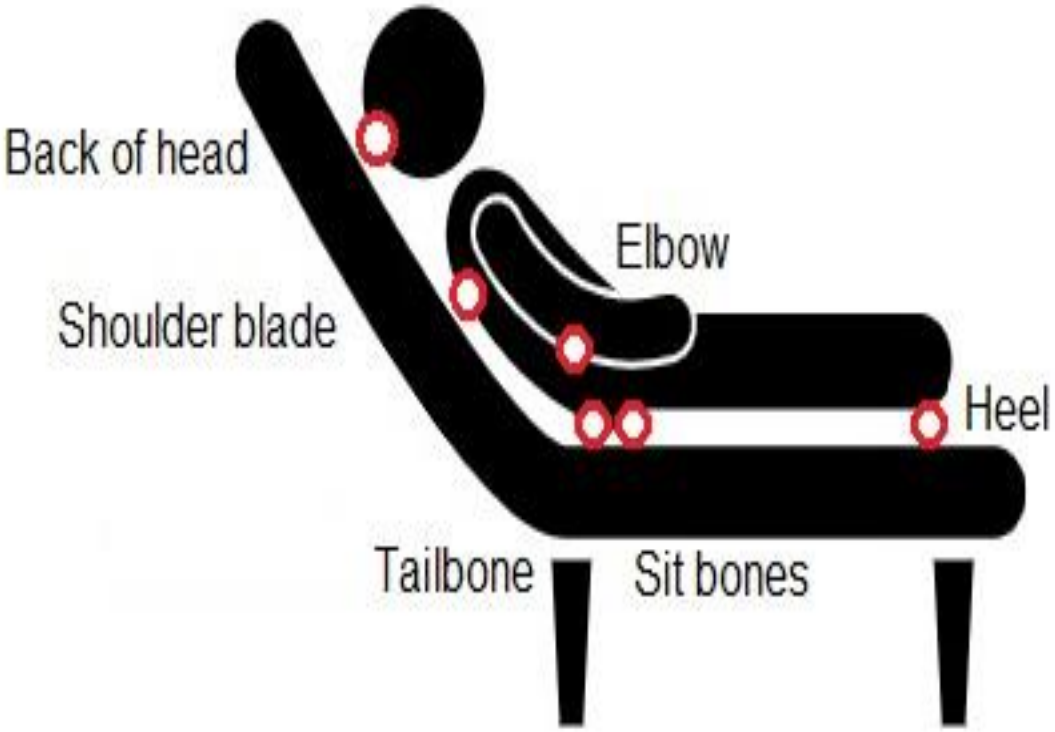


Manual for Prevention of Pressure Ulcers

During this module you will be asked some questions to simply provoke thought and test your current knowledge please have a note pad or supervision workbook to hand to make notes. Your performance will only be measured on the answers you select when completing the knowledge test at the end of the module.

Contents

Learning Outcomes

- Identify the risk factors/causes that can lead to pressure ulcers
- Know the importance of risk assessment / screening in pressure ulcer prevention.
- Know the care interventions and equipment which can contribute to pressure ulcer prevention.
- Understand what pressure ulcers are.
- Understand the basic structure and functions of the skin.

Complementary Manuals

- Infection control
- Malnutrition
- Moving and handling

Chapter One

Background

Pressure ulcers can have a considerable impact on the quality of life and wellbeing of the individual suffers as well as being a major cost to health services (Dealey 2012). Preventing pressure ulcers in vulnerable clients is an essential component of effective health care. Suitable for all health workers the manual is intended to provide an awareness of person centred approaches in how to prevent the development of pressure ulcers.

Introduction to pressure ulcers

Pressure ulcers can affect people in every healthcare setting and can be found in all age groups. Pressure ulcers have a negative effect on people's quality of life and their treatment is a huge financial burden for the NHS and healthcare services.

In 2011 pressures ulcers were responsible for the deaths of 78 hospital patients and 39 care home residents and a further 650 people had the existence of pressures ulcers recorded on their death certificate (age UK 2013)

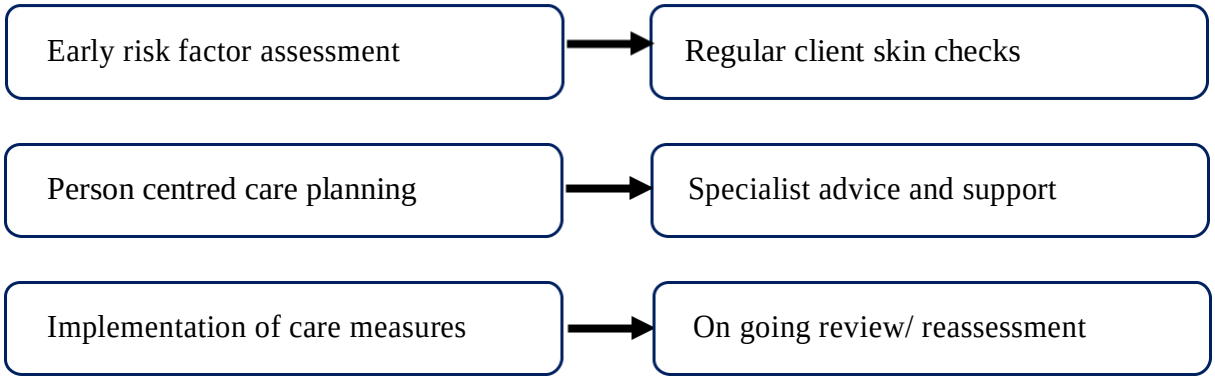
The average age of the UK population is increasing and, as a result, so is the age of nursing and residential care home residents. People over the age of 70 are particularly vulnerable to pressure ulcers due to factors such as:

- Aging skin
- Reduced blood supply
- Poor healing
- Mobility problems

The Department of Health (DoH) (2010) maintain that pressure ulcers are largely preventable and care staff should follow good practice guidelines for pressure ulcer prevention established by professional groups such as the European Pressure Ulcer Advisory Panel and the National Pressure Ulcer Advisory Panel (2009) (EPUAP-NPUAP),

Stopping clients getting pressure ulcers is considered a fundamental part of good quality health care and must be regarded as an ongoing process. Failure to prevent or act on them quickly can be seen as a sign of poor, even neglectful nursing care.

Prevention of pressure ulcers can be achieved through a variety of measures which include:

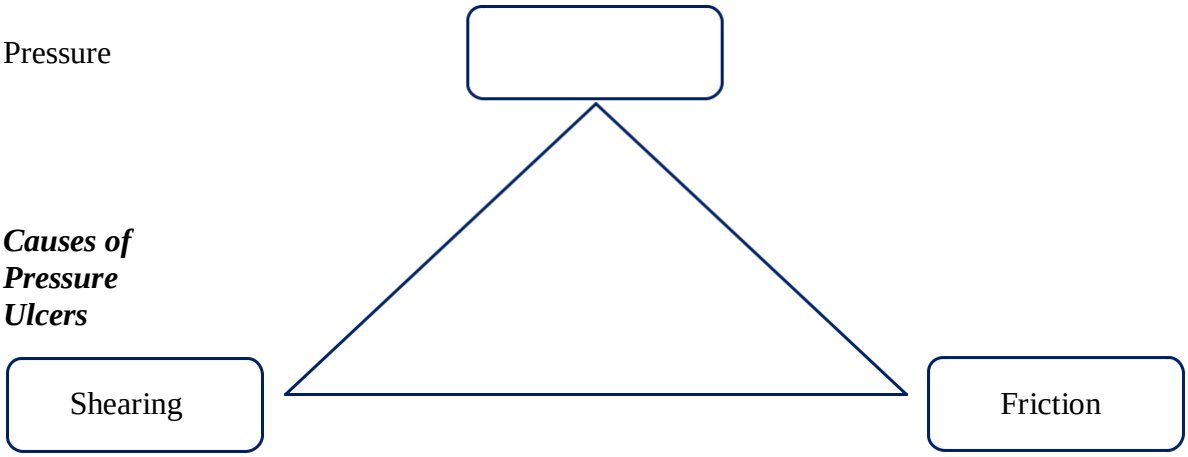


Pressure Ulcer Definition

A pressure ulcer is an area of damage to a person's skin which if severe enough can affect the underlying tissues and structures such as muscles, tendons and bones.

Pressure ulcers can also be referred to as a pressure sores, bed sores or decubitus ulcers. The EPUAP-NPUAP (2009) provides the most recent and comprehensive definition of a pressure ulcer which is that

`a pressure ulcer is a localised injury to the skin and or underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with a number of different factors'.



Clients affected with pressure ulcers can have a miserable experience, they are not only painful and distressing but they can affect a person's recovery from an existing illness and in some situations can hasten a person's death.

Severe pressure ulcers can involve deep structures such muscle, tendon and bone, thereby exposing the client to a greater risk of infection. The integrity of the skin is a barrier to infectious agents such as bacteria and viruses, therefore losing this barrier will produce a portal of entry for infection.

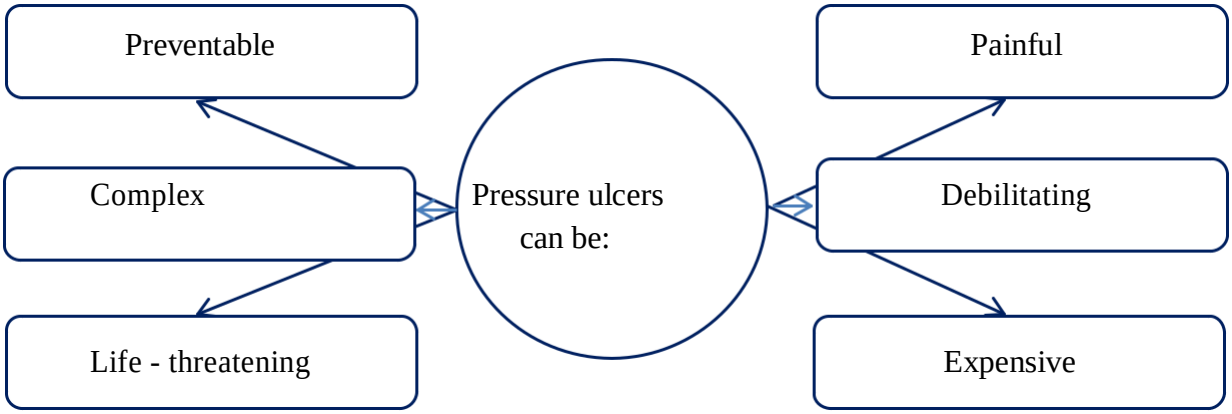
Sadly, it was an infected pressure ulcer that led to death of the `Superman' actor Christopher Reeve in 2004.

It is important to remember that pressure ulcers can develop quickly especially if the pressure applied to the skin and soft tissue is sufficient to reduce the blood flow to these areas.

With the right conditions pressure ulcers can develop quickly, sometimes within **1 to 6 hours** and can become life-threatening. The reduction of blood flow in the capillaries can result in a condition known as ischaemia or starvation of blood which will then lead to tissue death.

Pressure ulcers in their early stages can and do develop into more serious ulcers if appropriate care interventions are not made quickly (Smith & Field 2011).

It's important to remember that pressure ulcers can be:



Legal and Professional Issues

Because of the potential health consequences of pressure ulcers, health workers have a clear duty of care to take all practical steps in order to prevent them. Failure or refusal to follow appropriate guidelines and policies in their prevention may be seen as negligence. In law, if there is a case to answer the Crown Prosecution Service may intervene and bring a criminal charge against an individual and/or an institution for allowing the development of preventable pressure ulcers in residents (Bangova (2013).

Under its statutory notifications relating to serious injury of a person who uses a service the Care Quality Commission (CQC) require the care provider to inform them if a client develops a pressure ulcer of grade 3 or above. In addition a client with grade 3 pressure ulcer is considered a safeguarding issue so a safeguarding alert must be made to the local safeguarding team.

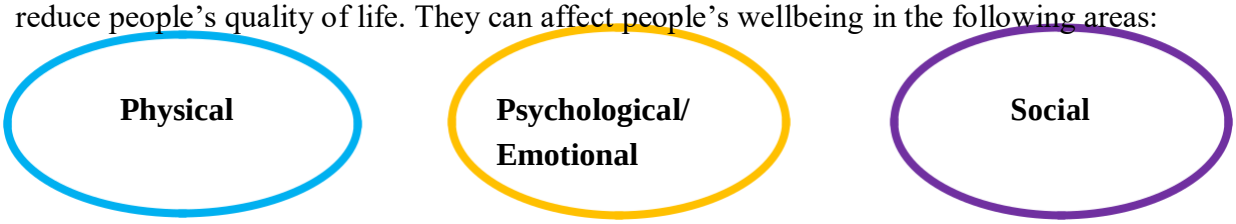
Pressure ulcer management is also high on the health care quality agenda as they are now being seen as a preventable harm, and as such the Department of Health (DoH) expects all NHS organizations to ensure that clients are protected from them.

Effects of pressure ulcers

The National Patient Safety Agency (NPSA) (2010) states that the cost to the NHS of treating pressure ulcers is up to £4 billion a year and pressure ulcers affect up to 20 % of residents in nursing and residential care homes and 10% of patients in hospital.

The cost of treating the most severe cases ranges from £11,000 to £ 40,000 per person. 90% of this cost is attributed to paying for additional nursing care (Dealey 2012).

While the financial cost is significant it is important to recognise that pressure ulcers reduce people's quality of life. They can affect people's wellbeing in the following areas:



The table below outlines the effects of having a pressure ulcer on the client

Physical	Psychological /Emotional	Social
Pain and discomfort: Common in pressure ulcers this has been described as `constant and punishing'	Depression	Isolation due to the pain and possible odour.
The effects of pain and discomfort can cause the client the following:	Anxiety	Dependence on support from family and friends could lead to conflict/stress
Reduced mobility	Anger	Unable to sleep with partner owing to difficulties in positioning themselves or having to move frequently.
Risk of falls	Frustration	Cost implications due to having time from work
Difficulty in sitting/ lying and getting comfortable	Reduced self esteem	Paying for prescriptions such as dressing, medications
Lack of sleeping	Loss of dignity	Extra laundry due to leakage of dressing
Loss of appetite	Loss of independence	Visits to the GP/Nurse for wound dressing and review
Constipation	Feeling of hopelessness	
Difficulty in undertaking activities of living such as washing, dressing	Stigma	

Certainty of ulcer pressure

The DoH (2010) recognises that while the vast majority of pressure ulcers are preventable there are limited situations where they may be unavoidable. This could be as the result of:

- The effects of end of life skin changes
- A person with mental capacity refusing to adhere to their care plan
- A life-threatening event

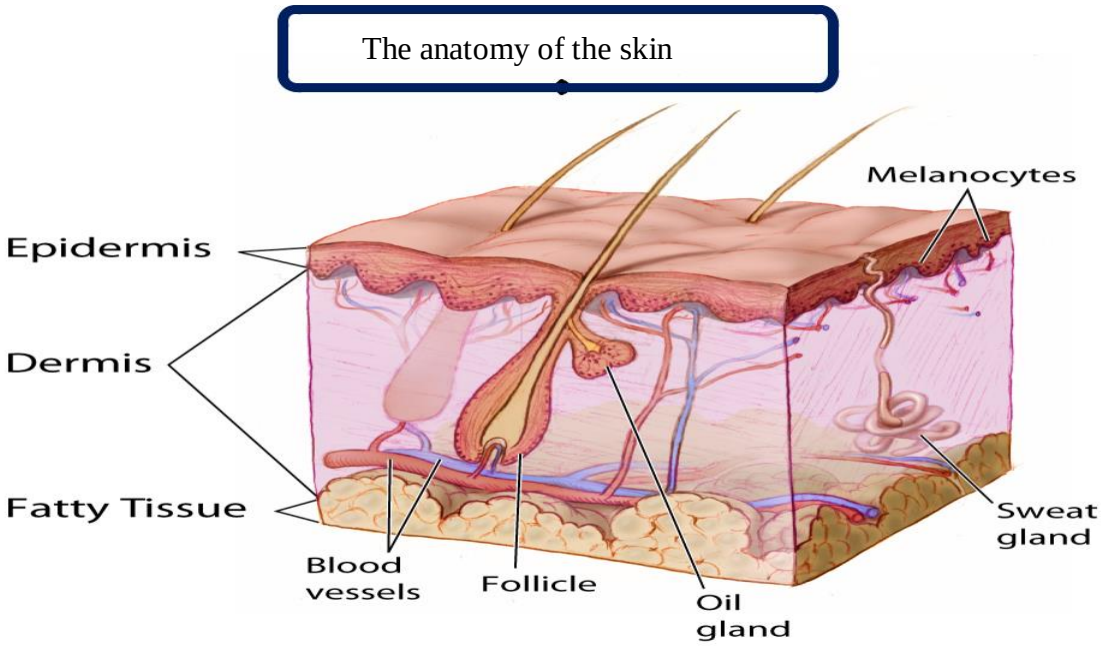
Chapter Two

Skin function and structure

Developing a pressure ulcer can reduce the integrity or formation of the skin. This can result in damage to the underlying tissues and structures as well as affecting the essential functions of the skin. Having an understanding of the basic anatomy and functions of skins is important in the care of clients who are at risk of pressure ulceration. Weighing approximately 2.7 kg the skin is the largest organ of the body and makes up 15% of the overall body's weight.

The skin is our outermost boundary and it can be considered as the only organ of the body that we recognise as `us'. The skin reveals many important aspects of us. It bears our identity, our age, genetic and cultural background. It reflects our emotions, influences our personality and has vital physical and biological functions.

The thickness of skin varies from 0.5 – 4.0mm. The thinnest area of skin is located under the eyes and around the eye lid. The skin around a person's heels is also thin. At 4 mm the skin on the palms and the soles of the feet is the thickest skin on the body. The skin covers an average surface of more than 2 square metres and the entire epidermis of the skin is replaced over a period of four weeks.



The skin can be divided into three layers of tissue:

- The epidermis
- The dermis
- Subcutaneous fatty tissue

Skin function

The Epidermis

This is the outer layer of the skin and is made up of four thin stratified squamous epithelium tissue layers. These layers are very vulnerable to damage particularly caused by friction, shearing or pressure. The cells in the epidermis are constantly being shed and replenished, and the whole body replaces its skin over a period of four weeks.

Epidermis skin cells

Four types of cells are produced in the epidermis each has important individual functions.

Keratinocytes

Making up 90% of the epidermis these cells produce keratin. Keratin is a tough, fibrous protein substance which helps protect the skin and underlying tissues from heat, toxins chemicals and bacteria. Keratinocytes also makes granules which release a waterproofing sealant which assists in prevent water loss from the skin.
New keratinocytes continually move towards the surface. As they move they gradually die and become flattened.

Melanocytes

These cells produce a substance called melanin. This a brown-black pigment that contributes to skin colour and acts as a barrier against harmful ultraviolet caused by sunlight or radiation. Melanin is stimulated by sunlight.

Langerhans Cells

Initially produced in the red bone marrow, these cells move to the epidermis where they play a role in the body's immune system by attacking microbes that invade the skin. They are easily damaged by UV light.

Merkel Cells

These are located in the deepest layer of the epidermis and are attached to a sensory neuron. They are sensitive to touch and pressure.

The Dermis

This is the second and deeper layer of the skin. The dermis gives the skin its underlying elasticity and strength as this layer is composed mainly of connective tissue and elastic fibres.

Embedded in this layer are blood vessels, nerve glands such as the sebaceous and sweat gland and hair follicles.

Sebaceous Glands

Secrete an oily substance called sebum. Sebum and sweat make up the 'surface film'. Sebum coats the surface of hair and helps keep them from dying and becoming brittle. Sebum also keeps the skin soft and pliable and inhibits the growth of bacteria on the skin.

The Subcutaneous Layer

This layer consists of areolar and adipose tissue which attaches to underlying tissues and structures. It serves as a storage area for fat and contains large blood vessels that supply the skin. It also contains nerve endings that react to the sensation of touch.

How all function altogether?

Safegurding

The skin acts a protective barrier, preventing damage to internal tissues from trauma, ultraviolet UV light and extremes of temperature. The epidermis is composed of cells called keratinocytes these cells help in providing a barrier to bacteria.

Infection obstacle

As well as acting as a physical barrier to infection the skin produces sebum. With an acidic pH of 4.5 – 5.5 sebum has antibacterial properties which forms a barrier to infectious agent such as bacteria and fungi.

Pain Sensation

The skin contains nerve endings or pain receptors. These react to painful impulses and allow the body to respond to them. They also act as a protective mechanism, e.g. when you pick up something hot you quickly drop it.

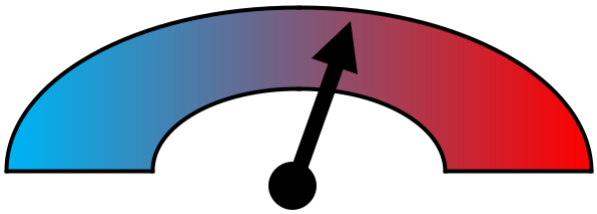
Body Temperature control

The skin aids the regulation of body temperature in two main ways.

The skin cools the body if overheating.

Blood vessels *vasodilate*

(become wider) this then leads to cooling.



The skin warms the body. Small blood vessels in the skin

vasoconstrict *(*become smaller)

this then leads to warming.

Excretion

The skin plays a minor role in excretion and absorption. Water is excreted via normal evaporation from the skin or by sweating. Over a 24 period a person loses about 400 mls of water due to evaporation. This water loss can increase due to sweating depending on the amount of physical activity.

Production of Vitamin D

In response to sunlight the skin manufactures Vitamin D which is vital in bone production and repair. Carotene is a yellow pigment found in epidermis / dermis and subcutaneous layer Important in Vitamin A production carotene is necessary for good vision.

Age effects on skin

Aging is a certainty and will affect us all. The process of aging and how it changes the skin does not become noticeable until people reach their late forties. Changes in the skin that occur during aging can affect the overall integrity of the skin, thus making it more vulnerable to increased pressure and resultant skin damage.
The table below lists how aging affects the skin

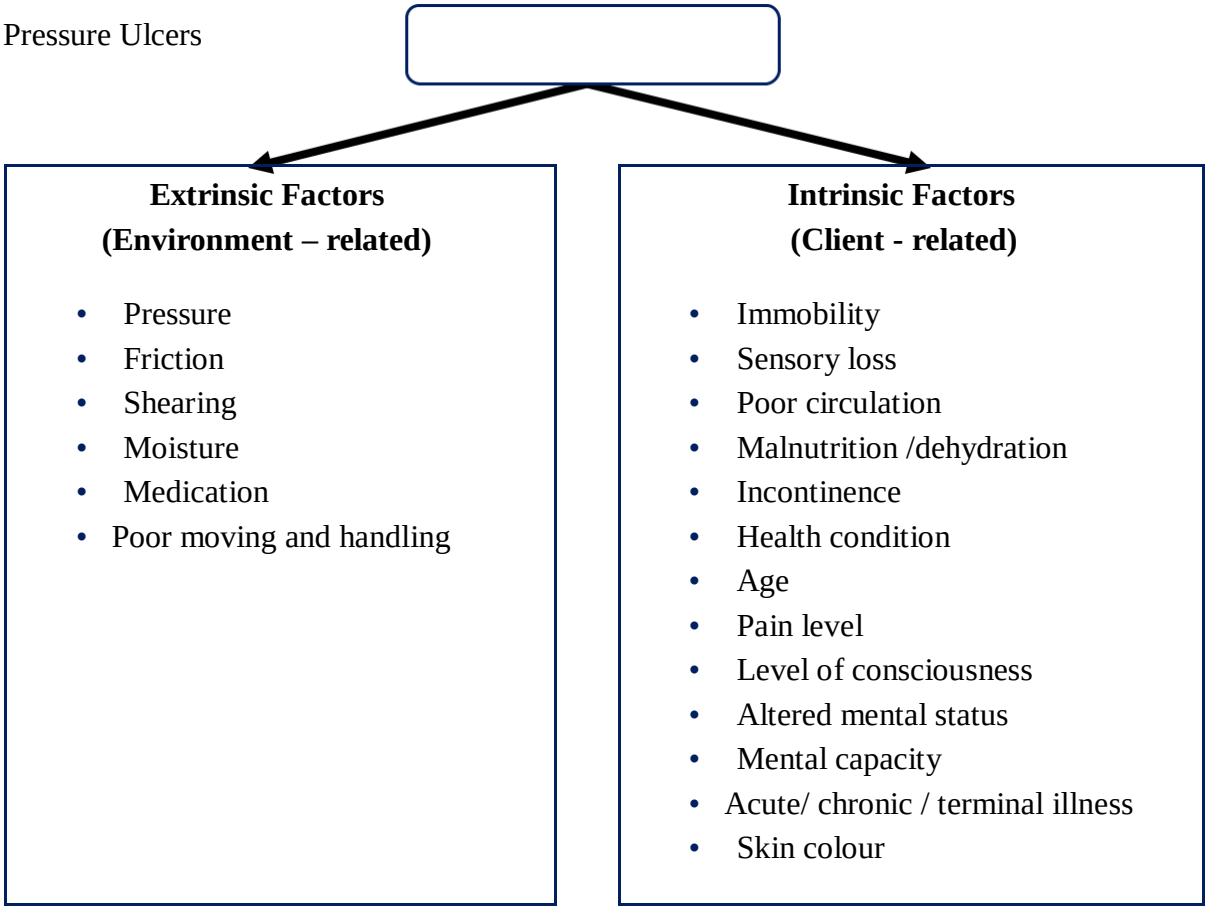
Areas of the skin	Physical changes due to aging
The Epidermis/ Dermis	• Due to loss of collagen /elastic tissue fibre, skin becomes thinner and fragile. • Increased risk of skin being easily stretched • Increased risk of tearing and trauma. • Development of wrinkles. • Delayed healing if damaged • Reduced blood supply. • Decrease in immunity due to loss of langerhans cells. • Skin becomes dry due to decrease in sebum production • Reduction of melanin results in grey hair and changes in skin pigmentation leading to blotching (liver spots). • Reduced production of sweat which causes problems with temperature control. • Decrease in touch / pressure/ pain sensation. • Brittle nails • Reduction of vitamin D absorption/ depletion of calcium causing osteoporosis
Subcutaneous Layer	• Loss of adipose tissue, loss of weight and muscle bulk

Chapter Three

Development factors of pressure ulcer

Pressure ulceration can affect people at any age and in any health care environment. The key to pressure ulcer prevention is to reduce the level of pressure applied to the skin.

There are many causes or risk factors that have been identified that can contribute to the development of pressure ulcers and it is important that you understand what these are. It is also important you know the common areas on the body where pressure ulcers are likely to develop. The risk factors that increase the possibility of pressure ulcers have been categorised in two groups.



These factors can influence why certain clients are more likely to develop pressure ulcers and how quickly they may develop.

Therefore, the client care plan must be centred on either the correction or reduction of these factors in prevention of ulcers.

Extrinsic (Environment –Related)

The main causes of pressure ulcers are:

Pressure

This pressure is due to the weight of the body pressing down on the capillaries in the skin. The pressure on these blood vessels will result in reduced blood flow to the skin and underlying tissues leading to a condition known as tissue ischaemia. If the client is not repositioned and the pressure not relieved then skin and tissue destruction will occur.

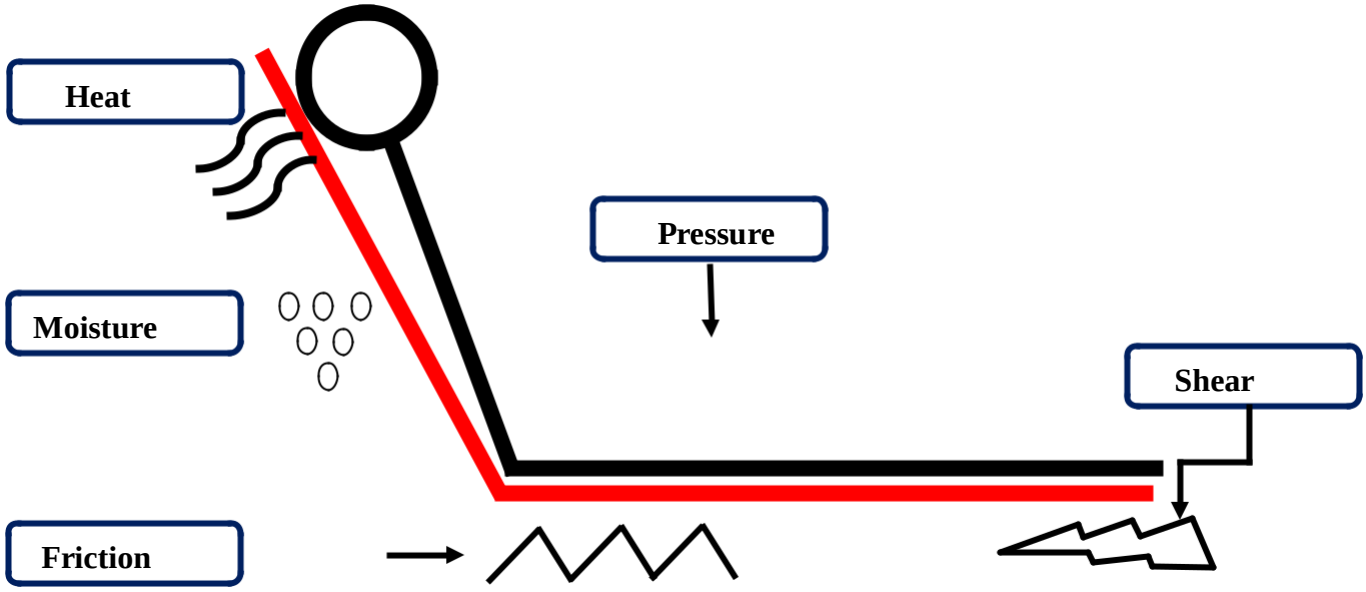
Shearing

This occurs when the skeleton or deep layers of the skin and tissue are forced to slide over one another. In clients the tissue structure and blood vessels are strained when the skeleton moves down the bed and the skin moves upwards. Other examples include sliding down, or being pulled up from a bed or chair or during transfer to and from a wheelchair.

The twisting and dragging effect of shearing can block the blood flow to the skin by stretching and damaging blood vessels that provide the skin and tissues with vital blood and oxygen. This blocking of blood flow can result in extensive tissue damage.

The affects of shearing is commonly seen over the sacrum and other bony areas such as elbows and heels.

Forces acting on the person in bed that could lead to the onset of a pressure ulcer



Friction

This occurs when two surfaces move across each other. This can be caused by excessive abrasive rubbing of the superficial layers of the skin. Most pressure ulcers to the heel are caused by the combination of both pressure and friction. Initially they present as a blister caused by the friction with purple discolouration of the underlying skin caused by the pressure (Bangova 2013).

Pressure ulcers through shearing and friction can often be a result of:

Poor moving and handling techniques
Poor positioning of clients
Prolonged sitting without adequate support

Moisture

The normal pH of the skin is 4.5 – 5.5 which means the skin is slightly acidic. This is known as the acid mantle as it forms a protective acidic film that acts against bacteria and fungi. Moisture can lead to pressure ulcers because:

- Sweat, urine and faeces are alkaline. When the skin is exposed to them the pH is changed reducing its ability to protect against bacteria and fungi.

Together with the substance ammonia which is also found in urine, faeces and urine causes harmful and painful skin irritation around the perianal region. Without being removed immediately through carefully washing and drying, this irritation can lead to the breakdown of the skin.

Specialised skin care products can be used that are designed to gently but effectively cleanse, removing contamination while maintaining the acid mantle and reducing the negative effects to the skin.

- Moist or wet skin will become macerated. This will increase the likelihood of friction against surfaces and or clothing.

The combination of excessive moisture, changes in the skin's pH, and friction can quickly make the skin vulnerable to tissue breakdown. It takes careful management to ensure that clients are not exposed to excess moisture; reasons for incontinence or perspiration should be risk assessed by a continence nurse who can advise on suitable control measures.

Clients who are vulnerable to excessive moisture, or are incontinent of urine or faeces, require regular checking. Care givers must ensure that clients are not wearing soiled clothes or incontinence pads; these should be changed as required.

Areas such as the perianal area that are affected by moisture should be gently washed and dried. Due to the drying effects of soap, alternatives such as an emollient should be used. The use of recognised barrier creams or films can be encouraged.

Intrinsic factors (client – related factors)

Although intrinsic or client – related factors do not themselves lead to pressure ulcer formation, an individual's potential to develop pressure ulcers may be influenced by them. Some of the Intrinsic factors (client – related factors) and how they can influence pressure development are described in the table below

Intrinsic risk factor (Client – related)	**How it can cause pressure ulcer development**
Reduced mobility	This is a key factor to the development of pressure ulcers. The client cannot move and change position independently to relieve pressure
Sensory loss. This can be due for example to spinal cord injury, paralysis, neurological disease, neuropathy, diabetes, stroke	People who don't feel discomfort or pain when they remain in a fixed position will not find it necessary to move regularly to relieve pressure. .
Malnutrition / dehydration .	Adipose tissue provides some protection against pressure. If people are undernourished adipose tissue will be used to provide energy reducing their protective layer. Malnutrition also increases the risk of serious illness. Both obese and emaciated clients are vulnerable to pressure ulcers. Dehydration reduces the elasticity of the skin making it vulnerable under pressure or friction.
Poor circulation	Poor blood circulation reduces the micro-circulation to the skin increasing the risk of tissue death.
Skin colour	Individuals with darker skin colour may be increased risk of pressure damage because the early sign of skin damage (erythema) is difficult to see.
End of life	As health deteriorates, skin failure is recognised as inevitable
Client refusal to comply with care interventions	Clients with mental capacity who decline care actions or use of pressure reliving equipment or refuse to change position are at increased risk of pressure ulceration.

Medication

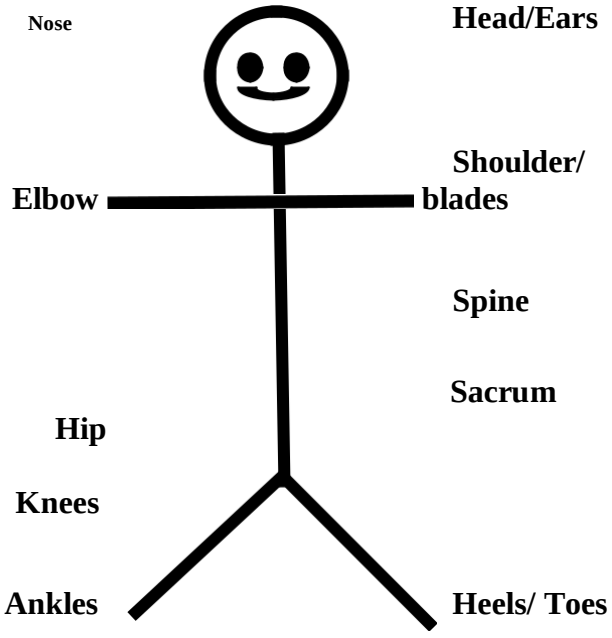
Some medications can affect the skin directly or reduce client movement. These include medications such as:

1. Steroids which can cause thinning of the skin.
2. Sedatives and pain killers which can cause excessive sleepiness in the clients thus reducing mobility and the desire to move and change position
3. Anti-inflammatory medication such as ibuprofen which reduces the inflammatory response to pressure injury.

Vulnerable areas for pressure ulcers

Direct and unrelieved pressure is the major factor in the development of pressure ulcers. Pressure ulcers can occur when the bone pushes down into the muscle and tissue layers therefore impairing the blood flow (Guy 2012). Therefore a pressure ulcer can form on any part of the body subjected to pressure.

However some areas particularly over bony parts of the body are at greater risk, these include:



Chapter Four

Types of pressure ulcer and regarding risk assessment

A major part of any prevention plan involves the carrying out of a comprehensive client centered risk assessment. Early detection and preventive action are vital to reduce avoidable pressure ulcers. The Health and Safety Executive (2011) states that risk assessment helps to ` focus on the risks that have the potential to cause harm.' Risk assessment is a commonly used term for the process of identifying and controlling hazards to health and wellbeing. We all regularly risk assess, we often do not realize we are doing it; for example, before crossing the road we use our own senses to tell use if a car is approaching – this is a risk assessment to keep us safe and to prevent harm.

When used in a care setting, risk assessment becomes a formal process used on behalf of a vulnerable client as a means to preventing harm.

In the care of pressure ulcers prevention really is better than cure

Screening

Recognition of clients who are at risk of developing pressure ulcers is an essential part of prevention. As pressure ulcers can develop rapidly risks need to be promptly assessed and identified in order that care measures are put in place. Initial screening of clients should be undertaken by a competent health care professional who has sufficient knowledge of what a pressure ulcer is and the reasons why an ulcer may develop.
Each identified risk factor needs to be carefully considered. For example:

Betty suffers from a type of dementia that has not yet affected her brain's sensory / nervous pathway function in alerting her to physical pain.

However, although she has the ability to move she lacks the mental cognitive ability to recognise the pain signal associated with the pain of a pressure ulcer.

Therefore she is at risk of developing a pressure ulcer

Borak suffers from pain in his hips and moving increases his discomfort. His GP has prescribed him strong pain relief. In this case it's important to remember that pain is also a warning sign in the development of a pressure ulcer. The use of pain relief in this case could decrease these pain signals which could stop Borak having the trigger to move and change position.

The screening process is normally undertaken at the time a client is admitted to the care home, following hospital or home transfer or if their health status has changed. The aim of this screening is to firstly identify any risk factors that may be present.
This involves reviewing clients who may already have or are at risk of developing a pressure ulcer.

Risk assessment

Where clients have been identified during the screening process as being a high risk for pressure ulcers, a further, more comprehensive assessment is required.
Ideally any risk assessment will:

- Identify clients who are at risk and those who are not
- Identify risk factors which could cause pressure ulcers to develop.
- Provide a consistent assessment method regardless of who carries it out
- Suggest preventive care measures and nursing approaches.

As pressure ulcers can develop rapidly in vulnerable clients, a thorough risk assessment is required as soon as possible.

Documentation

The National Institute for Health and Clinical Excellence (Nice 2005) recommends that an assessment should occur within 6 hours of admission and be updated at least weekly.

All formal risk assessments must be documented and made accessible to all members of the multi-disciplinary team as accurate documentation provides a record of client progress. The use of a formal pressure ulcer risk assessment form is encouraged and your care home will have them in place.

Any documentation should contain a record of the client's risk assessment, plan of action and any re-assessments or reviews. This is evidence or proof of appropriate nursing care. Good record keeping must be considered an integral part of nursing care and is essential to the provision of safe and effective care.

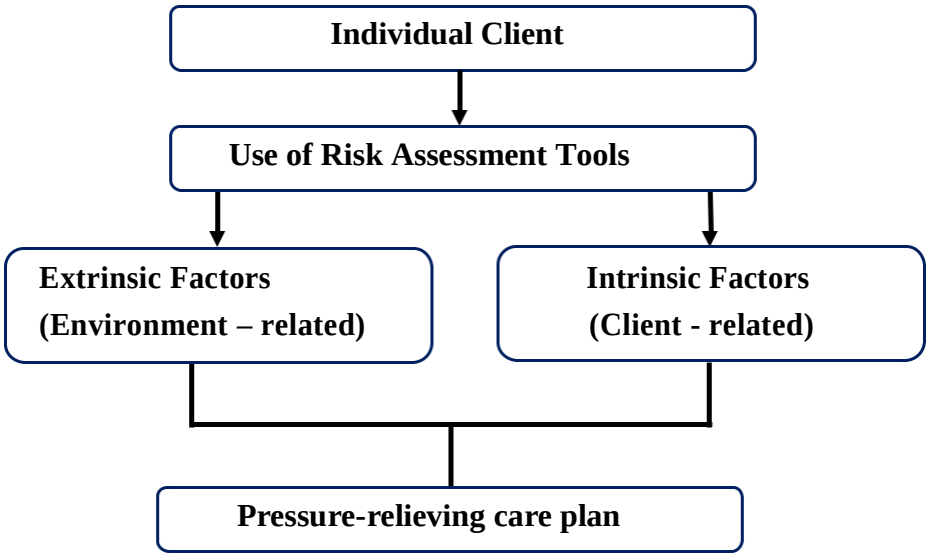
As a care giver it's vital to remember "In law if it is not written down, it never happened"

Tools for Risk Assessment

The most common method of assessing risk of pressure ulcers is by using a risk assessment tool. These tools have been described as forming the backbone of any prevention programme and treatment policy (Riordan & Voegeli 2009). Almost 40 risk assessments tools have been developed to help identify clients at risk of developing pressure ulceration.

Although some assessment tools may be better suited to specialist clinical area, most tools are based on a scoring system that assesses the client's risk factors of developing a pressure ulcer.

A flow chart for risk assessment



The two most influential risk assessment tools that are still used today are the Norton Scale and the Waterlow Risk Assessment Scoring Tool system. By using the Waterlow tool the client's risk factors are individually assessed and a pressure ulcer prevention plan implemented and documented.

NB. A copy of the full Waterlow Risk Assessment Scoring Tool System can be found at the end of the manual.

Skin Assessment

Good communication and a team approach can assist in the early detection of clients at risk of developing pressure ulcers. An important role of the care worker which is often undervalued is the frequent checking of the condition of a client's skin. Care givers need to be able to recognize the signs and symptoms of pressure ulcer development.

All clients identified as at risk of developing pressure ulcers should undergo skin inspection on initial admission then daily. If the client's condition deteriorates, their skin should be inspected on a regular basis. This should ideally be performed at each episode of care, such as pad changing or bathing.

Results of skin inspections should be clearly and accurately documented. It is essential that detailed descriptions of any pressure ulcer be recorded including site, size and grade and supported by a body map chart. Where consent has been obtained photographic evidence can also be used (Costa (2013).

Skin tolerance

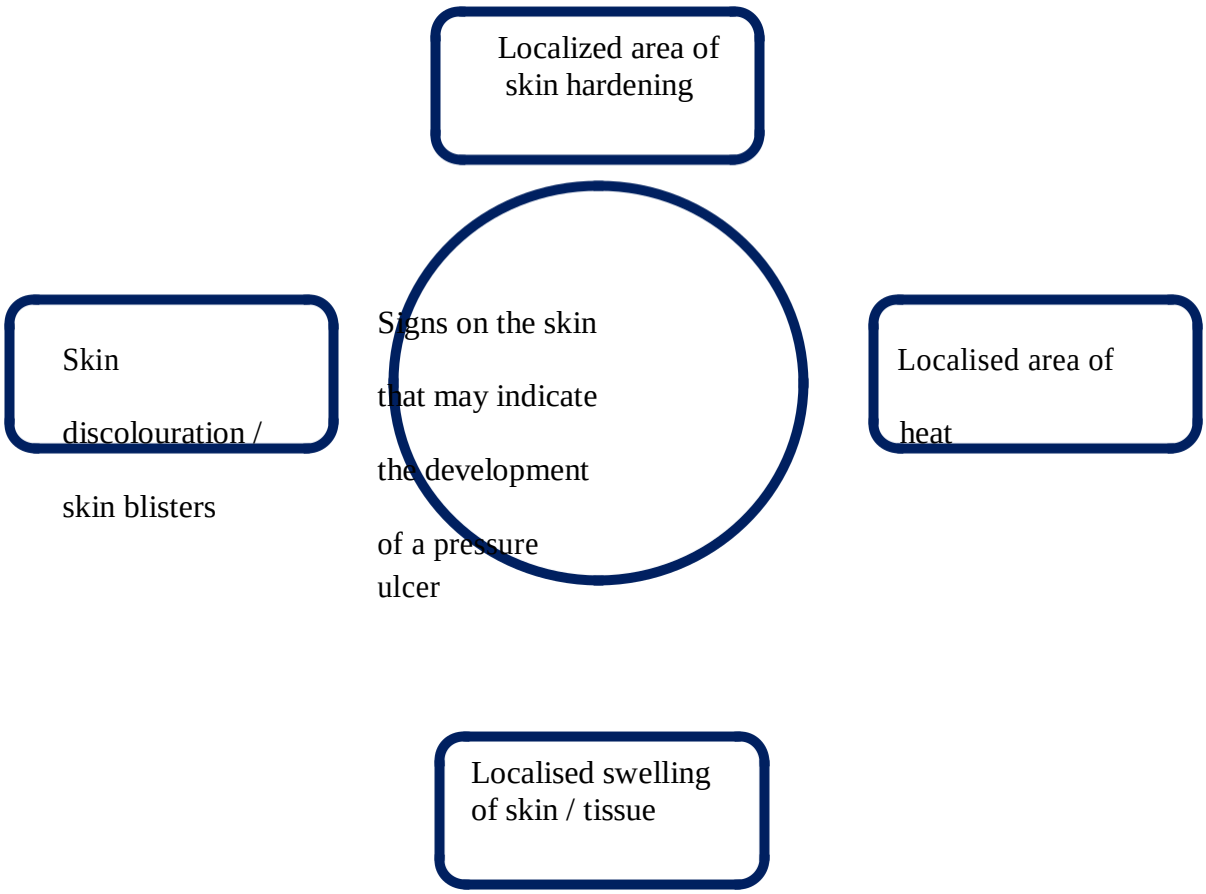
A skin inspection / tolerance test can give an indication of the amount of time tissue can tolerate sustained pressure without damage.

You can undertake a skin tolerance test by:

- Pressing a finger lightly onto the area the patient has been turned from; the skin should blanch (go white) and then return to its normal color.
- This color return should take no longer than twice the length of the time the pressure was applied for (i.e. 1-2 seconds) indicating good blood supply.

Clients with darker skin should be examined closely as the presence of non-blanching erythema is difficult to see. The development of a pressure ulcer can appear as a darker area of skin, a hot spot or have a bruised appearance.

- Clients who have had previous pressure damage must be considered high risk as scar tissue may not regain its full strength. This makes that area vulnerable to further tissue damage and increases the risk of a reoccurrence.



Pressure ulcer rating systems

Additionally, to risk assessment tools, health workers should be aware of pressure ulcer rating systems such as the European Pressure Ulcer Advisory Panel (EPUAP) scale (2009). The use of a common ulcer rating system for describing pressure damage across healthcare settings should help communication between colleagues when clients move between settings and help to ensure that all health workers are speaking the same language when they describe a pressure ulcer, for example at handover.

European Pressure Ulcer Advisory Panel, Pressure Ulcer Classification (2009)

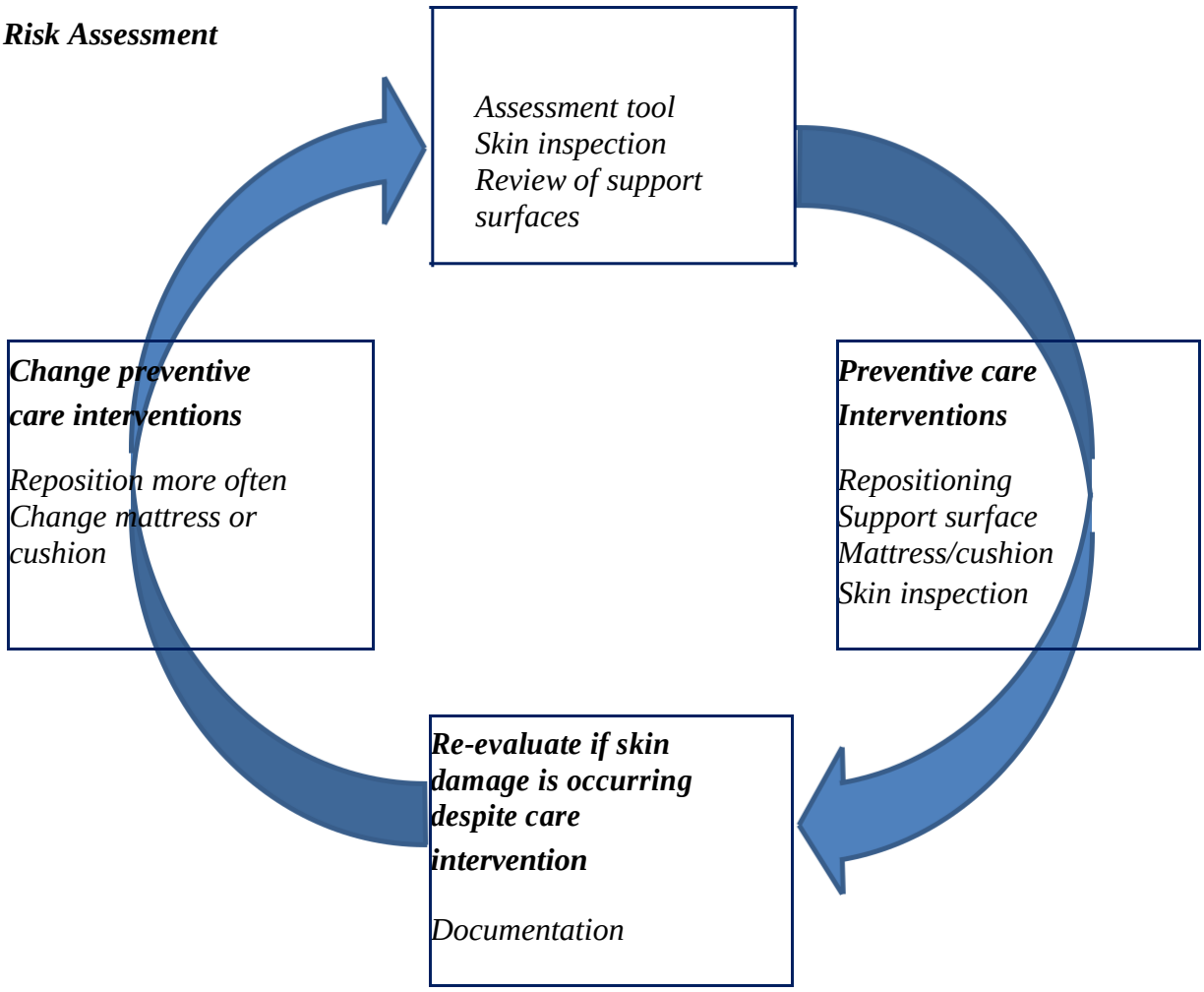
 **Category / Grade 1**	**Category / Grade 1: Non-blanchable erythema** The skin is intact and its appearance that of non-blanchable persistent redness (does not blanch under normal finger pressure) usually over a bony prominence. Discolouration of the skin, warmth, oedema and hardness are also signs, particularly in people with dark skin
 **Category / Grade 2**	**Category / Grade 2: Partial thickness** Partial thickness skin loss involving the epidermis, dermis or both. Can present as an intact or open blister or shallow open ulcer with a red / pink wound bed.
 **Category / Grade 3**	**Category / Grade 3: Full thickness skin loss** Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle is **not** exposed. Slough may be present but does not obscure the depth of tissue loss.
 **Category / Grade 4**	**Category / Grade 4: Full thickness tissue loss** Full thickness tissue loss, with exposed tendon or muscle. Exposed bone/muscle is visible or directly palpable.

Chapter Five

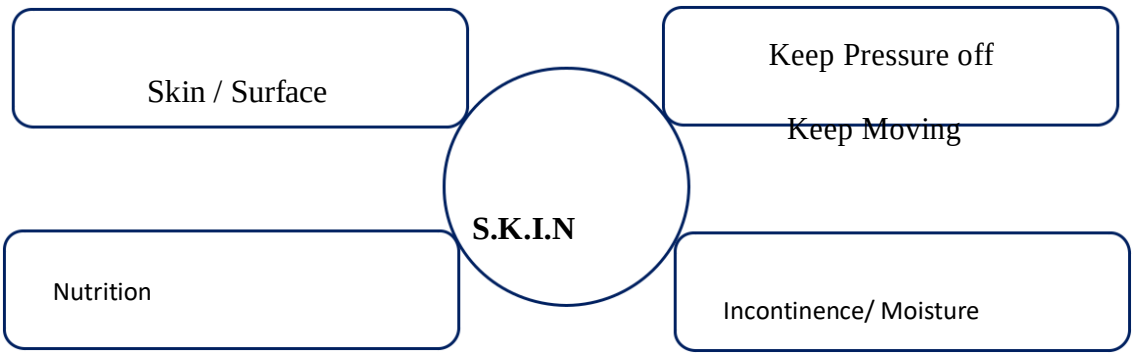
Care through intervention

Whilst it is accepted that in some limited cases pressure ulcers are unavoidable, there needs to be a zero-tolerance approach towards the development of avoidable ones (Guy 2012). The process of prevention begins with a risk assessment. Once this has been undertaken a preventive care plan detailing appropriate interventions must be put in place. The main steps in the overall prevention of pressure ulcers are detailed as below:

The Wheel of Prevention of Pressure Ulcers



In 2010 the NHS institute for innovation and improvement produced the S.K.I.N framework to guide nursing care practice in the prevention of pressure ulcers.



How to reduce development of pressure ulcer through intervention

Pressure – relieving interventions form the cornerstone of the prevention of pressure ulcers. The overall aim is to reduce the amount and duration of any pressure that a client is exposed too. Within care this can be achieved by using a variety of interventions and through, if required, the use of specific pressure relieving equipment.

Positioning and repositioning

If a client is unable to move or change position without assistance the fundamental care principle is to assist them to reposition. Repositioning or `turning' a client to relieve both the amount and duration of pressure does not only apply to clients being cared for in bed but also chairs or hospital trolleys.

To avoid injury to the client and you any moving and handling manoeuvre must be risk assessed and performed in accordance with best practice. Appropriate equipment needs to be available and staff competent in their use.

While repositioning can have a dramatic effect on relieving pressure it is important to remember that pressure is only one factor and that equal attention should be paid to reducing the effect of shearing forces and friction.

If a client is in bed, repositioning them regularly is essential to minimize pressure particularly over the bony prominences. It should also be noted that, repositioning should take place even if a client is being nursed on a pressure-relieving mattress.

Any pressure prevention re-positioning schedule should be based on the following:

- The client's condition, equipment used and the overall care plan
- Any surfaces used by the client, i.e. bed, chair, etc.

The frequency of re-positioning will need to be reviewed regularly and determined by the results of skin inspection and the individual needs of the client. To assist with the schedule a 24 hour re-positioning chart should be used to prompt the change of position. This needs to record accurately how the client is positioned and identify any signs of deterioration.

Termination of life

While repositioning is important for preventing pressure ulcers, its use in end of life care must be carefully assessed. People who are in the last stage of life may experience heightened sensitivity to touch which can make frequent repositioning an unpleasant ordeal. If moving causes more harm than benefit suitable alternative protective measures should be used.

Some tips for positioning

- Always follow a turning / positioning schedule
- Reposition at least every two hours, or more often if needed
- Use pressure reduction devices on beds and chairs and under heels
- Use slide sheets to reduce shear and friction
- Chair seating should be no longer than 2 hours without re-positioning
- Avoid a slouched position or an upright position in bed (these positions may lead to pressure and shear on the sacrum)
- Assist the client to stand up from the chair for a few seconds to relieve pressure and allow the skin to reperfuse
- Reduce shearing forces by positioning clients so that they don't slip down the chair or bed.
- Encourage clients to move and re-position themselves
- Pain relief may be advised if a client can not tolerate re-positioning

Re-positioning can also include what is known as the 30 degree tilt. Research has shown that if clients are nursed in bed at this angle, they can be moved less often up to three hours instead of two hours. In addition clients are less likely to develop skin damage than if they lie flat on bony prominences such as hips, sacrum or heels (Smith & Field 2011). Aids such as pillows or foam wedges can be used to prevent bony prominences from direct contact with one another i.e. knees and ankles

The 30-degree tilt

- Avoid dragging the skin along other surfaces when moving and turning
- Pillows can be placed in-between the knees and ankles to prevent touching
- Positional wedges can be used to keep the client in the 30 degree position
- Bed cradles can be used to keep the weight of bedclothes off the client
- Bedclothes should be changed regularly to prevent client becoming hot and sticky
- Ensure bedclothes are free from creases and crumbs.

Re-positioning the client can

Provide comfort and dignity	Prevent prolonged pressure over bony areas	Be achieved while in bed or chair
Allow the person to function during the tilt	Reduce friction & shear	Avoid positioning directly over a pressure ulcer

Skin Care

The client's skin should be checked for signs of deterioration and damage. How often this is performed needs to be dependent on the client's condition, influencing factors and their care plan. Skin hygiene is also a crucial factor in ensuring that skin remains healthy and free from pressure ulcers.

Heels

Due to the thin layer of subcutaneous tissue between the skin and bone, the heel is the second most common site for a pressure ulcer after the sacrum. The heels need to be inspected regularly; pillows or specific heel protection devices can be used to elevate the heel from the surface of the bed. The clients should be well moisturised and protected from friction. A barrier cream / spray or film dressing can be applied to protect the heels.

The following techniques should be used when providing effective skin care:

- The skin should be kept clean and dry. This is especially important if the client is incontinent. Clients should never be allowed to lie in wet pads.
- The use of perfumed soap should be limited
- Talcum powder should be avoided as it soaks up the skins natural oils and causes the skin to become dry
- Avoid rubbing or massaging the skin too hard, especially over the bony areas of the body
- Skin should be gently patted dry with a soft towel
- Apply moisturiser such as aqueous cream to dry areas of the skin
- Barrier cream such as zinc and castor oil, may be applied if required

Nutrition

Nutrition pays a vital role is maintaining healthy skin. It is widely accepted that undernourished clients are at increased risk of pressure ulcer development. Clients should be encouraged to eat a healthy diet and drink plenty of fluids to prevent dehydration.

Mid-morning, and afternoon snacks should be available for clients who may have missed their meals. Supplemental drinks can also be encouraged for those clients who may struggle eating a whole meal.

All clients at risk should have regular assessments of their dietary intake. This can be achieved by using a screening instrument such as the Malnutrition Universal Screening Tool (MUST).

From the result of the MUST score a relevant nutritional care plan should be implemented. This should be reviewed on a regular basis in accordance with the changing health needs of the client. Those clients who are at risk should be referred to a dietician for expert advice and nutritional review.

Learning

Education and training of the risk of pressure ulcers is an important factor in their prevention. Where possible clients should be encouraged to move themselves and be given guidance on how to do so.

Equipment for pressure relief

As we have seen the key to pressure ulcer prevention is to minimize the level of pressure applied to the skin. The regular re -positioning of at risk clients is crucial in achieving this. Another option for care staff is access to pressure relief equipment. NICE (2005) suggests that all vulnerable people, including those with a grade 1 pressure ulcer should receive as a minimum provision a specialized pressure reducing foam mattress.

The development of sophisticated pressure relief equipment / devices such as cushions, overlays, mattresses and beds has greatly increased over the past 25 years.

Pressure- relieving devices can be divided into low-tech and high-tech devices. This equipment falls into two main types:

1. **Pressure - reducing or redistributing devices (Low-technical devices)**
2. **Pressure - relieving devices (High-technical devices)**

The selection of pressure relieving equipment needs to be part of the assessment criteria and based on the client's individual need, taking into account the following:

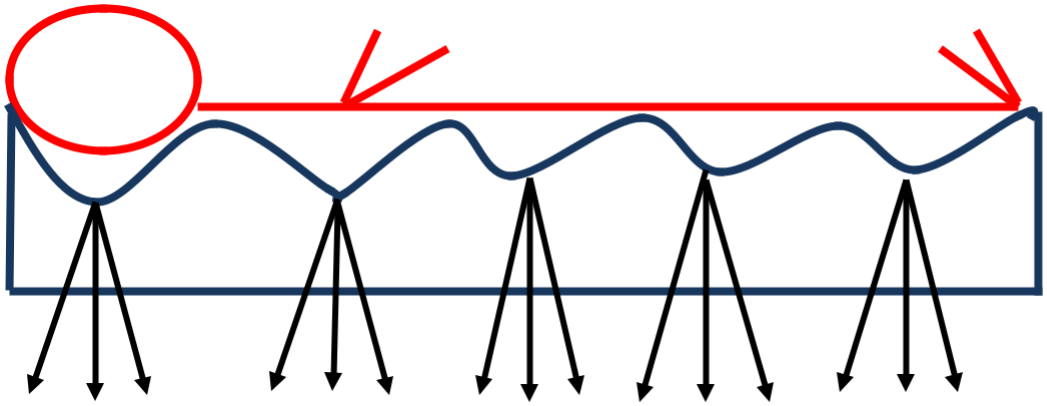
- The client's level of risk & mobility
- The client's level of independence and acceptability
- The cost and effectiveness of the system
- The available space

Devices for pressure reduction

The mechanism of pressure reducing / redistributing devices is to redistribute pressure by spreading the client's body weight over a larger surface area. This means the individual can sit or lie on the device for longer than normal before skin damage occurs. Known as low technical static devices they include:

- Standard foam mattresses
- Alternative foam mattresses / overlays for example, high-specification non moving mattresses / cushions, viscoelastic, convoluted or cubed foam
- Air-filled mattresses / overlays
- Foam-filled mattresses / overlays
- Gel-filled mattresses / overlays
- Body – worn devices, Heel or foot protectors

A pressure reducing / redistributing mattress



A pressure reducing / redistributing mattress

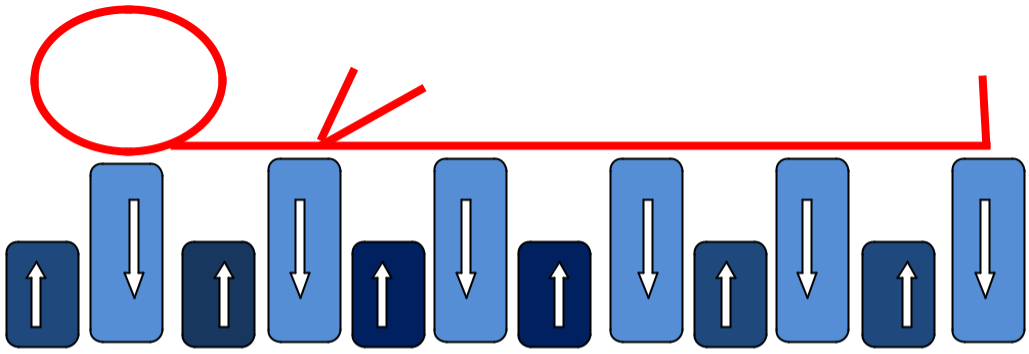
Pressure is spread over a greater area of the body, reducing pressure at vulnerable areas. This helps the supply of blood and nutrients, keeping the skin healthy

Device for pressure relieve

High tech, dynamic pressure relieving systems remove or greatly reduce pressure on localised areas of the skin at varying intervals.

These devices are designed to relieve pressure, allowing blood to return to the skin and tissues, thereby simulating the effects that take place when you change position naturally. These devices include:

- Alternating pressure relief system
- Air fluidised devices
- Low-air-loss devices



An alternating pressure relief mattress

As the diagram demonstrates, one set of cells is inflated and in contact with the body providing support. The other set of cells is deflated, relieving pressure from corresponding areas of the body

References

Bangova A (2013). Prevention of pressure ulcers in nursing home residents. Nursing Standard. Feb 13. Vol 27, no 24, p-54-58.

Bennett G, Dealey C, Posnett J (2004). The cost of pressure ulcers in the UK. Age and Aging. 33, 3, 230-235.

Clark M, Bours G, Defloor T. (2009) The prevalence of pressure ulcers in Europe. In Recent Advances in Tissue Viability (Ed M Clark), Quay Books, Salisbury Costa B (2013) Pressure ulcer: Assessment and prevention in the early stages.

Nursing and Residential care. May 2013. Vol15, no 5, p-258-262.
Dealey C, Psnett J, A Walker (2012). The cost of pressure ulcers in the UK. Journal of Wound Care. Vol 21, issue 6, p-261-266

Dealey C (2012). The care of wounds. A guide for nurses. 4th edition.Wiley-Blackwell.Oxford.

European Pressure Ulcer Advisory Panel; National Pressure Ulcer Advisory Panel (2009). Prevention of Pressure Ulcers. Quick Reference Guide. Washington. NPUAP Health and Safety Executive (2011). Five steps to Risk Assessment. HSE. London Gefen A (2010). How much time does it take to get a pressure ulcer? Ostomy wound Management. 54 (10): 26-35.

Guy H (2012). Pressure ulcer risk assessment. Nursing Times. Vol 108, no 4,p-16-20.

Riordan J & Voegeli D (2009) Prevention and treatment of pressure ulcers. British Journal of Nursing. Vol 18. No 20. P-567
Smith B & Field (2011). Nursing care: An essential guide for nurses and healthcare workers in primary and secondary care. Pearson Publications. London

Department of Health (2010) Essence of Care: Benchmarking for Prevention and Management of Pressure Ulcers. www.doh.uk.gov (last accessed 28.3.2013)

Age UK (2013), latest news/archive. www.ageuk.org.uk

NICE (2005). Clinical guidance. Pressure Ulcers Prevention & treatment. www.nice.org.uk (last accessed 20.05.2013