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2nd Skin Integrity & Infection Prevention Conference Book of Abstracts

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2nd Skin Integrity & Infection
Prevention Conference

Book of Abstracts

University of Huddersfield

26th and 27th June 2017

Organised by
Contact: Laura Denne, Events Manager. Tel: 0207 501 6748
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University of
HUDDERSFIELD
Skin Integrity and
Infection Prevention
(ISlaIP)


Wound Prevention and Treatment. Healthcare Technology Co-operative

Programme

Day one – Monday 26th June

08.00 – 08.30 Registration, refreshments and exhibition viewing

08.30 – 09.30 **Sponsored Symposium**, Speaker to be confirmed

CHAIR: Professor Barbara Conway
Head of Pharmacy
University of Huddersfield

09.30 – 09.45 Chair's opening remarks

09.45 – 10.15 **Infected pressure ulcers, mental capacity act and deprivation of liberties**

Jeanette Milne
Tissue Viability Nurse Specialist
South Tyneside NHS Foundation Trust

10.15 - 10.45 **Lympho-epithelial interactions in wounds: the importance of cellular state, cell proliferation related signalling and the involvement of microbial infection-associated molecular patterns in the process of wound healing**

Dr Nikolaos Georgopoulos
Reader – Biological Science,
University of Huddersfield

10.45 - 11.20 Refreshments and exhibition viewing

11.20 - 11.50 **When should I stop antimicrobial treatment?**

Professor Valerie Edward-Jones
Emeritus Professor of Medical Microbiology, Manchester Metropolitan University & Clinical Director, MelBec Microbiology Ltd

11.50 – 12.25 **Changing the spectrum of surgical site infection assessment: from visual to the infra-red**

Professor Charmaine Childs
Professor of Clinical Science,
Sheffield Hallam University

12.25 - 13.45 Lunch and exhibition viewing

13.45 – 14.40 **Wound infection, accountability and negligence.**

Keith F Cutting
Clinical Research Consultant,
Hertfordshire, UK

14.40 - 15.30 **Linking research to practice: case studies**

Leanne Atkin
Vascular Nurse Specialist, Mid Yorks NHS Trust & Lecturer Practitioner,
University of Huddersfield

Dr Jess Power
Reader and Acting Head of Department - Fashion and Textiles,
School of Art, Design and Architecture, University of Huddersfield

15.30 - 16.00 Panel discussion

16.00 Close of conference

16.00 – 18.00 Networking reception

Day two – Tuesday 27th June

08.00 – 08.30 Registration, refreshments and exhibition viewing

08.30 – 09.30 **Sponsored Symposium**, Speaker to be confirmed

CHAIR: Dr Leigh Fleming
Subject Area Leader for Mechanical Engineering
University of Huddersfield

09.30 – 09.45 Chair's opening remarks

09.45 – 10.15 **Patient's experience of using medical devices following traumatic amputation**

Terry Byrne
Former corporal at 2nd battalion, the
parachute regiment, former world champion team
sprint and world silver medallist

10.15 - 11.00 **Skin deep pressure injury prevention: Protecting deep tissues from sustained deformations**

Professor Amit Gefen
Professor in Biomedical Engineering,
Tel Aviv University, Israel

11.00 - 11.30 Refreshments and exhibition viewing

11.30 – 12.15 **The Importance of bioengineering in a skin health multidisciplinary team**

Professor Dan Bader
Professor of Bioengineering and Tissue Health,
University of Southampton

12.15 - 13.00 **A history of wound imaging: where are we today, where should we be tomorrow?**

Professor Steve Jeffery
Consultant Plastic Surgeon
University Hospital Birmingham NHS Foundation Trust

13.00 - 14.15 Lunch and exhibition viewing

14.15- 15.00 **Can we exploit the mechanosensitive properties of cells and tissues to aid wound healing?**

Dr Mark Murphy

Senior lecturer in cell biology and programme leader for the MSc Industrial Biotechnology.
Liverpool John Moores University

15.00 - 15.30 Pressure ulcer prevention in the seated individual

Professor Zena Moore

Professor and Head of the School of Nursing and Midwifery
School of Nursing, Royal College of Surgeons in Ireland

15.30 - 15.45 Panel discussion

15.45 - 16.00 Closing remarks

16.00 Close of conference

Speaker: Jeanette Milne



Position and Institution: Tissue Viability Nurse Specialist, South Tyneside NHS Foundation Trust

Learning Objectives

Infected pressure ulcers, mental capacity act and deprivation of liberties

Many patients with infected wounds consent to treatment. This and concordance with treatment regimens can be the key to achieving successful outcomes. This presentation will focus on care priorities when managing patients with infected pressure ulcers when the mental capacity act (MCA) and deprivation of liberties (DOL) standards have to be applied. In addition, it will explore how legislation can be used to help improve patient outcomes.

Learning outcomes

- Delegates will be able to recognise when patients need to have a MCA
- In addition they will be able to identify when to use DOL standards
- Explain how these apply to managing patients with infected pressure ulcers

Speaker: Dr Nikolaos Georgopoulos



Position and Institution: Reader-Biological Science, University of Huddersfield

Learning Objectives

Lympho-epithelial interactions in responses: the importance of cellular state, cell proliferation related signalling and the involvement of microbial infection-associated molecular patterns in the process of wound healing

Wound healing can be described as an immuno-epithelial ‘symphony’ that involves well-orchestrated cell migration/proliferation, inflammation, innervation and angiogenesis. The process of successful wound healing is associated with the spatial and temporal involvement of different cell types, where the type of interactions and their timing is critical and involves epithelial and mesenchymal cells, as well as immunocytes. Detecting tissue injury and responding by initiating repair is vital for survival but, interestingly, epithelial tissues have evolved to utilise infection associated “molecular patterns” (danger signals) as an important signalling factor (trigger) in the wound healing process. The presentation will provide an overview of these processes and will relate to our recent laboratory studies that have permitted a better understanding of what molecular mediators are released during successful wound healing responses.

Learning outcomes

- Wound healing is associated with the spatial and temporal involvement of different cell types (epithelial cells, fibroblasts and immune cells), where the type of interactions and their timing is critical
- Epithelial tissues have evolved to utilise molecular patterns released during microbial infection (or secreted as a consequence of infection) and these molecular patterns can dramatically influence the wound healing process
- The presentation will discuss some of our recent work with industrial partners that has focused on studies in the area of tissue regeneration and enhancement of wound healing responses.

Speaker: Professor Valerie Edward-Jones



Position and Institution: Emeritus Professor of Medical Microbiology, Manchester
Metropolitan University & Clinical Director, MelBec Microbiology

Learning Objectives

When should I stop antimicrobial treatment?

Many patients will have antimicrobial treatment for their wounds; either systemic antibiotics if the wound is showing signs of spreading infection or topical antimicrobial agents if there is a local infection. The choice of antimicrobial treatment will depend upon the results received from the laboratory (if a sample is removed for diagnosis) or will be a 'best guess' empirical treatment based on the clinical judgement of the medical practitioner or following specific guidelines of the trust. Irrespective of what is administered it is essential to monitor the treatment in the patient and stop this when it is no longer necessary. There are usually guidelines in place for systemic antibiotics but there is limited information as to when to stop topical treatments. Monitoring systemic antibiotics depends upon the antibiotic given, route of administration, tolerance of the antibiotic by the patient, allergies, whether or not the patient has liver or kidney failure and any possible drug interactions. Monitoring the impact of topical antimicrobial agents such as silver, iodine and honey is rarely undertaken as there are limited lab tests that can be undertaken to test for absorption and elimination. Currently, monitoring the impact of the topical antimicrobial is usually an ad hoc process and it is recommended that following a two-week period they should be stopped if there is no progression or change of status of the wound. They are recommended to be continued for a further two weeks if there is a visual improvement and reduction of bioburden and a reassessment for continued use.

Learning outcomes

- Be able to identify when antimicrobials should be used
- Understand how to monitor topical antimicrobial treatment

Speaker: Professor Charmaine Childs



Position and Institution: Professor of Clinical Science, Sheffield Hallam University

Learning Objectives

Changing the spectrum of surgical site infection assessment: from visual to the infra-red

Looking at wounds, with the objective of making an assessment of healing progress is tried and tested over centuries. When wounds break down, there are a number of ways that clinicians can summarise the visual appearance of the wound; scoring systems being the most common. Could we do more?

In this lecture, we will be looking beyond the visual spectrum and into the infrared. Our research shows that thermography provides an additional assessment option with the wound "thermal signature" providing new ways to stratify patients "at risk " of surgical site infection (SSI).

The objective of our research programme is to develop a novel wound surveillance technology for early forewarning of SSI which will deliver prompt and rational wound care planning, treatment options and ultimately reduced morbidity.

Learning outcomes

- Incidence of surgical site infection in contemporary healthcare
- Applications and principles of infrared thermography
- Thermal imaging and the potential for prognosis of surgical site infection

Speaker: Keith Cutting



Position and Institution: Clinical Research Consultant, Hertfordshire

Learning Objectives

Wound infection, accountability and negligence

Learning outcomes

- Comprehend the relationship of accountability, autonomous practice and duty of care
- Apply the importance of documentation in relation to the data protection act 1998
- Appraise causation in terms of negligent behaviour.

Speaker: Leanne Atkin



Position and Institution: Vascular Nurse Specialist, Mid Yorkshire Hospitals NHS Trust & Lecturer Practitioner, University of Huddersfield.

Learning Objectives

Linking research to practice: case studies

Wound healing is a complex, multifaceted process influenced by intrinsic and extrinsic factors, some of which can be controlled. When healing stalls and certain signs and symptoms are present, the wound may be critically colonised or infected. There is no single scientific test to definitively diagnose infection; wound infection is diagnosed by clinical assessment of the wound and the whole patient. It is therefore important that clinicians understand how infection develops, how signs and symptoms manifest in various aetiologies, and how and when to initiate use of topical antimicrobials and systemic antibiotics in wounds clinically diagnosed as infected.

Learning outcomes

- Increased awareness of impact for wound infection
- Ability to recognise wound infection
- Understanding of evidence underpinning the management of wound infection

Speaker: Dr Jess Power



Position and Institution: Reader and Acting Head of Department, Fashion and Textiles,
School of Art, Design and Architecture, University of Huddersfield

Learning Objectives

Linking research to practice: case studies

The project undertakes innovative experimental and industrial research contributing to the design of a child-focused “Wiggle Bag” which will be used to safely harness and reduce infection at the site of a catheter tail in the chest of long-term child cancer sufferers. Children with cancer regularly have long term central line catheters inserted in the chest to deliver medication. Often termed ‘Hickman Lines’, they result in tubing protruding from the chest, which can result in medical issues including infections, but also discomfort for the child, particularly when sleeping. The research uses an inductive approach, triangulating various research strategies including questionnaires, focus groups and interviews from parents, carers and medical personnel. QFD was used to bring together the key findings from the primary data analysis to establish a design criteria and the product development. The outcome of the research was a functional product ergonomically designed for maximum comfort and safety, with the added unique selling point of antibacterial properties.

Learning outcomes

- Designing a harness to improve well-being of children with cancer
- User-centred design and material selection
- Ergonomic design for comfort, function and dignity

Speaker: Professor Amit Gefen



Position and Institution: Professor in Biomedical Engineering, Tel Aviv University, Israel

Learning Objectives

Patient's experience of using medical devices following traumatic amputation & Skin deep pressure injury prevention: Protecting deep tissues from sustained deformations

Sustained internal mechanical deformations in soft tissues during immobile weight-bearing postures (e.g. in bed or in a chair) were identified as a fundamental cause for the onset and progression of pressure injuries, especially of the deep tissue injury type. The sustained deformations in tissues may compromise tissue viability through distortion of cell shapes and structures, which then damages biological function and cell homeostasis, e.g. by causing abnormal transport changes within and between cells. In addition, these sustained deformations impair blood perfusion and lymphatic flow which further suppresses tissue metabolism. This talk will review some of our published research concerning the effects of sustained deformations on soft tissue viability and function, with a focus on how minimizing the exposure to tissue deformations should be a central goal for protecting cell homeostasis and tissue integrity in fragile individuals over time. Specific examples which will be covered during the talk concern the specific critical characteristics of good support surfaces and other protective means, e.g. prophylactic dressings, which are required for minimizing tissue deformation exposures and hence, for efficacy in tissue protection.

Learning outcomes:

- Attendees will be able to describe the cascade of events starting at the exposure to sustained tissue deformations due to weight-bearing, and eventually ending with cell and tissue death.
- Attendees will be able to list critical characteristics of support surfaces that result in efficacy in minimizing the exposure to sustained tissue deformations.
- Attendees will be able to list critical characteristics of prophylactic dressings which lead to efficacy in minimizing the exposure to sustained tissue deformations.

Speaker: Professor Dan Bader



Position and Institution: Professor of Bioengineering and Tissue Health, University of Southampton

Learning Objectives

The importance of bioengineering in a skin health multidisciplinary team

Learning outcomes:

- Identifying bioengineering tools that can be adapted for clinical use
- Establishing robust parameters indicative of early changes to skin integrity
- Reporting the diversity of medical devices causing skin-related damage

Speaker: Professor Steve Jeffery



Position and Institution: Consultant Plastic Surgeon, University Hospital Birmingham NHS Foundation Trust

Learning Objectives

A history of wound imaging: where are we today, where should we be tomorrow?

Wounds have been represented pictorially for hundreds of years. Wounds could be measured, and their dimensions could be written down. Wound tracings could also be taken, allowing serial assessment of whether the wound was in fact getting bigger or smaller. The Digital revolution, the change from analogue and mechanical technology to digital technology, began in the latter half of the last century and continues to the present day. The reduction in cost and the increased availability of digital photography has meant that currently most people own a digital camera, and indeed most people carry around a mobile telephone capable of taking very high resolution images.

While not a new concept, the advent of recent technological advances has made the use of 3D technology in medicine increasingly available in many different forms. 3D cameras used to be the size of a small room, whereas nowadays they are hand-held. Advances in the software that control such devices has meant that three-dimensional imaging is now being used in prosthetics design, plastic and orthopaedic surgery, orthodontics and dermatology. These devices are also being shown to be particularly useful for the assessment of wounds, with the software able to calculate the dimensions of the wound, the surface area and even the volume. For the first time we are able to have a truly objective measure of whether our wounds are healing, facilitating research and directing changes in treatment.

As well as measuring the wounds, new cameras are available which can inform us regarding other aspects of the wound, such as bacterial content. In future cameras will be developed which can inform clinicians about aspects of the wound that were previously unimaginable.

Learning outcomes:

- Participants should be able to summarise the history of wound imaging
- Participants should be familiar with the current best practice regarding wound imaging
- Participants should have the confidence to develop advanced wound imaging in their own practices

Speaker: Dr Mark Murphy



Position and Institution: Senior Lecturer in cell biology and programme leader for the MSc Industrial Biotechnology, Liverpool John Moores University

Learning Objectives

Can we exploit the mechanosensitive properties of cells and tissues to aid wound healing?

Cells, by their very nature, have evolved to respond to external physical cues through a known as mechanotransduction, whereby physical cues acting on cells and tissues are converted into a biochemical response. Recent work has highlighted the potential of exploiting this mechanosensitivity, both in vivo and in vitro. For example, studies in a clinical setting have shown that applying mechanical stimulation to patients suffering from conditions such as Multiple Sclerosis can improve short term symptoms. Whilst studies using bone progenitor cells has shown mechanical stimulation to be anabolic for bone and it has been suggested mechanical stimulation may prove an effect treatment to treat patients with suffering from conditions associated with a loss of bone mass. Such studies highlight the potential of using mechanical stimulation as a novel therapeutic treatment however to date little has been done in this area, particularly when applied to wound healing.

This talk will introduce mechanotransduction and highlight recent work on the use of mechanical stimulation to enhance cell migration/wound healing. Results will be presented to highlight how mechanical stimulation can be used to increase/decrease fibroblast cell migration (in vitro), in a frequency dependent manner. Finally, the talk will discuss the potential of developing novel wound care technologies that may exploit the mechanosensitivity of cells involved in the wound healing process and potential drawbacks of such technologies with respect to infection.

Learning outcomes:

- Become familiar with mechanotransduction
- Be aware of studies which highlight the potential of applying mechanical stimulation in vitro/in vivo with respect to wound healing
- Develop ideas to test/exploit mechanical stimulation in wound care

Speaker: Professor Zena Moore



Position and Institution: Professor and Head of the School of Nursing and Midwifery,
School of Nursing, Royal College of Surgeons in Ireland

Speaker: Menno van Etten



Position and Institution: Physiotherapist, Norway

Learning Objectives

Pressure ulcer prevention in the seated individual

Learning outcomes:

- The link between seating and pressure ulcer development
- The importance of choosing the correct seat
- The importance of choosing the correct position and how to reposition persons who are seated