

# Assessment of Decubitus

EAMA VIII  
Juni 2008

## Definition

lat. decubare = lay down, by *Hildanus* 1590

Pressure ulcers are problematic both by their human aspects (morbidity-mortality, self-image, quality of life) and their medical-economic repercussions.

Prevention: costeffective is not costsaving

THE IMPACT OF A TOPICAL AGENT (Corpitolinol 60) IN PRESSURE ULCER PREVENTION IN ELDERLY HOSPITALISED PATIENTS (GIPPS STUDY)  
*Barrois B.1, Meaume S.2, Colin D.3, Bohbot S.4 and Allaert F.A.5., 2005*

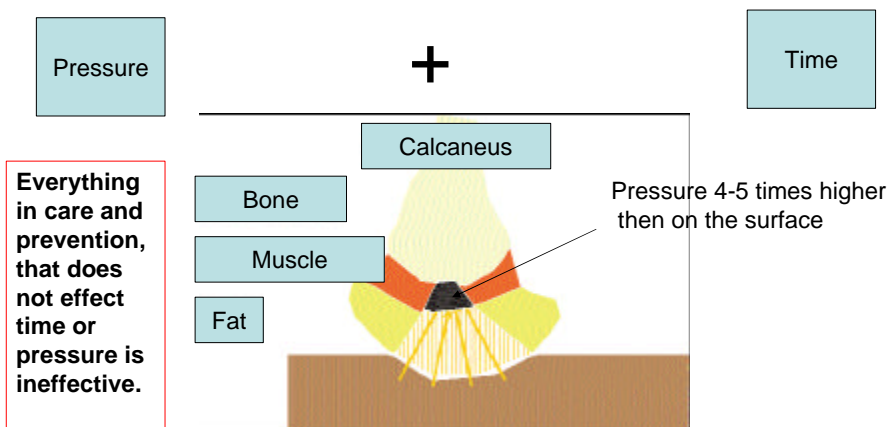
## Pressure damage is common in many healthcare settings across Europe

- Prevalence 0,4 – 85%
  - Different risk structure
  - Different documentation: a lot of studies document only Grade 2-4, but 50% is Grade 1

It has nothing to do with Prevention and Care!

Austrian Wound Association, 2005

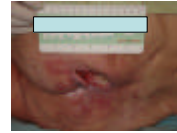
## Pathophysiology



Dekubitusprophylaxe, Erster nationaler Expertenstandard, Schröder G., (2003)  
Österreichische Pflegezeitschrift

## Grading according to Seiler, 1979

- **Stage I**  
**Nonblanchable erythema** of intact skin heralding lesion of skin ulceration. In individuals with darker skin, discoloration of the skin, warmth, edema, induration or hardness may be indicators.
- **Stage II**  
Partial thickness skin loss involving epidermis, dermis, or both. The ulcer is **superficial** and presents clinically as an abrasion, blister, or shallow center.
- **Stage III**  
Full thickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through underlying fascia. The ulcer presents clinically as **deep crater** with or without undermining of adjacent tissue.
- **Stage IV**  
Full thickness skin loss with **extensive destruction**, tissue necrosis, or damage to muscle, bone, or supporting structures (e.g, tendon, joint capsule). Undermining and sinus tracts also may be associated with Stage IV pressure ulcers.



## Grading according to Daniel 1979

- **Grade I**  
A skin area of **erythema** or induration overlying a **bony prominence**, i.e. an incipient pressure sore.
- **Grade II**  
A skin area of **superficial ulceration** extending into the dermis.
- **Grade III**  
An ulcer extending into the **subcutaneous tissue**, but **not into the muscle**.
- **Grade IV**  
A deep ulcer extending **through muscle** down to the bony prominence.
- **Grade V**  
An **extensive ulcer** with widespread extension along **bursae**, or into **joints** or **body cavities** (rectum, vagina, etc.)

Daniel RK, Hall EJ, MacLeod MK.  
Pressure sores-a reappraisal.  
Ann Plast Surg. 1979 Jul;3(1):53-63.

## Assessment = Riskassessment Clinical Judgement

### Intrinsic Factors

- Immobility
  - Stroke
  - Parkinson Disease
  - Dementia
  - Depression
  - Infection
  - Chronic Heard Failure
- Incontinence
- Malnutricion
  - Diabetes
  - Tumer
  - Kachexia
  - Protein and Vitamine deficiency
- Insensitivity
  - Diabetes
  - Decreased blood circulation
  - Arterial occlusion
- Decreased blood circulation
  - Chronic Heard Failure
  - Diabetes
  - Arterial occlusion
- Infection
  - Chronic skin infections
- Bone deformity
  - Hallux valgus

### Extrinsic Factors

- Pressure
  - Hard mattress
  - Operating table
  - No regular Transfer
- Shearing forces
  - Sitting instability chair/ bed
  - Microtraumata of the skin
  - Cuttling
  - Rough surface
- Skin damage
  - bad Hygiene
  - Moistness
- Drug treatment
  - Cortison
  - Zytostatika

### General medical condition

- Skin assessment
- Mobility
- Moistness
- Incontinence
- Nutrition
- Pain

Expert Expert Expert Expert Expert Expert Expert Expert Expert Expert

## Risk assessment tools

There are more then 30 scales:

- Norton-Scale (1962)
- Bliss-Scale (1966)
- Gosnell-Scale I and II (1973 und 1987)
- Waterlow-Scale (1985)
- Braden-Scale (1985)
- Modified Norton-Scale (Bienstein, 1985)
- Douglas-Scale (1986)
- Medley-Scale (1987)
- CBO-Scale (1999)

No scale is said to be the best, but it is recommanded to use one. Validity and Reliability are never both good enough.

Braden- and Norton-Scale are overestimating risk. Experience and knowledge is necessary for interpretation.

Expert Expert Expert Expert Expert Expert

# Norton

- **Die Norton-Skala**
  - developed 1962 in England
- **5 Criteria**
- Physical Situation
- Psychological Situation
- Activity
- Mobility
- Incontinenz
- 1-4 Points each Criteria
- less than 14 Points -> Risk

# Braden

BRADEN SCALE FOR PREDICTING PRESSURE SORE RISK

PATIENT'S RISK	NURSE'S RATING				TOTAL SCORE
	1	2	3	4	
<b>SENSORY PERCEPTION</b> ability to respond meaningfully to pressure-related discomfort	1. Completely Limited Unresponsive to noxious stimuli. No or grossly impaired ability to distinguish level of discomfort or location. <b>OR</b> Inability to feel and/or cover most of body	2. Very Limited Responds only to painful stimuli. Cannot communicate discomfort except by moaning or moaning. <b>OR</b> Has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body.	3. Slightly Limited Responds to verbal commands, but cannot always communicate discomfort or the need to be turned. <b>OR</b> Has some sensory impairment which limits ability to feel pain or discomfort in 1/4 to 1/2 of body.	4. Not Impaired Responds to verbal commands. Has no sensory deficit which would limit ability to feel or communicate pain or discomfort.	
<b>MOBILITY</b> degree to which one is exposed to moisture	1. Completely Limited Inable to turn/shift position, consistently by themselves, into and out of bed/ chair or to change any time position is needed or desired.	2. Very Limited Turns in bed, but not always when linen must be changed or moist once a shift.	3. Occasionally Limited Turns in room, but not always when linen must be changed or moist once a shift.	4. Fully Mobile Turns in room daily. Linen only requires changing at routine intervals.	
<b>ACTIVITY</b> degree of physical activity	1. Bedfast Confined to bed.	2. Chairfast Able to walk several times or non-ambulant. Cannot bear own weight and/or must be assisted into chair or wheelchair.	3. Walks Occasionally Walks occasionally during day, but for very short distances, with or without assistance. 3 or more regularly of staff in bed or chair.	4. Walks Frequently Walks in room at least twice a day and outside room at least once every two hours during waking hours.	
<b>MOBILITY</b> ability to change and control body position	1. Completely Limited Inable to move even slight changes in body or extremity position without assistance.	2. Very Limited Needs occasional slight changes in body or extremity position but unable to raise head or extremities independently.	3. Slightly Limited Makes frequent slight changes in body or extremity position independently.	4. No Limitation Makes minor and frequent changes in position without assistance.	
<b>NUTRITION</b> usage food/drink pattern	1. Very Poor Never eats a complete meal. Heavy with more than 10 of any food offered. Gets 2 servings or less of protein, fruit or dairy products per day. Never takes a liquid dietary supplement. <b>OR</b> Is NPO and/or dependent on tube feeds or PN for more than 5 days.	2. Problematic/Inadequate Eats only a complete meal and generally eats only about 1/2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. <b>OR</b> Received less than adequate amount of food and/or tube feeding.	3. Adequate Eats most of or more meals. Gets a total of 4 servings of protein, fruit, dairy products per day. Occasionally will refuse a meal, but will usually take a supplement when offered. <b>OR</b> Is on a tube feeding or TPN regimen which probably meets most nutritional needs.	4. Excellent Eats most of meals, meals never refused a total of 4 servings of protein, fruit, dairy products per day. Occasionally will refuse a meal, but usually takes a supplement when offered.	
<b>INCONTINENCE</b>	1. Problematic Needs assistance to maintain continence in clothing. Continence items require washing, require frequent repositioning with incontinence assistance. Incontinence contributes to skin breakdown.	2. Problematic Needs help or requires incontinence assistance. Clothing a change with incontinence items in some extent. Requires frequent repositioning with incontinence assistance. Incontinence contributes to skin breakdown.	3. No Incontinence Needs help or requires incontinence assistance. Clothing a change with incontinence items in some extent. Requires frequent repositioning with incontinence assistance. Incontinence contributes to skin breakdown.	4. Excellent Needs help or requires incontinence assistance. Clothing a change with incontinence items in some extent. Requires frequent repositioning with incontinence assistance. Incontinence contributes to skin breakdown.	

15-16 = low risk, 13-14 = moderate risk, 12 or less = high risk

# Waterlow

## Waterlow Scale

<b>Build/Weight for Height</b>		<b>Mobility</b>		<b>Special Risks</b>	
Average	0	Fully	0	Tissue Malnutrition	8
Above Average	1	Restless/Fidgety	1	E.g. Terminal cachexia	
Obese	2	Apathetic	2	Cardiac Failure	5
Below Average	3	Restricted	3	Peripheral Vascular Disease	5
		Inert/Traction	4	Anemia	2
		Chairbound	5	Smoking	1
<b>Continence</b>		<b>Sex/Age</b>		<b>Neurological Deficit</b>	
Complete/Catheterized	0	Male	1	E.g. Diabetes, MS, CVA, Motor/Sensory, Paraplegic	4-6
Occasional	1	Female	2		
Cath/Incontinence of Feces	2	14-49	1		
Doubly Incontinent	3	50-49	2		
		65-74	3		
		75-80	4		
		81+	5		
<b>Skin Type</b>		<b>Appetite</b>		<b>Major Surgery/Trauma</b>	
<b>Visual Risk Areas</b>		Average	0	Orthopedic – below waist, spinal	5
Healthy	0	Poor	1	On Table – 2 Hours	5
Tissue Paper	1	NG Tube/Fluids Only	2		
Dry	1	NBM/Anorexic			
Oedematous	1				
Clammy (temp)	1				
Discolored	2				
Broken/Spot	3				
				<b>Medication</b>	
				Steroids, Cytotoxics, High Dose Anti-Inflam.	4
<b>SCORE</b>	<b>10+ AT RISK</b>	<b>15+ HIGH RISK</b>	<b>20+ V. HIGH RISK</b>		

SEVERAL SCORES PER CATEGORY CAN BE USED; ADD TOTAL

## EUROPEAN PRESSURE ULCER ADVISORY PANEL *Pressure Ulcer Prevention Guidelines 1998*

- **Identify 'at risk' individuals** needing prevention and the specific factors placing them at risk. **Risk assessment** should be used as an **adjunct to clinical judgement** and not as a tool in isolation from other clinical features. [C]
- There should be clarification of a full risk assessment in patients to include: **General medical condition, skin assessment, mobility, moisture and incontinence, nutrition and pain.** [C]
- **Assessment of risk should be more than just the use of an appropriate risk assessment tool** and should not lead to a prescriptive and inflexible approach to patient care. [C]
- Whilst risk assessment should be performed **immediately on entry** into an episode of care, this assessment may take time to fully complete if information is not readily available. [C]
- Assessment should also be ongoing and frequency of **re-assessment** should be dependent on change in the patient's condition with the environment.

- RISK ASSESSMENT TOOLS AND RISK FACTORS**

**Goal:** Identify 'at risk' individuals needing prevention and the specific factors placing them at risk  
 We believe that there are a number of issues associated with risk assessment tools. Risk assessment should be used as an adjunct to clinical judgement and not as a tool in isolation from other clinical features. [C]  
 There should be clarification of a full risk assessment in patients to include:  
 General medical condition, skin assessment, mobility, moistness and incontinence, nutrition and pain. [C]  
 All strategies related to pressure damage should always be based on the best available evidence.  
 Assessment of risk should be more than just the use of an appropriate risk assessment tool and should not lead to a prescriptive and inflexible approach to patient care. [C]  
 Whilst risk assessment should be performed immediately on entry into an episode of care, this assessment may take time to fully complete if information is not readily available. [C]  
 Assessment should also be ongoing and frequency of re-assessment should be dependent on change in the patient's condition with the environment.
- Goal:** Maintain and improve tissue tolerance to pressure in order to prevent injury  
 Skin condition should be inspected and documented daily and any changes should be recorded as soon as they are observed. Inspection must be documented.  
 Initial skin assessment should take into account the following:

  - Bony prominences (sacrum, heels, hips, ankles, elbows, occiput) to identify early signs of pressure damage.
  - Identify the condition of skin - dryness, cracking, ery-thema, maceration, fragility, heat and induration. [C]
- Every effort should be made to optimise the condition of the patient's skin. Assessment of patients with dark or tanned skin is especially difficult. [C]  
 Avoid excessive rubbing over bony prominences as this does not prevent pressure damage and may cause additional damage. [C]  
 Find the source of excess moisture due to incontinence, perspiration, or wound drainage and eliminate this, where possible. When moisture cannot be controlled interventions that can assist in preventing skin damage should be used. [C]  
 Skin injury due to friction and shear forces should be minimised through correct positioning, transferring and repositioning techniques. [C]  
 Following assessment nutritionally compromised individuals should have a plan of appropriate support and/or supplementation that meets individual needs and is consistent with overall goals of therapy. [C]  
 As the patient's condition improves the potential for improving mobility and activity status exists, rehabilitation efforts may be instituted if consistent with the overall goals of therapy. Maintaining activity level, mobility, and range of movement is an appropriate goal for most individuals. [C]  
 All interventions and outcomes should be monitored and documented. [C]
- EXTERNAL PRESSURE AND SUPPORT SURFACES**

**Goal:** Protect against the adverse effects of external mechanical forces; pressure, friction and shear  
 Any individual who is assessed to be at risk of developing pressure ulcers should be repositioned if it is medically safe to do so. [B] Frequency of repositioning should be consistent with overall goals. [C] Documentation to record repositioning should be completed. Correct positioning and support is important to minimise friction and shear in both bed and chair. [C]  
 Correct positioning or devices such as pillows or foam wedges should be used to keep bony prominences (for example knees, heels or ankles) from direct contact with one another in accordance with a written plan. [C] Care should be taken to ensure that these do not interfere with the action of any other pressure relieving support surfaces in use. [C]  
 When repositioning patients do so in such a way as to minimise the impact on bony prominences. [C]  
 Devices to assist manual handling should be used during transfer and positioning of patients to minimise shear forces for those patients who require assistance in movement in accordance with EU manual handling regulations.  
 In all care settings individuals considered to be at risk of developing pressure ulcers should have a personalised written prevention plan which may include a pressure redistributing device. [C]  
 Patients at risk of developing pressure ulcers because of the time spent sitting in a chair should be allocated a chair of the correct height in addition to a pressure relieving device. [C]  
 Any person who is acutely ill and is at risk of developing a pressure ulcer should avoid uninterrupted sitting out of bed. [B] The period of time should be defined in the individualised care plan but generally will not be more than two hours. [B] Individuals, where appropriate, should be encouraged to reposition themselves if this is possible. [C]  
 Individuals at risk from pressure ulcers who are likely to spend substantial periods of time in a chair or wheel chair should generally be provided with a pressure redistributing device. [C]  
 Individuals who are able should be taught to redistribute weight every fifteen minutes. [C]

# Time

1981

Skin breakdown did not occur with a pressure of 200mmHg for 15 hours  
 (former hypothesis 35 mmHg for 2 hours)  
 ...and that the pressure-duration threshold  
 for the production of pressure sores is lowered dramatically  
 following changes in the soft tissue coverage due  
 to paraplegia, infection, or repeated trauma.

[Daniel RK, Priest DL, Wheatley DC](#) , Etiologic factors in pressure sores: an experimental model, Arch Phys Med Rehabil. 1981 Oct;62(10):492-8

1996

Time can be very different concerning health status (1/2h to...?),

Gunnwicht BR, Management of pressure sores in a spinal injuries unit, Journal of Wound Care 1996; 5(1): 36-39.

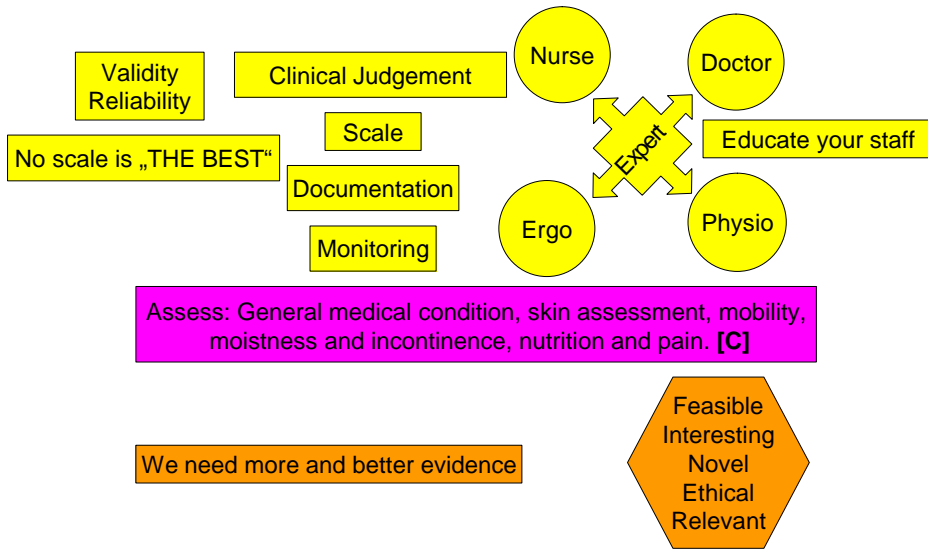
2007

We hypothesise that normal tissue is far more resistant to pressure-induced ischemia  
 that previously considered

Maggie P. C. Kwan\*, Eric W. C. Tam\*, Samuel C. L. Lo.,<sup>1</sup> Mason C. P. Leung and Roy Y. C. Lau\* ,  
 The Time Effect of Pressure on Tissue Viability: Investigation Using an Experimental Rat Model  
 Experimental Biology and Medicine 232:481-487 (2007)  
 © 2007 Society for Experimental Biology and Medicine

# Take Home Message

$$\text{Time} + \text{Pressure} = \text{Decubitus}$$



Thank you for your attention

and

ALL THE BEST TO THOSE WHO FINISH THE

EAMA COURSE THIS WEEK!