SKIN

The largest organ of the body consisting of the skin and its appendages

Medical Term : Integumentary System

Cherrie Lucasan RGN
St. Lukes Home

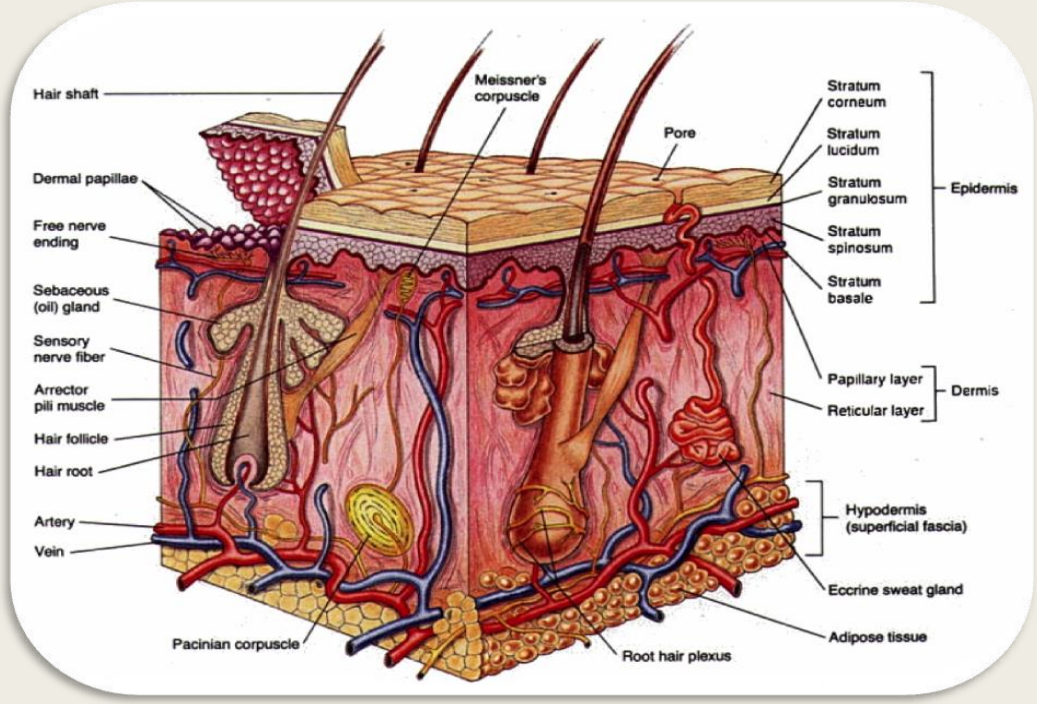
Functions:

- To protect against biological invasion, physical damage and ultraviolet radiation.
- As a means of Selective Secretions (Sebum, sweat)
- To provide Thermoregulation through sweating and regulation of blood flow.
- Synthesis of Vitamin D.

3 Layers of the Skin

- **Epidermis**: Consist of stratified epithelium; the outer layer, continually shedding dead cells.

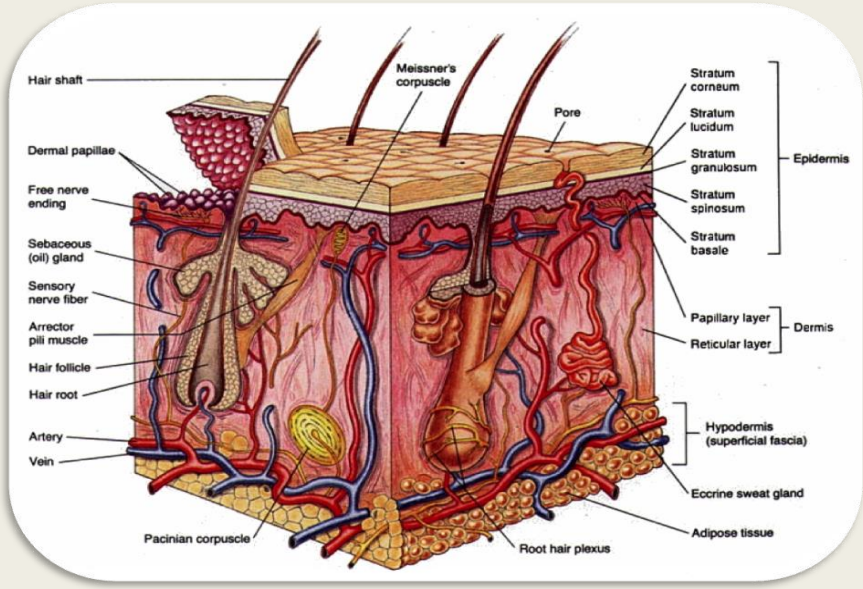
- Slightly acidic PH 4.5-6. The basal layer is constantly forming new cells. Gradually moving towards the surface and flattening during the process prior to being shed from the surface of the skin, it takes between 28-35 days.



Dermis

- Key purpose is to support and provide nutrition to the epidermis. Other constituents includes: Fibroblast, Mast cells, Multiple blood and Lymph vessels, Nerve endings, Hot and cold receptors, Tactile sensory organs.

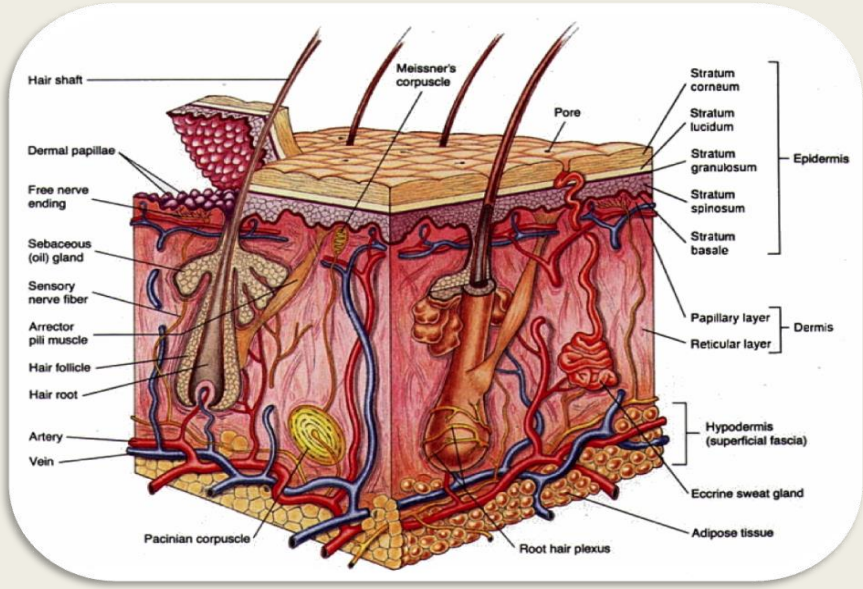
- It contains sweat glands, sebaceous glands & hair follicles.



Hypodermis

- The superficial facia provides anchorage to the skin while allowing some capacity for it to move.

- Support to the dermis, made up of primarily adipose tissue, connective tissue, blood vessels. The fat stored within the hypodermis offers protection to the internal structures and insulates against cold.



Appendages of the skin

- **Hair-** Made up of keratin, at the lower end is a bulb or root that is enclosed in a follicle that produces the hair.
- **Nails-** Specialized type of keratin and are situated over the distal surface of fingers and toes.
- **Function of nails:** To assist within the development of five motor skills such as grasping, scratching and manipulator. It provides protection against trauma to fingers and toes.
- **Sebaceous Glands-** Located on all parts of the skin except palms; more prominent on the scalp, face, upper torso and genitalia, producing Sebum which keeps skin moist

Appendages of the skin

- **Blood Vessels-** Arterioles, Capillary network, Venules: Responsible for transport and distribution of oxygen, nutrients and hormones as well as renewal of waste product.

- **Nerve Fibres-** Within the dermis they are both sensory and motor nerves. The Sensory nerve endings are sensitive to touch or initiate signals producing sensation of warmth, coldness, pain, pressure, vibration, and also itching.

- **Lymphatic Vessels-** Matches the blood vessels supply function.

What happens to the skin as we get older?

- As the skin ages it becomes:
  - thinner and loses elasticity
  - more wrinkled and saggy.
  - fat under tends to decrease, making the skin more prone to bruising, more fragile and easily damaged.
  - reduced blood supply means any injuries to the skin may be slow to heal
  - regulation of body temperature is not as effective.
  - loss of natural moisturising factors in the older person’s skin also reduces skin hydration and causes it to become dry and flaky.
  - Dry skin is itchy and this can lead to scratching and skin breakdown.

Skin Integrity

- Having skin integrity means having skin that is whole, healthy, undamaged and intact.

- When skin has integrity, it is less prone to tearing or bruising and conveys pleasant and unpleasant sensations more easily.

How to maintain Skin integrity

- Neither costly nor difficult

- Skin hygiene is essential for skin health and important in promoting personal wellbeing. For older people with dry skin it is particularly important to achieve a balance between cleanliness and overwashing, which may damage the barrier function. Use of appropriate washing products and emollients can contribute to maintaining skin health.

- Diet and Nutrition and hydration is essential to maintain good skin.

What causes skin Damage?

- **Pressure** Is a continuous physical force exerted on or against an object by something in contact with it.
- **Shear** A strain produced by pressure in the structure of a substance, when its layers are shifted laterally (sideways) in relation to each other (the skin and underlying body are pulled in different directions, e.g. when a person slips down the bed).
- **Friction** Is the action of one surface or object rubbing against another, e.g. heels rubbing against a sheet .
- **Moisture** Water or other liquid, e.g. urine, faeces and sweat in contact with the skin
- **Trauma** Physical injury for example due to cutting, tearing or burning.

SKIN ASSESSMENT

- Routine skin inspection should be done on admission as part of holistic assessment and then checked at least every day

- Inspect all areas of the skin regularly, with particular attention paid to bony prominences, creases such as groins, armpits, buttocks and areas of skin that come into contact with devices such as catheters, compression stockings etc.

- When inspecting the skin, look for any of the following early signs of pressure damage.

Contd.... SKIN ASSESSMENT

When inspecting the skin, look for any of the following (early signs of pressure damage):

1. Reddened areas of skin on light skinned people
2. Blue/purple patches on dark skinned people
3. Blisters
4. Hot or cool areas
5. Swelling
6. Signs of irritation and scratches
7. Discoloration, Pigmentations and patches
8. Hard lumps
9. Inspect in between fingers and toes distinguish lesions on the back of the hand and on the palm.
10. Examine toes the same way as you examine the hands.

Where an area of redness or skin discolouration is noted, it is important to check the integrity of the skin using the finger test below:

Blanching is when the colour returns to the skin after pres-sure is released.

Is the Skin PINK or RED?

Put pressure on the area with your thumb or finger.

Press and hold.

Look at the colour of the skin when you release your thumb or finger.

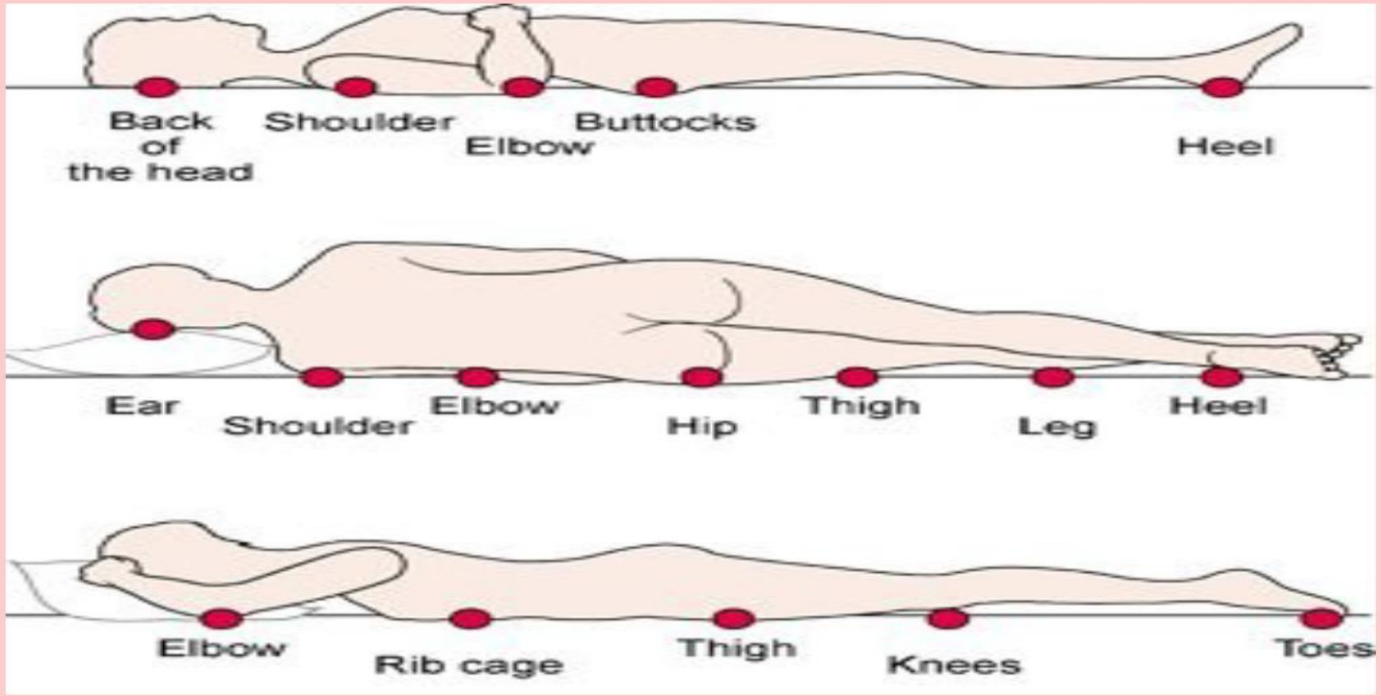
For PINK areas, if the skin turns white there is still healthy blood supply. How-ever daily checks are required.

Pressure Ulcer

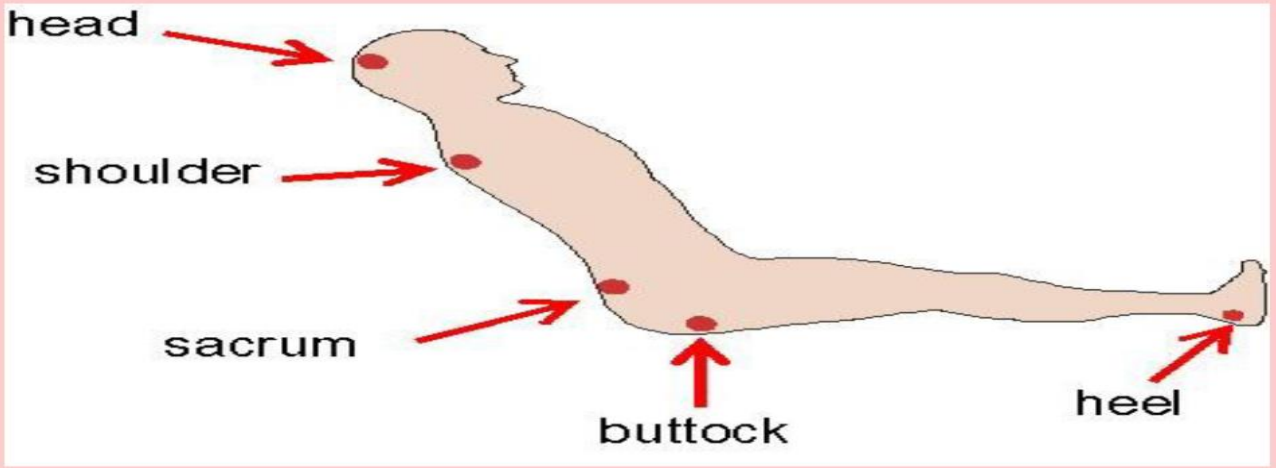
- Also known as Bed sore, Pressure sores and Pressure damage or Decubitus Ulcers.
- They can occur in any part of the body, but are seen most commonly over bony prominences(back of head, shoulder blades, elbow, sacrum, heels, toes)
- Pressure damage is predominantly caused by prolonged and unrelieved pressure from external objects against the skin(bed, chair, clothing, footwear, medical devices. The pressure applied occludes blood vessels in the skin and underlying tissue which means that there is insufficient or no blood supply to the affected tissues that then die due to lack of oxygen.

Pressure Areas—areas that are prone.

In lying



In seating



Stage I Blanchable vs Non-Blanchable

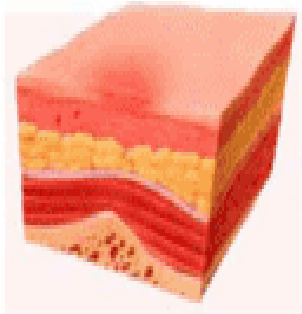
Pressure Ulcer Staging Chart

Definition of a Pressure Ulcer:

"A pressure ulcer is localised injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated

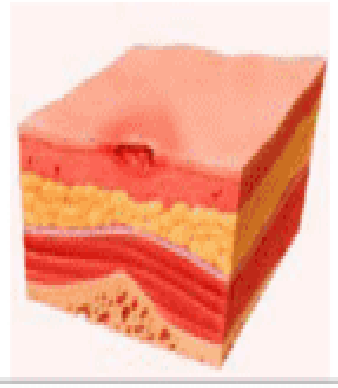
Important: Skin tears, tape burns, incontinence associated dermatitis, maceration or excoriation should not be classed as pressure ulcers

Stage I



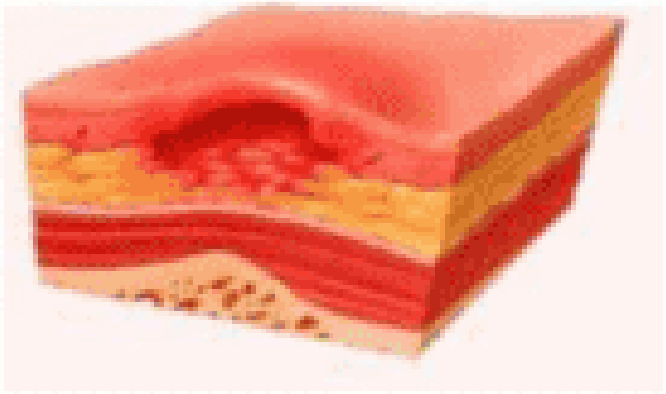
Stage I: Intact skin with non-blanchable redness of a localised area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area. The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue.

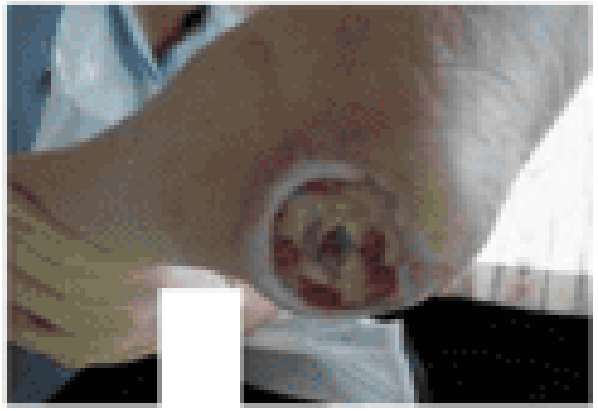
Stage II

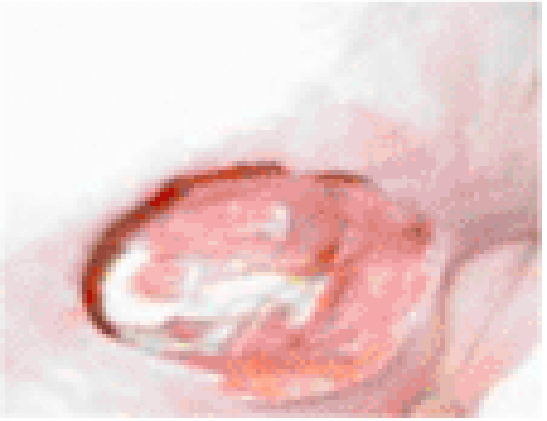


Stage II: Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled or sero-sanguineous filled blister. Presents as a shiny or dry shallow ulcer without slough or bruising.

Stage III



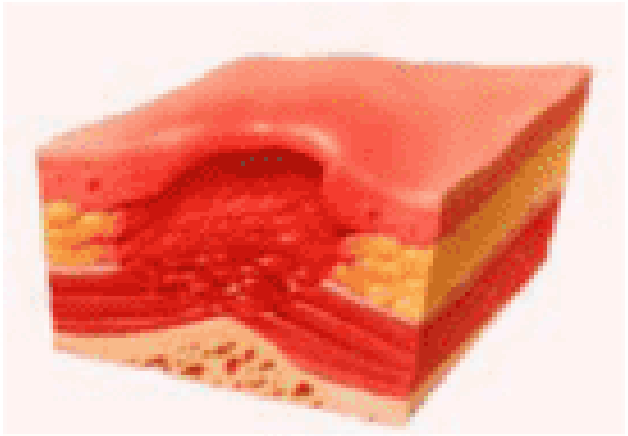




Stage III: Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. This stage may include undermining and tunneling.

Stage IV: Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. This stage often includes undermining and tunneling. Exposed bone/muscle is visible or directly palpable.

Stage IV



Who are at risk of developing Pressure Ulcer?

How do I know if my resident is at risk?

- Generally anyone living in a care home will be at risk due to a combination of factors such as their age, reduced independence and levels of mobility and long term health conditions.

- Patients who are immobile or have difficulty responding independently to pressure or those who have neurological deficit and can’t feel the effects of pressure, will be at immediate risk of developing pressure damage.

Factors that affect an individuals likelihood of developing Pressure Ulcer

- Friction is regular rubbing of the skin that removes the epithelial cells. Causing a breach to the skin through which bacteria can enter. If pressure is applied to this area then a pressure ulcer will develop faster than it would otherwise do but for the friction

- Shearing is when 2 tissue types are force in opposite direction causing tearing and inflammation at the site of trauma usually deep within the tissue and commonly at the site of underlying bones. If pressure is applied to the area a pressure ulcer will develop faster than it would otherwise do if shearing had not occurred.

Contd….

Factors that affect an individuals likelihood of developing Pressure Ulcer

- Incontinence, Moisture and Sweating - Moisture that is in constant or regular contact with the skin will cause maceration or excoriation that will make the skin much more vulnerable to pressure. Skin damage from moisture will in effect give pressure damage a head start.
- Poor Nutrition leads to lethargy, reduced mobility, reduced cell regeneration and poor healing.
- Underlying Co-Morbidities(Diabetes, Peripheral Vascular Disease, Coronary artery Disease, Vascular Dementia etc.
- Medications –Certain medications are known to impact on the tissue viability of a patient (steroids,Cytotoxic drugs)

Prevention and Management of Pressure Ulcer

- Encourage residents to mobilise as much as tolerated .Residents that are able to get out of their chair should be encouraged to do so whenever possible,
- Teach resident to change position(off load) every 15 mins.
- Reposition residents every at least every 1- 2 hrs when in bed or sitting in a chair
- Changing position can be incorporated into everyday activities (standing-up to get a drink or transferring to the toilet.
- Residents who have actual damage to their sacral area should only sit out for 45min -1 hr at a time depending on severity.
- Change of position needs to be recorded to ensure continuity of care.
- It is essential that manual handling aides are used when moving residents. Such as sliding sheets to avoid dragging resident along the mattress.
- To help residents maintain their position when in bed use a wedge/pillow to maintain a 30 degree side lying position.

Prevention and Management of Pressure Ulcer

- Raise the head of the bed to less than 30 degrees to prevent them slipping down the bed. A 30-degree tilt can also be achieved in a reclining chair using a wedge/pillow. This will reduce the risk of placing additional pressure on the hip area.

- In the event that pressure damage has occurred or existing ulcer has deteriorated, the frequency of repositioning must be increase.

- Residents skins should be observed for signs of pressure damage at each position change and at least once in every shift.

- Ensure that the correct pressure relieving device (cushion/ air mattress) provided by physiotherapist after assessment must be installed under the patient.

*Cont....*Prevention and Management of Pressure Ulcer

Where skin is intact:

- Keep the skin healthy and well hydrated
- Continue to inspect the skin daily
- For areas at risk of breakdown, refer to staff nurse for use of appropriate skin protection products to maintain skin integrity.
- Liaise with the staff nurse for further skin assessment so as a pressure ulcer prevention care plan will be initiated.

Incontinent Dermatitis/Moisture Lesion

is a type of irritant contact dermatitis found in patient with faecal and urinary incontinence.

What is Incontinence?

- Is the inability to control bladder and/or bowel functions.
- When such a problem exists it can impact not only on the quality of the individual's life and ones dignity, but on the quality of the skin unless adequate steps are taken to prevent moisture damage.

What Causes Moisture Lesion/IAD

- Moisture from urine and faeces cause disruption to the normal barrier of the skin and because of the acidic content of body fluid this causes excoriation of the skin which presents as **a RED WET SKIN.**
- Skin barrier is broken resulting to increase risk of bacterial invasion and therefore infection.
- Bacteria will multiply causing skin infection(Cellulitis).
- **INCIDENCE:** High in Elderly population and highly dependent immobile patient.
- Poor management of incontinence could lead to development of Moisture Lesion.
- IAD/Moisture Lesion is a risk factor for Pressure Ulcer but IAD can occur in the absence of Pressure Ulcer.

Features Of Pressure Ulcers & Moisture Lesions

Pressure Ulcer	Moisture Lesion
Usually occurs over a bony prominence	Occurs where there is excess moisture against the skin. The area may be extensive and over areas where there are no bones immediately underneath the skin, e.g. the buttocks, groins
Usually round in shape to begin with and confined to the area directly over the bone	Appears initially as a rash or a tiny graze(s) that is sporadic over the area of moisture
The onset of pressure damage appears red (when it is Grade 1). When pressed it is non-blanching (this is when it remains red when pressed)	Appears red, and when pressed the red area blanches (i.e. it goes white)
The skin surrounding the ulcer is usually dry.	The skin around the lesion appears ‘wet’
The depth of damage can go deep down to muscle, bones and tendons	Is usually superficial, although if pressure is applied on these areas, the damage can go deep as with pressure ulcers. These ulcers will be categorised as pressure ulcers, with a moisture lesion onset
Can become infected, although this is unusual with good wound management. Therefore any infection will be delayed, if at all	Can usually become infected very quickly due to the presence of bodily fluids and matter that harbours bacterial growth
Usually hot or lumpy to touch	Usually cool to touch, unless infected
The patient complains of pain	The patient complains of a stinging sensation

Prevention and Management of Moisture Lesion/IAD

- Instigate a regular toileting regime for the resident .
- Reposition resident regularly according to dependency.
- Ensure use of appropriate type , size and absorbency of incontinence wear.
- Good standard of personal hygiene keeping the resident clean and dry.
- Use appropriate moisture barrier cream /spray that will assist in preventing moisture sitting next to the skin.
- Ensure proper nutrition and hydration.
- Liasie with staff nurse regarding laxatives use for patients that suffers faecal incontinence.

Conclusion

- Since pressure ulcers occur in patients who are immobile in majority cases of bed or chair bound residents, occurrence of the same is considered to be a nursing problem.

- With the help of the health care assistants who has the majority of time spent in attending to residents daily hygiene and mobility assistance, presence of pressure ulcer and moisture lesion can be treated if detected early if HCA are trained to be able spot skin changes during patients contact.

- If a patient is assessed as being at risk, then preventative measures should be implemented immediately and documented.