	Dr Diane K. Langemo
Prof. Dr Tom Defloor	Dr Mona M. Baharestani
Dr Lisette Schoonhoven	Mary Ellen Posthauer
Dr Katrien Vanderwee	Dr Joyce Black
Anne Witherow	Evan Call

Box 2:
Small Working
Group Members
for Prevention

Aetiology: Cees Oomens (Leader), Dan Bader, Amit Gefen and José Verdu Soriano
Risk Assessment: Jane Nixon (Leader), Jacqui Fletcher, Alexander Heyneman, Helvi Hietanen, Jeannie Donnelly, Khryz Gebhardt, Maureen Benbow, Zena Moore and Katrien Vanderwee
Skin Assessment: Carol Dealey (Leader), Tom Defloor, Jane Nixon, Lisette Schoonhoven and Katrien Vanderwee
Positioning: Zena Moore (Leader), Trudie Young, Anna Polak and Hilde Heyman
Nutrition: Joseph Schols (Leader), Ruud Halfens, Pam Jackson, Gero Langer, Judith Meijers and Hilde Heyman
Support Surfaces: Lena Gunningberg (Leader), Andrea Bellingeri, Paulo Alves, Mark Collier, Katia Furtado, Jan Weststrate, Erik de Laat and Manuel Gago-Formells

In addition, the important strand that has immeasurably strengthened the guidelines is stakeholder involvement. Stakeholders were individuals who signed up to review the draft guideline statements either as a representative of an organisation or as an interested party. They all had the opportunity to comment on the guidelines and identify any literature that had been



Box 3:
Small Working
Group Members
for Treatment

Pressure Ulcer Classification (Grading and Staging): Joyce Black (Leader), Janet Cuddigan, Tom Defloor and Courtney Lyder

Assessment & Monitoring Healing: Janet Cuddigan (Leader), Susan Garber and Diane Langemo

Nutrition for Healing: Mary Ellen Posthauer (Leader), Becky Dörner, David Thomas and Steven Black

Pain Assessment & Management: Diane Langemo (Leader) and Barbara Bates-Jensen

Support Surfaces for Treatment: Evan Call (Leader), Janet Cuddigan, Joyce Black, Diane Langemo, Susan Garber, Steven Reger, Kim Davis, David Brienza and Steven Black

Infection Assessment & Treatment: Catherine Ratliff (Leader), George Rodeheaver, Joyce Black, Janet Cuddigan and Greg Schultz

Cleansing: Catherine Ratliff (Leader), George Rodeheaver and Greg Schultz

Debridement: Mona Baharestani (Leader) and Diane Langemo

Dressings: Joyce Black and Laurie McNichol (Co-Leaders), Karen Zulkowski, Sharon Baranoski, Barbara Bates-Jensen and Joann Maklebust

Negative Pressure Wound Therapy: Joyce Black and Laurie McNichol

Biophysical Agents: Teresa Conner-Kerr (Leader), Carrie Sussman, Luther Kloth and Laura Edsberg

Growth Factors: Laura Edsberg (Leader), Greg Schultz, Aimee Garcia and Harold Brem

Operative Repair: Steven Black (Leader), Joyce Black and Harold Brem

Palliative Care: Diane Langemo (Leader) and Barbara Bates-Jensen with assistance from Steven Antokal and Nicole Hayes

missed. All such comments were taken extremely seriously by the GDG and the guidelines amended accordingly. Altogether we had 146 organisation representatives from 32 countries and 903 individuals from 53 countries. Not only does this mean that there was a massive interest in the guidelines, but it also means that our guidelines are truly international. Currently they are being translated into a number of different languages including Bulgarian, Dutch, French, German, Hebrew, Japanese, Spanish and Swedish. All translated versions will be available on both EPUAP and NPUAP websites.

Although the guidelines have filled most of my report, I should also mention the very successful conference held in Bruges last September and my thanks go to the local organiser, Professor Tom Defloor and also the Business Office for all their hard work. I must also thank all the Trustees and mention particularly those who have already retired, or are about to retire, namely: Jacqui Fletcher, Helvi Hietanen, Zena Moore and Argentina Vidrascu. I would also like to thank Cees Oomens for the support he has given me whilst President Elect and wish him every success as the new President of EPUAP.

Carol Dealey
August 2009



QUICK REFERENCE GUIDE

RISK ASSESSMENT Epidemiological research has increased considerably in recent years, providing a better understanding of risk factors important in the development of pressure ulcers and this literature needs to underpin risk assessment practice. However, one must be careful with interpreting the results of these epidemiological research studies, as the results may depend on which risk factors are included in the multi-variable model.

RISK ASSESSMENT POLICY 1. **Establish a risk assessment policy in all health care settings. (Strength of Evidence = C)**

Each health care setting should have a policy in place including recommendations for the structured approach to risk assessment relevant to the health care setting, targeted clinical areas, the timing of risk assessment and reassessment, clear recommendations for documentation of risk assessment and communication to the wider healthcare team.

2. **Educate healthcare professionals on how to achieve an accurate and reliable risk assessment. (Strength of Evidence = B)**

3. **Document all risk assessments. (Strength of Evidence = C)**

Documentation of risk assessments are required to ensure communication within the multidisciplinary team, confer evidence that care planning is appropriate and provide a benchmark to monitor the progress of the individual.

RISK ASSESSMENT PRACTICE 4. **Use a structured approach to risk assessment to identify individuals at risk of pressure ulcer development. (Strength of Evidence = C)**

A structured approach may be achieved through the use of a risk assessment scale in conjunction with a comprehensive skin assessment and clinical judgment.

Despite the fact there are some limitations of risk assessment scales, their widespread utilization would suggest this is indicative of the value professionals place on them. Evidence suggests that their introduction in conjunction with the establishment of skin care teams, education programs and care protocols may reduce the incidence of pressure ulcers. Better than clinical judgement

5. **Use a structured approach to risk assessment which includes assessment of activity and mobility. (Strength of evidence = C)**

5.1. **Consider individuals who are bedfast and/or chairfast to be at risk of pressure ulcer development.**

6. **Use a structured approach to risk assessment which includes a comprehensive skin assessment including alterations to intact skin. (Strength of evidence = C)**



6.1. Consider individuals with alterations to intact skin to be at risk of pressure ulcer development.

Alteration in skin condition include dry skin, erythema and other alterations. The presence of non-blanching erythema also increases the risk of further pressure ulcer development.

- 7. Use a structured approach to risk assessment which is refined by using clinical judgment informed by knowledge of key risk factors. (Strength of Evidence = C)**
- 8. Consider the impact of the following risk factors on an individual's risk of pressure ulcer development.**

a) Nutritional indicators

Nutritional indicators include hemoglobin, anemia, and serum albumin, measures of nutritional intake, and weight.

b) Factors affecting perfusion and oxygenation

Factors affecting perfusion include diabetes, cardiovascular instability/nor epinephrine use, low blood pressure, ankle brachial index and oxygen use.

c) Skin moisture

d) Increased age

- 9. Consider the potential impact of the following risk factors on an individual's risk of pressure ulcer development.**

a) Friction and shear (Subscale Braden Scale)

b) Sensory perception (Subscale Braden Scale)

c) General health status

d) Body temperature

- 10. Conduct a structured risk assessment on admission, and repeat as regularly and as frequently as required by patient acuity. Reassessment should also be undertaken if there is any change in patient condition. (Strength of Evidence = C)**

- 11. Develop and implement a prevention plan when individuals have been identified as being at risk of pressure ulcer development. (Strength of Evidence = C)**

- SKIN ASSESSMENT 1. Ensure that a complete skin assessment is included in the risk assessment screening policy in place in all health care settings. (Strength of Evidence = C)**

Each health care setting should have a policy in place including recommendations for the structured approach to skin assessment relevant to the setting, targeted clinical areas, the timing of assessment and reassessment. It should have clear recommendations for documentation of skin assessment and communication to the wider healthcare team.

- 2. Educate the professional on how to undertake a comprehensive skin assessment that includes the techniques in identifying blanching response, localized heat, oedema and induration (hardness). (Strength of Evidence = B)**

These additional assessment techniques can be used for all individuals. However, there is evidence that Category I pressure ulcers are under-detected in individuals with darkly pigmented skin because areas of redness are not as easily seen.

- 3. Inspect skin regularly for signs of redness in individuals identified as being at risk of pressure ulceration. The frequency of inspection may need to be increased in response to any deterioration in overall condition. (Strength of Evidence = B)**

Ongoing assessment of the skin is necessary to detect early signs of pressure damage.

- 4. Skin inspection should include assessment for localized heat, oedema or induration (hardness), especially in individuals with darkly pigmented skin. (Strength of Evidence = C)**

Localized heat, oedema and induration have all been identified as warning signs for pressure ulcer development. As it is not always possible to see signs of redness on darkly pigmented skin these additional signs should be used for assessment.

- 5. Ask individuals to identify any areas of discomfort or pain that could be attributed to pressure damage. (Strength of Evidence = C)**

A number of studies have identified pain as a major factor for individuals with pressure ulcers. In several studies there is also some indication that pain over the site was a precursor to tissue breakdown.

- 6. Observe the skin for pressure damage due to medical devices. (Strength of Evidence = C)**

Many different types of medical devices have been reported as causing pressure damage (e.g., catheters, oxygen tubing, ventilator tubing, semirigid cervical collars, etc.).

- 7. Document all skin assessments including details of any pain possibly related to pressure damage. (Strength of Evidence = C)**

Accurate documentation is essential to monitor the progress of the individual and to aid communication between professionals.

- SKIN CARE 8. Do not turn the individual onto a body surface that is still reddened from a previous episode of pressure loading whenever possible. (Strength of Evidence = C)**

Redness indicates that the body has not recovered from the previous loading and requires further respite from repeated loading (See Etiology).

- 9. Do not use massage for pressure ulcer prevention (Strength of Evidence = B)**

Massage is contra-indicated in the presence of acute inflammation and where there is the possibility of damaged blood vessels or fragile skin. Massage could not be recommended as a strategy for pressure ulcer prevention.

- 10. Do not vigorously rub skin at risk for pressure ulceration. (Strength of Evidence = C)**

As well as being painful, rubbing the skin can also cause mild tissue destruction or provoke an inflammatory reaction, particularly in the frail elderly.

- 11. Use skin emollients to hydrate dry skin in order to reduce risk of skin damage. (Strength of Evidence = B)**

Dry skin seems to be a significant and independent risk factor of pressure ulcer development.

12. Protect the skin from exposure to excessive moisture with a barrier product in order to reduce the risk of pressure damage. (Strength of Evidence = C)

The mechanical properties of the stratum corneum are changed by the presence of moisture and as a function of temperature.

GENERAL RECOMMENDATIONS 1. Screen and assess nutritional status for every individual at risk of pressure ulcers in each health care setting. (Strength of Evidence = C)

Since under-nutrition is a reversible risk factor for pressure ulcer development, early identification and management of under-nutrition is very important. Individuals at risk of pressure ulcer development may also be at risk of under-nutrition and so should be screened for nutritional status.

1.1 Use a valid, reliable and practical tool for nutritional screening that is quick and easy to use and acceptable to both the individual and health care worker. (Strength of Evidence = C)

It is important that the screening tool is validated, reliable and relevant to the patient group it is assessing. It is also important that the same tool can be used in different care settings to encourage continuity of care.

1.2 Have a nutritional screening policy in place in all health care settings, along with recommended frequency of screening for implementation. (Strength of Evidence = C)

Each health care setting should have a policy about nutritional screening. Results of screening, especially when action is required, should be communicated from one care setting to another

2. Refer each individual with nutritional risk and pressure ulcer risk to a registered dietitian and also, if needed to a multidisciplinary nutritional team including a registered dietitian, a nurse specialized in nutrition, physician, speech and language therapist, occupational therapist and/or dentist. (Strength of Evidence = C)

If the nutritional screening identifies individuals prone to develop pressure ulcers, to be malnourished or at nutritional risk, then a more comprehensive nutritional assessment should be undertaken by a registered dietitian or a multidisciplinary nutritional team.

2.1 Provide nutritional support to each individual with nutritional risk and pressure ulcer risk, following the nutritional cycle. This should include:

- *Nutritional assessment*
- *Estimation of nutritional requirements*
- *Comparison of nutrient intake with estimated requirements*
- *Provide appropriate nutrition intervention, based on appropriate feeding route*
- *Monitoring and evaluation of nutritional outcome, with reassessment of nutritional status at frequent intervals while an individual is at risk.*

(Strength of Evidence = C)

Individuals may need different forms of nutritional management during the course of their illness.

2.2 Follow relevant and evidence based guidelines on enteral nutrition and hydration for individuals at risk of pressure ulcers, who show nutritional risks or nutritional problems. (Strength of Evidence = C)

It is clear that other and more detailed clinical guidelines on nutrition and hydration exist and should be available and that this guideline's guidance on nutrition and pressure ulcers should be considered within the context of general guidelines on nutritional management.

SPECIFIC RECOMMENDATIONS 1. **Offer high protein mixed oral nutritional supplements and/or tube feeding, in addition to the usual diet, to individuals with nutritional risk and pressure ulcer risk because of acute or chronic diseases, or following a surgical intervention. (Strength of Evidence = A)**

Oral nutrition (via normal feeding and/or with additional sip feeding) is the preferred route for nutrition and should be supported whenever possible.

Oral nutritional supplements are of value because many pressure ulcer prone patients often cannot meet their nutritional requirements via normal oral food intake. Moreover, oral nutritional supplementation seems to be associated with a significant reduction in pressure ulcer development compared to routine care.

Enteral (tube feeding) and parenteral nutrition may be necessary when oral nutrition is inadequate or not possible based on the individual's condition and goals.

1.1. Administer oral nutritional supplements (ONS) and/or tube feeding (TF) in between the regular meals, to avoid reduction of normal food and fluid intake during regular mealtimes. (Strength of Evidence = C)

REPOSITIONING FOR THE PREVENTION OF PRESSURE ULCERS – REPOSITIONING

1. **The use of repositioning should be considered in all at-risk individuals.**

1.1. Repositioning should be undertaken to reduce the duration and magnitude of pressure over vulnerable areas of the body. (Strength of Evidence = A)

High pressures, over bony prominences, for a short period of time, and low pressures, over bony prominences, for a long period of time are equally damaging. In order to lessen the individual's risk of pressure ulcer development, it is important to reduce the time and the amount of pressure they are exposed to.

1.2. The use of repositioning as a prevention strategy must take into consideration the condition of the patient and the support surface in use. (Strength of Evidence = C)

REPOSITIONING FREQUENCY 2. **Repositioning frequency will be influenced by the individual (Strength of Evidence = C) and the support surface in use (Strength of Evidence = A).**

2.1. Repositioning frequency will be determined by the individual's tissue tolerance, their level of activity and mobility, their general medical condition, the overall treatment objectives and an assessment of the individual's skin condition. (Strength of Evidence = C)

2.2. Assess the individual's skin and general comfort. If the individual is not responding as expected to the repositioning regime, reconsider the frequency and method of repositioning. (Strength of Evidence = C)

2.3. Repositioning frequency will be influenced by the support surface used. (Strength of Evidence = A)

An individual should be repositioned with greater frequency on a non-pressure-redistributing mattress than on a visco-elastic foam

mattresses. The repositioning frequency depends on the pressure redistributing features of the support surface.

REPOSITIONING TECHNIQUE 3. **Repositioning will maintain the individual's comfort, dignity and functional ability. (Strength of Evidence = C)**

3.1. **Reposition the individual in such a way that pressure is relieved or redistributed. (Strength of Evidence = C)**

3.2. **Avoid subjecting the skin to pressure and shear forces. (Strength of Evidence = C)**

3.3. **Use transfer aids to reduce friction and shear. Lift, don't drag the individual while repositioning. (Strength of Evidence = C)**

3.4. **Avoid positioning the individual directly onto medical devices, such as tubes or drainage systems. (Strength of Evidence = C)**

3.5. **Avoid positioning the individual on bony prominences with existing non-blanchable erythema. (Strength of Evidence = C)**

3.6. **Repositioning should be undertaken using the 30 degree semi Fowler position or the prone position and the 30 degree-tilted side lying position (alternately right side, back, left side) if the individual can tolerate this position and the medical condition allows. Avoid postures that increase pressure, such as the Fowler's over 30 degree or the 90 degree side lying position, or the semi-recumbent position. (Strength of Evidence = C)**

3.7. **If sitting in bed is necessary, avoid head of bed elevation and a slouched position that places pressure and shear on the sacrum and coccyx. (Strength of Evidence = C)**

REPOSITIONING THE SEATED INDIVIDUAL 4. **Position the individual so as to maintain their full range of activities. (Strength of Evidence = C)**

This may be a complex process, for example, in an armchair which tilts back, the use of a foot rest with the heels offloaded may be a suitable position in terms of pressure redistribution but may impede transfer to and from the chair.

4.1. **Select a posture that is acceptable for the individual and minimizes the pressures and shear exerted on the skin and soft tissues. (Strength of Evidence = C)**

4.2. **Place the feet of the individual on a foot stool or foot rest when the feet do not reach the floor. (Strength of Evidence = C)**

When the feet do not rest on the floor, the body slides forward out of the chair. Foot rest height should be chosen to slightly flex the pelvis forward by positioning the thighs slightly less than horizontal.

4.3. **Limit the time an individual spends seated in a chair without pressure relief. (Strength of Evidence = B)**

When an individual is seated in a chair, the weight of the body causes the greatest exposure to pressure to occur over the ischial tuberosities. As the loaded area is relatively small, the pressure will be high, therefore, without pressure relief, a pressure ulcer will occur very quickly.

REPOSITIONING DOCUMENTATION 5. **Record repositioning regimes, specifying the frequency, position adopted and the evaluation of the outcome of the repositioning regime. (Strength of Evidence = C)**

REPOSITIONING EDUCATION AND TRAINING

- 6. Education in the role of repositioning in pressure ulcer prevention should be offered to all persons involved in the care of individuals at risk of pressure ulcer development, including the individual and significant others (where possible). (Strength of Evidence = C)**

6.1. Training in the correct methods of repositioning and use of equipment should be offered to all persons involved in the care of individuals at risk of pressure ulcer development, including the individual and significant others (where possible and appropriate). (Strength of Evidence = C)

SUPPORT SURFACES

1. General Statements

1.1. Prevention in individuals at risk should be provided on a continuous basis during the time that they are at risk. (Strength of Evidence = C)

1.2. Do not base the selection of a support surface solely on the perceived level of risk or the Category of pressure ulcer. (Strength of Evidence = C)

Selection of an appropriate support surface should also take into consideration factors such as the individual's level of mobility within the bed, comfort, need for microclimate control and the place and circumstances of care provision.

1.3. Do not use either the perceived level of risk or Category of pressure ulcer to select a support surface. (Strength of Evidence = C)

1.4. Choose a support surface compatible with the care setting. (Strength of Evidence = C)

Not all support surfaces are compatible with every care setting. Support surface use in a home setting requires consideration of the weight of the bed and structure of the home, width of doors, and availability of uninterrupted electrical power and promoting ventilation of heat from the motor.

1.5. Examine the appropriateness and functionality of the support surfaces on every encounter. (Strength of Evidence = C)

1.6. Verify that the support surface is within its functional life span, through the specific manufacturer's recommended test method (or other industry recognized test method) before use of the support surface. (Strength of Evidence = C)

2. Mattress and Bed Use in Pressure Ulcer Prevention

2.1. Use a higher specification foam mattresses rather than standard hospital foam mattresses for all individuals assessed as at risk for pressure ulcer development. (Strength of Evidence = A)

Higher specification foam mattresses seem to be more effective in preventing pressure ulcers than standard hospital foam mattresses.

2.2. There is no evidence of the superiority of one high specification foam mattress over alternative high specification foam mattresses. (Strength of Evidence = A)

There seems to be no clear difference in the effectiveness of high specification foam mattresses.

2.3. Use an active support surface (overlay or mattress) for patients at higher risk of pressure ulcer development where frequent manual repositioning is not possible. (Strength of evidence = B)

When high risk patients cannot be repositioned manually, active support surfaces are needed as they can change their load distribution properties.

2.4. Overlay or mattress replacement alternating pressure active support surfaces have a similar efficacy in terms of pressure ulcer incidence. (Strength of Evidence = A)

2.5. Do not use small cell alternating pressure air mattresses or overlays. (Strength of Evidence = C)

Alternating pressure air mattresses with small air cells (diameter <10 cm) cannot be sufficiently inflated to ensure pressure relief over the deflated air cells. Internal sensors are being utilised in models currently under development that may resolve this problem.

2.6. Continue to turn and reposition where possible all individuals at risk of pressure ulcers. (Strength of Evidence = C)

3. The use of support surfaces to prevent heel pressure ulcers

3.1. Ensure that heels are free of the surface of the bed. (Strength of Evidence = C)

3.2. Heel protection devices should elevate the heel completely (off load) in such a way as to distribute the weight of the leg along the calf without putting pressure on the Achilles tendon. The knee should be in slight flexion. (Strength of Evidence = C)

Hyperextension of the knee may cause obstruction of the popliteal vein and this could predispose to deep vein thrombosis.

3.3. Use a pillow under the calves to elevate the heels (floating heels). (Strength of Evidence = B)

Using a pillow under the calves elevates the heels from the mattress.

3.4. Inspect the skin of the heels regularly. (Strength of Evidence = C)

4. Use of support surfaces to prevent pressure ulcers while seated

4.1. Use a pressure-redistributing seat cushion for individuals sitting in a chair whose mobility is reduced and who are thus at risk of pressure ulcer development. (Strength of Evidence = B)

Different studies show that the use of a pressure redistributing seat cushion prevents the development of pressure ulcers.

4.2. Limit the time an individual spends seated in a chair without pressure relief (Strength of Evidence = B)

4.3. Give special attention to individuals with spinal cord injury. (Strength of Evidence = C)

5. The use of other support surfaces in pressure ulcer prevention

5.1. Avoid use of synthetic sheepskin; cut-out, ring or donut type devices; and water-filled gloves. (Strength of Evidence = C)

5.2. Natural sheepskin might assist the prevention of pressure ulcers. (Strength of Evidence = B)

Some studies show that the use of natural sheepskin might help in the prevention of pressure ulcers.

SPECIAL POPULATION Operating Room Patients

1. Refine risk assessment of individuals undergoing surgery by examining

other factors which are likely to occur and will increase risk of pressure ulcer development including:

- a) *Length of the operation*
- b) *Increased hypotensive episodes intra-operatively*
- c) *Low core temperature during surgery*
- d) *Reduced mobility on day 1 post-operatively*

2. **Use a pressure-redistributing mattress on the operating table for all individuals identified as being at risk of pressure ulcer development. (Strength of Evidence = B)**

Several operating room support surfaces have been developed to redistribute pressure.

3. **Position of the patient in such a way as to reduce the risk of pressure ulcer development during surgery. (Strength of Evidence = C)**
4. **Elevate the heel completely (off load) in such a way as to distribute the weight of the leg along the calf without putting all the pressure on the Achilles tendon. The knee should be in slight flexion. (Strength of Evidence = C)**

Hyperextension of the knee may cause obstruction of the popliteal vein and this could predispose to deep vein thrombosis.

5. **Elevate the individual's heels during surgery to reduce the risk of pressure ulcer occurrence on the heel. (Strength of Evidence = C)**
6. **Pay attention to pressure redistribution prior to and after surgery. (Strength of Evidence = C)**
 - 6.1 **Place individuals on a pressure-redistributing mattress both prior to and after surgery. (Strength of Evidence = C)**
 - 6.2 **Position the individual in a different posture preoperatively and postoperatively to the posture during surgery. (Strength of Evidence = C)**



MY BACKGROUND AND FUTURE PLANS FOR THE EPUAP



Dr Cees Oomens

IN September 2008 I was elected by the board of trustees to be the next president of the EPUAP. It will be a major challenge to be the successor of our current president Carol Dealey and I would like to start by thanking all the trustees and Carol for the confidence they expressed in me.

I will be the first president of EPUAP without a medical related training so you deserve an introduction on my background and on how I got involved with EPUAP.

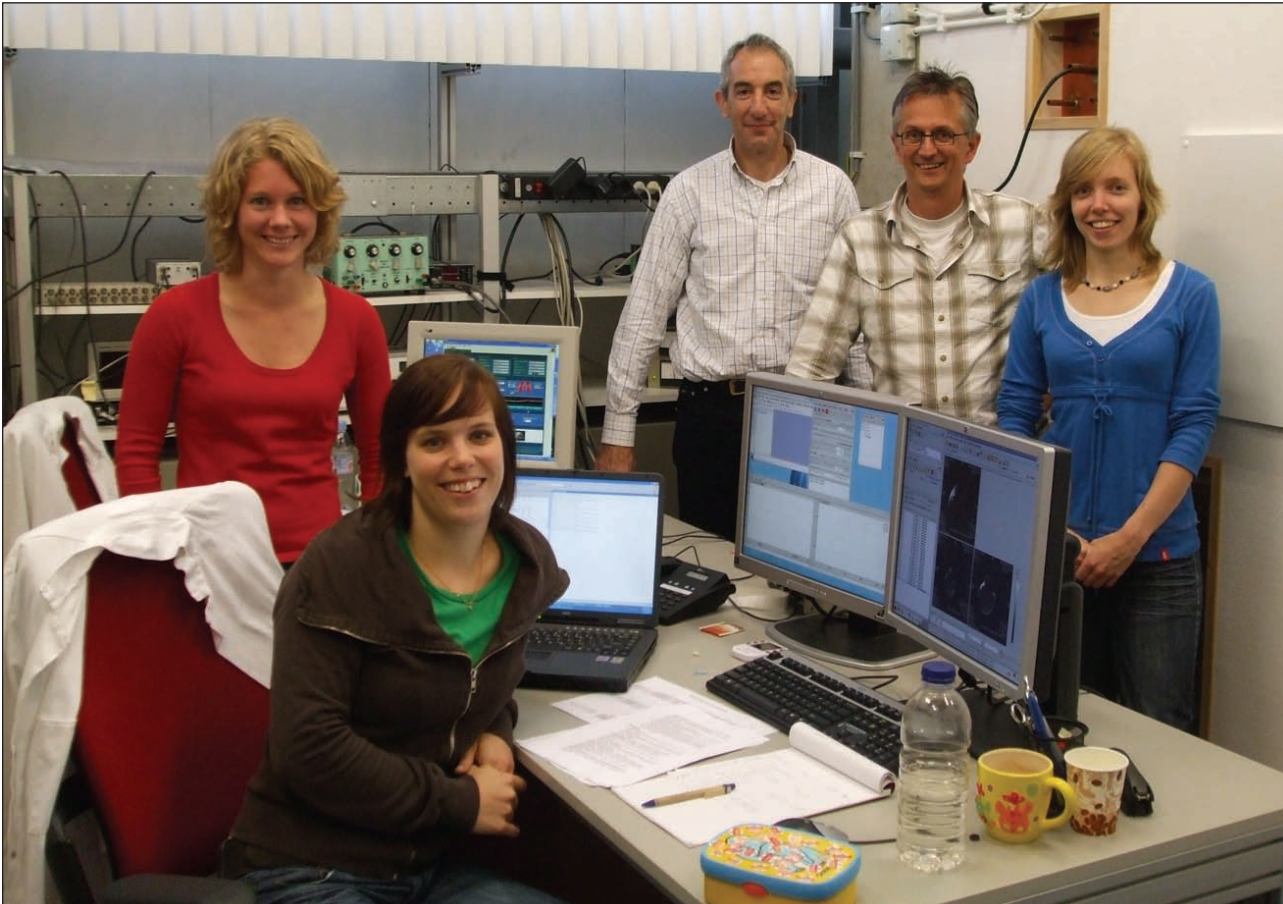
I am a physicist by training and obtained my masters degree at Eindhoven University of Technology in The Netherlands. Already, during my undergraduate studies, I developed an interest in biomedical problems and I graduated on a project on improvement of artificial heart valves. In the beginning of the eighties I moved to the University of Twente to do a PhD and that is where I first came in touch with the pressure ulcer problem. For me personally the PhD work formed the basis for my specialization in soft tissue biomechanics and a lifelong interest in the pressure ulcer problem. After my PhD in 1985 I was appointed as an assistant professor in the Mechanical Engineering Department of Eindhoven University of Technology with as my research profile: mechanical characterization of biological and technical materials. In 1990 I became an associate professor. In 1998 I moved to the department of Biomedical Engineering. In 1995 we started in Eindhoven with research on the aetiology of pressure ulcers. The reason for this was a survey that was done in the hospitals in Eindhoven and close environment on high priority problems for which the technical university could be helpful. To my surprise pressure ulcers was on top of the list. It is a problem with certainly technical (read: mechanical) aspects in it and a major issue from a societal point of view. Like most institutes we started modestly with one post-doc on university funding, later one Ph-D student, but we managed (with a lot of luck) to build a research group with on average four externally funded PhD-students and post-docs that worked at the same time on the problem. In the beginning our work was very fundamental and rather academic, but gradually (partly because our contacts with medical practitioners intensified) the goals shifted to early detection of pressure-related deep tissue injury and to the development of a monitoring system for risk assessment of patients that enter a hospital.

I would like to mention two major conditions that had an enormous influence on the success of our group. We started at a time that the Biomedical Engineering Department at TU/e was founded. Because of this a lot of money was raised or re-allocated. That allowed us to have a quick start and built up the critical mass and past performance to attract external funding. Because of this the TU/e was able to attract people from different disciplines (magnetic resonance imaging, cell and tissue engineering, cell biology, biochemistry, biomechanics) that were able to work together in one institute.

A second condition was that we started a strong international cooperation, first with Dan Bader from Queen Mary University of London resulting in a part-time appointment of Dan in Eindhoven. More recently Amit Gefen

from Tel Aviv University spent a year in our laboratory, which also forms the basis for a long lasting cooperation.

In our research we have come a long way from very fundamental studies on cells, tissue-engineered muscle and skin, animal studies and some pilots with human volunteers and patients to a point that fundamental research meets medical practice. Personally, I see it as my task for the next 5 to 10 years to bridge that gap and in one way or the other translate the knowledge that comes out of our lab (and other similar laboratories worldwide) to everyday practice in the clinic, with as the ultimate goal to prevent pressure ulcers from occurring. For readers who are interested in our research I would like to refer them to: <http://www.mate.tue.nl/~oomens>



The Eindhoven decubitus group in May 2009. From left to right: Sandra Loerakker, Emmy Manders, Dan Bader, Cees Oomens and Elise Huisman. The picture was taken in the Magnetic Resonance Imaging laboratory of Klaas Nicolay.

This brings me back to EPUAP and my role as the future president. In the last year some of our valued members in the board of trustees have stepped down and several new experienced and un-experienced, usually younger, trustees accepted the nomination. Because of this, the time was right to have a discussion on the past achievements and future plans for EPUAP. This resulted in a strategy meeting in Birmingham at the end of March, where the majority of trustees were present. There we discussed our future activities and possible effects these might have on the organization. It was a very open and stimulating discussion and we will use the results to write a strategy plan that will be presented shortly after our meeting in Amsterdam in September. At this spot I do not want to get ahead of the decisions of the trustees, but some points are worth mentioning.

Everyone in Birmingham agreed that the achievements of EPUAP in the last ten years were impressive in terms of awareness (f.e. prevalence measurements) in Europe and the influence on prevention and treatment. The

EPUAP guidelines have been translated in many languages and have formed the basis for many national guidelines all over Europe. Up to the present day requests for guidelines reach the business office every week. Recently EPUAP joined efforts with the North American Pressure Ulcer Advisory Panel (NPUAP) to develop new evidence based prevention and treatment guidelines. The final presentation of these guidelines will be done at the 12th annual meeting in Amsterdam. Activities in the field of education were many in publications, but also in our annual conference, which forms a medium for profiling of EPUAP, for education of health care professionals, for networking, for dissemination of research and for contact with industry. Several working groups have assessed themes like pressure measurements, nutrition, moisture lesions, usually resulting in valuable publications.

How we will progress in the near future will become clear when the trustees have agreed upon the future strategy, but I would like to highlight two points.

It is clear that the development of the new EPUAP/NPUAP prevention and treatment guidelines is not an end point. There is still a huge amount of work to be done, because we have to facilitate implementation of the guidelines in the different countries of Europe, each with their own vagueness within their health care system. We are committed to translate a short version as quickly as possible in the relevant languages in Europe and we will stimulate that all necessary information about the guidelines will be available for everyone who needs it. We will also continue to educate health care professionals, patients and their relatives.

Next to this I have a personal goal. Looking into the scientific literature you will notice that in the last 30 to 40 years several groups started with pressure ulcer research with one or two MSc/PhD-students and then stopped, even though what they did was worthwhile and of high quality. One of the reasons is the difficulty to get structural funding for this type of research. In Europe and many national funding agencies there is a trend to either supply personal grants to a privileged few researchers or distribute the funds via very large programs where millions of Euros are spent, but where the research has to fit within a theme. If your theme is not on the political agenda you do not have a chance of getting that funding. There are a few ways of getting around this problem, i.e. bending your research in such a way that it fits within the framework of some of the relevant themes (difficult) or put effort in putting your theme on the political agenda (even more difficult). I think that an organization like EPUAP should play a role in that, probably in cooperation with other similar societies. Researchers should also be keen on the possible application of modern technologies like nanotechnology, genomics or molecular imaging to pressure ulcers.

Until that time there is another thing we can do and that is to identify groups in Europe and worldwide that perform high quality research on similar themes and to start cooperating and use each others complementarities and expertise. We have started to do this with colleagues in both Europe, Canada and Australia. In the end this will supply critical mass for these groups and possibly the means to get large scale funding. For this our annual meeting is a very important tool. We must attract scientists with a common interest in pressure ulcers, without losing the educational, clinical 'feel' of the meeting. In that case scientists can meet each other, but also the bridge with health care professionals and industry can be crossed. All trustees in Birmingham agreed that this mixed character of our meeting makes it a unique event.

So I would like to end, by inviting you all to come to our beautiful city of Amsterdam next September for fun, education and science.

Cees Oomens
May 2009

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Our focus: understanding and meeting the needs of those directly involved in the care process:



THE PATIENT, THE CARE GIVER, THE HEALTHCARE PROVIDER

Our goal is simple, to **reduce the risk of avoidable injury** to patients and care givers in order to deliver **lower cost to the healthcare provider and improved quality of life**. We aim to enhance patient care in a number of key areas by providing tailored cost-efficient and people-centred solutions.

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The ArjoHuntleigh portfolio of showering and bathing solutions provides safe, comfortable, ergonomic access for all levels of patient mobility. Access to bathing solutions enables thorough cleansing and skin inspection, both essential for pressure ulcer avoidance, while providing a safe and pleasant alternative to the traditional 'bed-bath'.



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- **To reduce the incidence and enhance the treatment of pressure ulcers**

ArjoHuntleigh designs and manufactures a comprehensive range of both 'active' (dynamic, alternating) and 'reactive' (constant low pressure) therapeutic mattresses and cushions for the prevention and management of pressure ulcers across all care environments.

In contrast to reactive systems, our active therapy systems such as **NIMBUS**[®] and **AUTO logic**[®] mattresses are designed to maximise the potential for tissue perfusion during off-loading thus mimicking spontaneous movement or manual repositioning. These systems have been trialled



in the most challenging environments; from intensive care and spinal injury where risk is highest, to home care where constant skilled nursing intervention is lacking. When put to the test, these products consistently deliver excellent clinical and cost-efficient outcomes.

Our therapy mattresses are ideally placed to assist with patient management in line with the new (2009) International Pressure Ulcer Clinical Practice Guideline (www.pressureulcerguidelines.org) with active therapy indicated for the most vulnerable patients such as those who cannot move while specialist Wound Valves on selected mattresses will comfortably provide permanent off-loading over high risk areas such as the heels without raising the leg, extending the knee or shifting the pressure to the calf. When these mattresses are paired with an advanced bed frame, such as the **Enterprise**[®] bed, the profile further reduces pressure applied to the tissue and minimises the effect of shear.

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ArjoHuntleigh also provides a comprehensive range of equipment and clinical assessments; including self-assessment tools through to fully managed quality programmes.

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This programme recognises that facility audit frequently reports up to half of the pressure ulcers encountered having occurred during an episode of care - thus potentially avoidable. Nor is it unusual to find a high level of deviation from prevention protocols and critical gaps in care processes.

Rather than taking the typical approach of simply counting ulcers, this programme uses case-mix adjusted analysis tools to report key quality markers, trends over time, legal and financial risk. The programme builds on the Advanced Clinical Education programme and is structured to target 'hot spots' while rewarding best practice.



For more information or to pick up brochures, clinical evidence and product information please visit our website at:

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PASSPORT[™]
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FUTURE EPUAP MEETINGS

SEPTEMBER 2010

1 – 4 **13th European Pressure Ulcer Advisory Panel Open Meeting**
Theme: *The Flourishing of Science to support Prevention and healing*
University of Birmingham, UK
Abstract deadline: 1 May 2010
(by direct email to the Business Office)
For further information contact:
The EPUAP Business Office
14 Aston Street, Oxford, OX4 4EP, UK
Tel: +44 (0)1865 791725
Fax: +44 (0)1865 791725
E-mail: oxfordwound@aol.com
Website: www.epuap.org

OTHER MEETINGS

NOVEMBER 2009

9 – 11 **Wounds UK Wound Care Conference**
Harrogate International Centre, UK

APRIL 2010

6 – 9 **Oxford – South American Wound Healing School-Conference**
Sheraton Miramar Hotel & Convention Center
Vina del Mar, near Santiago
Chile
Theme: *Utilisation of wound healing knowledge for practical treatment of patients*
Abstract deadline: 15 December 2009
Early registration: 31 December 2009

MAY 2010

26 – 28 **EWMA 20th Conference of the European Wound Management Association**
Geneva, Switzerland
Abstract Deadline: 15 January 2010
Early Registration: 1 March 2010
Website: www.ewma2101.org

AUGUST 2010

4 – 7 **14th Annual Oxford – European Wound Healing Summer School**
St Anne's College
University of Oxford, UK
Contact: Oxford International
Wound Healing Foundation
14 Aston Street, Oxford, OX4 4EP, UK
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Fax: +44 (0)1865 791725
E-mail: oxfordwound@aol.com
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EUROPEAN PRESSURE ULCER ADVISORY PANEL

Membership Application Form

MISSION STATEMENT

The European Pressure Ulcer Advisory Panel's objective is to provide the relief of persons suffering from, or at risk of pressure ulcers, in particular through research and the education of the public. The European Pressure Ulcer Advisory Panel is a registered charity, number 1066856.

MEMBERSHIP APPLICATION

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Main fields of interest: _____

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