Why is pressure injury prevention important- the bigger picture?

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5,000 years ago
They hurt
They debilitate
They delay recovery
Psychologically
Q of L
They cost
Dollars
They are preventable
The figures

• £180–£321 million in UK annually
• Annual ICD10 coded data from 1 Australian jurisdiction
  – 2,873 pressure injuries
  – $24,234,740 additional cost to the health care system
  – The 5th most costly preventable condition

References:
2. Graves N, Birrell F & Whitby M. 2005
Evolution of prevention

- Can’t do period
- Discovery period
- Technological period
- Risk management period
The can’t do period

- Dr Jean-Martin Charcot (1879)
  - Neurotrophic theory
    “All body organs maintained by special nutrient factors secreted by the CNS”
    “Doctors could nothing about them”
- Pearce (1946)
  “a trophic ulcer is one that occurs because the nutritional nerves are affected…”
The period of discovery

• If Doctors can’t heal = nursing concern
• Pressure involved in some way
• Nightingale (1861)
  – Pressure sores could be prevented by good nursing care
The period of discovery

- **Good nursing care**
  - Back round
  - Soap & water wash and vigorous massage
  - Anointed
    - Powder
    - Oil
    - Spirit
    - Creams

- **Over time transformed to**
  - Pressure ulcers = bad nursing care
The period of discovery

• Groth (1942)
  – Pressure to ischial tuberosities of control & paralysed rabbits
  – Most severe pathology occurred in muscles with small changes to skin
  – Inverse relationship between pressure and duration
The period of discovery

• Kosiak (1959)
  – Dogs
  – Minimal pressure = 180mm Hg for 6 hours

• Kosiak (1961)
  – Rats
  – Constant and alternating pressure
  – Constant pressure 70 mm Hg over 2 hours = microscopic damage
  – Damage reduced by alternating pressure
The period of discovery

- Reswick and Rogers (1976)
  - 980 clinical observations
    - DR, Nurse and pt comments
    - Pressure measurements – patients & volunteers
  - Plotted ‘allowable pressures’
The period of discovery

- Daniel (1981)
  - Fixed skin not loose skin
  - Pigs closer to humans
The discovery period

• Tissue pressure modelling
• Shear
  – Bennett (1979)
  – Maklebust (1987)
• Blood flow
  – Sack et. Al. (1985)
    • Linked to bone depth and bone diameter
  – Kett & Levine (1987)
    • Related to distortion more than pressure
    • Longer pressure relived the longer it takes for tissue to return to a compressed state
The technological period

• Determining risk
  – Watts & Clark (1993)
    • 138 pressure ulcer prevention policies
    • 90% recommended the use of risk assessment

• Interface pressure measurement
  – Polymer sensors
  – Semiconductors
  – Metal strain gauges
  – Optoelectric sensors
The technological period

• Pressure relieving devices
  – High density and cut foam
  – Water beds
  – Alternating pressure
  – Low air loss
  – Air fluidised
  – Automated turning beds
  – High density gels
The technological period

• The micro climate
  – Maceration leads to skin breakdown
  – Keep moist areas dry
    • Foams (Santamaria 2013)
Perfusion of the heel
Data collection

TCM sensors

Laser Doppler sensor
Heel perfusion was decreased with both elevation and the use of contemporary offloading devices used in ICU
Quality

The Risk Management period

The threat of litigation

- Bench marking of prevalence
  - Grading standards
    - THE WORLD 2014
  - Examination of effectiveness
    - Do Pressure Relieving surfaces ‘work’
      - Lab studies, Clinical studies – case studies or equipment comparisons
    - Clark & Cullum (1992)
      - Four health districts over 4 years
      - Prevalence ↑ 6.7% to 14.2%
      - Pressure relieving mattresses ↑ from 69 to 186
SO WHY DO WE STILL SEE PRESSURE INJURIES?
Multifaceted

• Four top reasons given
  – Increasing age – patient and health professional
  – Increasing acuity of the patient
  – Decreased access to resources/equipment
  – Limited qualified personnel
The skin care conundrum

The view of health

Time devoted to skin care

The view of society
Any comments question or abuse?