RCN Masterclass (2009): Continence, Pressure Ulcers and Nursing Metrics

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Metrics for Nursing

In conjunction with the Darzi report (DoH 2008) the National Nursing Research Unit’s (NNRU) has identified mechanisms for giving nurses tools, training and support to improve quality of care across the country. This includes:

- Evidence based metrics to measure nurse-delivered outcomes and patient experiences
- National publication of performance data – provide examples of ‘best practice’
- Ward to board accountability…. 
Examples of Metrics (indicators) identified.

- Pressure Ulceration (development) SAFETY
- Pressure Ulcer Monitoring Systems SAFETY
- Continence FUNCTION
Why Pressure Ulceration?

‘Whilst the chances of a patient developing pressure ulcers may relate to the quality of nursing care, early detection and proper documentation of pressure ulcers is also a marker of quality care which could lead to higher rates of incidence in good quality settings than in lower quality ones’

(NNRY 2008)
What is a Pressure Ulcer?

‘A pressure ulcer is an area of localised damage to the skin and underlying tissue caused by pressure, shear, friction and or a combination of these’ (EPUAP)

‘Ulceration of the skin due to the effects of prolonged pressure, in association with a number of other variables’ (Collier 1995)
Pressure Ulcer or Moisture Lesion?
Why Continence?

The incidence of urinary incontinence rises with age, 31% of older women and 23% of older men are affected in the general population and between 30% and 85% of residents in nursing homes are incontinent.


Incidence of faecal incontinence also rises with age and around 12% of older people are affected.

Goode et al (2005)

*Incidence of both set to rise .... WHY?*
Incontinence Dermatitis
Incontinence.....Dermatitis

• Urinary and Faecal incontinence are well recognised as being significant causative factors in the development of pressure ulcers (Calianno C 2000)

• Faecal Incontinence can be described as the involuntary or inappropriate passing of liquid or solid stool (Royal College of Physicians, 1995)

• Incontinence dermatitis results in inflamed, excoriated, infected and damaged skin that causes pain, discomfort and increased risk of pressure ulcers Rees J & Pagnamenta F (2009)
Structural integrity of the skin

‘Integrity of the cutaneous basement membrane zone is ensured by the association of the epidermis to the underlying dermis by means of a series of interlinked extracellular structures, including fibrils and anchoring filaments’

Briggaman R & Wheeler C (1975)

The presence of these structural elements is critical for the stability of the dermal-epidermal junction....
2 sq. M.
P U Variables - "evidence based"

- Age
- Medical Condition
- Peripheral Vascular Disease (PVD)
- Drug Therapy
- Nutrition
- Medical Interventions
- Patient Support Surfaces
- Care being Given
Extremes of age/Terminal illness:

EXTREMES OF AGE

Pressure ulcers are associated with increasing age – most prevalent in patients over 70 years of age

TERMINAL ILLNESS
Hanson et al (1991) identified that 62% of pressure ulcers in hospice patients occurred within two weeks of death.
Incontinence/Moisture on the skin:

The main effect of urinary incontinence is an increase in skin humidity resulting in an exacerbation of localised shear and friction forces \textit{Flam E (1990)}. Faecal and or double incontinence has been shown to be the most significant parameter of the Norton Score for predicting the development of pressure ulcers in an elderly population \textit{Norton et al (1975)}.

\textbf{MOISTURE}

Moisture alone on the skin will not cause a pressure ulcer, the presence of the same on the skin for ‘prolonged periods’ of time has been shown to exacerbate forces being exerted on the relevant anatomical area \textit{Macklebust (1987) Flam (1990)}. 
Incontinence

- Glasgow 1977 - 3.7% of incontinent patients had pressure ulcers (Jordon and Clark)

- 15.5% with urinary incontinence had PU

- 39.7% with faecal incontinence had PU

- Faecal incontinence may be more important than urinary (Allman et al 1986)

- Irvine 1996 – 10 – 20% prevalence of faecal incontinence in elderly hospitalised population
Excessive skin moisture

‘Excessive moisture from urine, sweat and frequent washing increases the skin’s coefficient of friction’

(Lutz J 2001)

‘An increase in this coefficient increases the skin’s susceptibility to rubbing and chafing against a number of materials such as incontinence pads, clothing and sheets, it also increases the permeability of the skin to chemical irritants’....
Why is this important?

- Moisture can originate from many sources
- Maceration and excoriation also reduces tissue tolerance
- The role of other skin irritants needs to be reviewed
- Pressure ulcers have been directly linked with the ageing process – not all ‘elderly’ patients suffer from incontinence (Roberts and Goldstone 1979)
- Aetiology of pressure ulcers not yet fully understood!
- Health Related Quality of Life Issues (HRQoL)
- Cost implications to …
Finite NHS resources?

Annual cost of wound care to NHS = £3.1bn
Posnett and Franks (2007)

Estimated annual NHS budget – £33bn (1996/7)
Now £98bn (White R 2008)

Cost to NHS for one Pressure Ulcer episode...
£130,000.00

Other comparative costs....

Grade 4 - 40,000 Sterling

Grade 3 - 15,000 Sterling

Grade 2 - 2,500 Sterling

Grade 1 - 1,000 Sterling

(EPUAP Grading 1997)
Do risk assessment tools reflect the debate?

- Norton (1962 – UK) - urinary/faecal/both
- Gosnell (1973 – USA) – level of control
- Knoll (1983 – USA) - urinary/faecal/both
- Waterlow [1984 (revised 2005) – UK) Incontinence (variations)
- Braden (1985 – USA) Moisture sub scale
Most widely used assessment tools

Braden Risk Assessment Scale

WATERLOW PRESSURE ULCER PREVENTION/TREATMENT POLICY
RING SCORES IN TABLE, ADD TOTAL. MORE THAN 1 SCORE/CATEGORY CAN BE USED

SPECIAL RISKS

TERMINAL CACHEXIA
MULTIPLE ORGAN FAILURE
SINGLE ORGAN FAILURE (RESP: RENAL, CARDIAC)
PERIPHERAL VASCULAR DISEASE
ANEMIA (Hb < 8)
SMOKING

ORTHOPAEDIC/SURGICAL
ON TABLE > 2 HOURS
ON TABLE > 6 HOURS
MEDICATION - CYTOXIC, LONG TERM HIGH DOSE STEROIDS, ANTIMAILITRATORY, MAX OF 4

© J Waterlow 1985 Revised 2005
Obtainable from the Nook, Stoke Road, Henlade TAUNTON TA3 SLX
* The 2005 revision incorporates the research undertaken by Queensland Health.
www.judy-waterlow.co.uk
Other related concepts:

- Reactive Hyperaemia (Lewis and Grant 1925)
- Capillary closure pressure (Landis E, 1930)
- Pressure on the skin – calculation (Bennett L and Lee B 1986)
- Cone of pressure (McClemont E, 1994)
What damages the skin of our patients?

- Direct pressure (Compression)
- Shearing forces and friction?
- Urinary and faecal incontinence – a condition where any involuntary loss is a social or hygienic problem (Button 1995)
- Exudate
- Wound products
- Sweat/Moisture
- Surgery
What can we do?

• Regularly re-assess patients to identify those ‘at risk’
• Use appropriate patient support surfaces – mattresses, chairs and cushions
• Use low friction surfaces when possible
• Do NOT use plastic draw sheets or plastic pants
• Keep sheets wrinkle free, but not taut
• Ensure ‘best practice’ re: skin cleansing / wound management techniques
• Deal with any episodes of incontinence appropriately
Pressure Ulcer or Moisture Lesion?
Moisture Lesion or Pressure Damage?

- Dermatitis – an inflammatory condition of the skin (may be acute or chronic). Treatment specific to the cause e.g. contact (related to size of dressing)

- Maceration – ‘water logging’ of the tissues (transient)

- Excoriation – damage to the upper layers of the skin due to the presence on the same of a toxin / toxic substance
Why does urinary and faecal incontinence damage skin?

- Urine or faeces alone will directly irritate the skin if allowed to dry on it causing dermatitis, aggravating any skin breaks and potentially causing infection.
- It is believed that ammonia in urine and faeces causes dermatitis.
- pH of skin important.
- Skin pH varies for each individual – normal 4 – 5.5.
Why does urinary and faecal incontinence damage skin?

Urinary pH varies but is acidic 5.5 – 7

Ammonia from urine and faecal matter raises the pH of the skin. pH <6 increases the activity of faecal enzymes which damages the skin.

The skin can become over hydrated and has an increased permeability, which in turn makes it more at risk from friction and shear

Provision of a damp warm environment is ideal for the proliferation of potentially pathogenic organisms
Moisture to the skin – a potential irritant!

‘These recommendations have been identified from cohort studies (various) the logic and principles of physiology are supported by key professionals experience and opinion’

Rycroft-Malone and McInness (2000)

‘Need for further epidemiological studies’

McGough (1999)
Principles for best practice - incontinence

- Clearly define different degrees of incontinence in order to develop guidelines
- Deal with each patient realistically - addressing their individual needs
- ‘Nip the problem in the bud’
- Provide incontinence aids only after a thorough assessment process/management plan identified and documented
- Encourage use of cost effective choices
- Use national guidelines (NICE/RCN) and benchmarks as applicable
Faecal incontinence

• The causes of faecal incontinence are numerous and multi-factorial, but largely as a result of neurological disease, nutritional problems and bowel dysfunction

• Bowel dysfunction can also be caused by constipation, faecal loading, diarrhoea or a defecation disorder

• Infection e.g. Clostridium difficile (C diff)
Faecal incontinence

- Stool contains both proteolytic and lypolytic enzymes which are used in the normal digestion process
- These enzymes are normally deactivated as the stool passes through the GI tract by adjustment of the faeces to a near neutral pH of 7.15
- When urine and stool mix, bacteria in the stool convert urea in the urine to ammonia
- Increases ammonia results in a dramatic shift in pH of both the skin and stool well into the alkaline range
- This pH shift reactivates the digestive enzymes found in the stool and they attack the skin
Healthy skin

- Increased Friction and Shear
- Increased Skin permeability

Weakened Skin

- Physical and Chemical irritants
  - Faecal enzymes attack skin
  - Urea → ammonia → pH

Incontinence Dermatitis

- Friction and Shear
- Chemical irritants
- Enzymatic irritation
- Microbial Infection

Further skin Breakdown

- Pressure
- Poor Nutrition
- Disease processes
What can we do?

- Protect skin – soap and water should not be used!
- Commercial soaps tend to be alkaline in nature and may cause further damage by raising the pH and extending the damage to the delicate acid mantle.
- The acid mantle is vital to the skin integrity – aids the natural co-existence of skin flora (protective).
- Surfactants in soap are irritants and therefore likely to increase risk of dermal injury.

(Bryant and Rolstad 2001)
Skin cleansing

- No consensus over the frequency of washing/bathing, but agreement over the need to keep skin clean and dry
- Soaps and detergents can cause dermatitis (Leydon 1986) and frequent vigorous cleansing with them can aggravate already damaged/inflamed skin
- Perfumed soaps and bubble baths should not be used
- Soap if not efficiently removed can intensify dryness
- Consider soap substitutes such as...Clinisan
- Pat skin dry rather than rub
- Talc, small amount – not perfumed
What can we do?

- Use skin cleansers that contain Humectants such as glycerine, esters, lanolin, cetyl or stearyl, alcohol as well as mineral oils, as they prevent the loss of natural moisture from the skin (Nix 2006)
- Moisture barrier creams
- Liquid barrier films
- Faecal collection system such as....
- Wound management products as indicated following a thorough assessment process (Collier 2003)
Faecal incontinence – clinical guideline 49 (NICE) June 2007

Key priorities for implementation...

- Ensure good clinical practice – management
- Ensure baseline assessment and appropriate initial interventions
- Identify when specialised management required
- Involve patients in long-term management planning
- Identify specific groups who need assistance
- Consider surgical interventions when appropriate
What can we do?

• Assess the reasons for and intervene appropriately
• Identify nature of the incontinence
• Select an appropriate management method
• Utilise specialists i.e. Tissue Viability / Continence advisors
• Use an appropriate skin cleansing regime
• Select appropriate topical applications
Topical applications

- Moisture creams on intact skin e.g. Cavilon cream
- Broken and irritated skin e.g. Cavilon spray/swabs
- Simple cheap and effective barrier cream – zinc and castor oil
- How to apply – smoothed on using long strokes in the direction of hair growth.
Pressure Ulcer or Moisture Lesion?
ANY QUESTIONS?