

Workbook

Pressure ulcers – definition, assessment, prevention and treatment

A workbook to use alongside the Accora Pressure Ulcer training modules to further enhance your knowledge and stimulate self-directed learning and thought.

Contents

Welcome

3

Introduction

4

Module

1

Aetiology of pressure ulcers:
how a pressure ulcer develops

5

Module

2

Assessment of risk: the “a” of aSSKING

11

Module

3

Prevention – aSSKING: The key elements of the PU prevention bundle

15

Module

4

Treatment of pressure ulcers

30

Conclusion and resources

33

References

34

Welcome to the pressure ulcer workbook

An educational tool that includes plenty of exercises. Please set some learning time aside to read it and do the exercises, which you can mark later. You might like to do this before and after attending one of the matching modules.

Have a notebook and pen or electronic means of taking notes handy to jot down your thoughts.

The aim of this workbook and the associated activities is to increase your understanding in the following areas:

- » How a pressure ulcer develops
- » How to identify those people at risk
- » The key elements of the PU prevention bundle are assessment, surface, skin assessment, keeping moving, incontinence, nutrition, giving information
- » How to identify and categorise pressure ulcers
- » The key aspects of treating those pressure ulcers that do occur

Look out for the following symbols throughout the workbook to identify the activities:



Something to do



Something to think about or reflect upon



Something to look at online via a weblink



Something to watch



Something to discuss with colleagues

Introduction

Pressure ulcers, also known as bed sores and pressure sores, have occurred since time began and affect people all over the world. They cause additional suffering to people already living with an illness, disability and immobility.

In England there has been a national programme to drive down the numbers of acquired in care pressure ulcers within the NHS since 2012. During this time pressure ulcers have become a reportable harm and all NHS organisations view them as a clinical incident that must be investigated. These are all reported via each organisations incident reporting system, to the National Reporting and Learning System (NRLS), a central database of patient safety incident reports. This is being replaced by the Learning from Patient Safety Events Service (LFPSE) and most NHS organisations are transitioning to this during 2023-24. The investigation of pressure ulcers now sits within the Patient Safety Incident Response Framework (NHS England, 2022). CQC Registered Providers must notify the CQC of any serious injury that a client/resident incurs during their care: this includes category 3 or above pressure ulcers.

Pressure ulcers can be an expensive drain of care providers' funding, with costs increasing with the severity of the pressure ulcer. Recent research has suggested that the cost to the NHS of treating unhealing pressure ulcers could be as much as £481 million (Guest et al., 2020).

It is not clear exactly how many people have a pressure ulcer, but Guest et al., (2020) estimated 202,000 people could have a pressure ulcer in the UK over a year, equivalent to 0.4% of the entire population. We do know that this rate will be higher in certain care settings, such as nursing homes.

It is clear that certain actions can contribute to the prevention of pressure ulcers, and that ensuring these actions are planned, implemented and documented is key to demonstrating that care has been delivered to the highest standard. It is, however, not possible to prevent all pressure ulcers from happening. The very nature of gravity means unless we can free float those within our care in mid-air, we will not achieve the elimination of pressure ulcers in their entirety.

Understanding how pressure ulcers develop, how to identify those that may develop a pressure ulcer, and knowing what actions to put in place to maximise the potential of prevention, are all essential to any health or social care worker charged with caring for those who may be at risk.



.....
Can you consider a person you have cared for, who developed a pressure ulcer despite you believing you had done all you could do to prevent it?
.....

Take a few moments to reflect on this case and make some notes about all you recall doing to prevent the PU.

Aetiology of pressure ulcers: how a pressure ulcer develops

This module aligns to the session one within the Accora Pressure Ulcer Programme.

Once you have attended the module and completed this section of the workbook you should be able to:

- Identify the structure and function of the skin
- Understand and explain how pressure causes skin damage, and the cascade of events that lead to pressure damage
- Be able to consider this in the context of the people you care for

Keeping skin healthy

Skin health is essential to the wellbeing of a person. Before we understand how a pressure ulcer develops, it is important to understand the skin, its structure and functions. This will help you understand what is happening in the skin when pressure is present for long periods of time, and also to understand what skin function might be lost if a wound is present.

The skin is the largest organ in the body, making up approximately 7% of the total body weight and is concerned with:

Protection – The skin acts as a barrier to prevent entry of substances that may be harmful and the loss of vital fluids from the body. It also provides protection against physical trauma such as pressure, shearing and friction.

Absorption – UV rays from the sun are converted by the skin into vitamin D. The body needs vitamin D to strengthen bones, alongside calcium and phosphorous. Other substances can be absorbed by the skin such as steroids, analgesia, nicotine and Hormone Replacement Therapy, usually via patches but sometimes in the form of cream.

Sensory perception – the nerve endings in the skin allow the body to detect pain and changes in temperature, touch and pressure. This is a protective mechanism designed to remove us from dangerous situations.

Temperature regulation – the skin allows the body to respond to certain changes in temperature by constricting or dilating blood vessels within it. The sweat glands produce sweat, which stays on the skin to allow the body to cool down as it evaporates. When the body is cold, the erector pili muscles will contract, raising the hair and trapping warm air next to the skin.

Storage and synthesis – the skin enables the synthesis of vitamin D when ultraviolet light is present. Vitamin D supports healthy bones as well as bone growth and bone remodelling. It also reduces inflammation as well as modulates cell growth, neuromuscular and immune function, and glucose metabolism. Lipids and water are stored.

Excretion of waste products – the skin excretes waste products such as water, salt and urea in sweat.

Non-verbal communication – the skin can convey many changes within the body through colour changes such as emotions (blushing) or ill health (jaundice). It gives many clues about the physical wellbeing of individuals.

It is vital that skin remains intact to allow the body to perform essential functions.



Write down when you have noticed the skin colour of people in your care change and note why that was.

In particular, think about the following colours:

- Blue
- Black
- Yellow
- Purple

We will consider how some of these relate to pressure ulceration later.

Skin colour changes in darker skin tones:

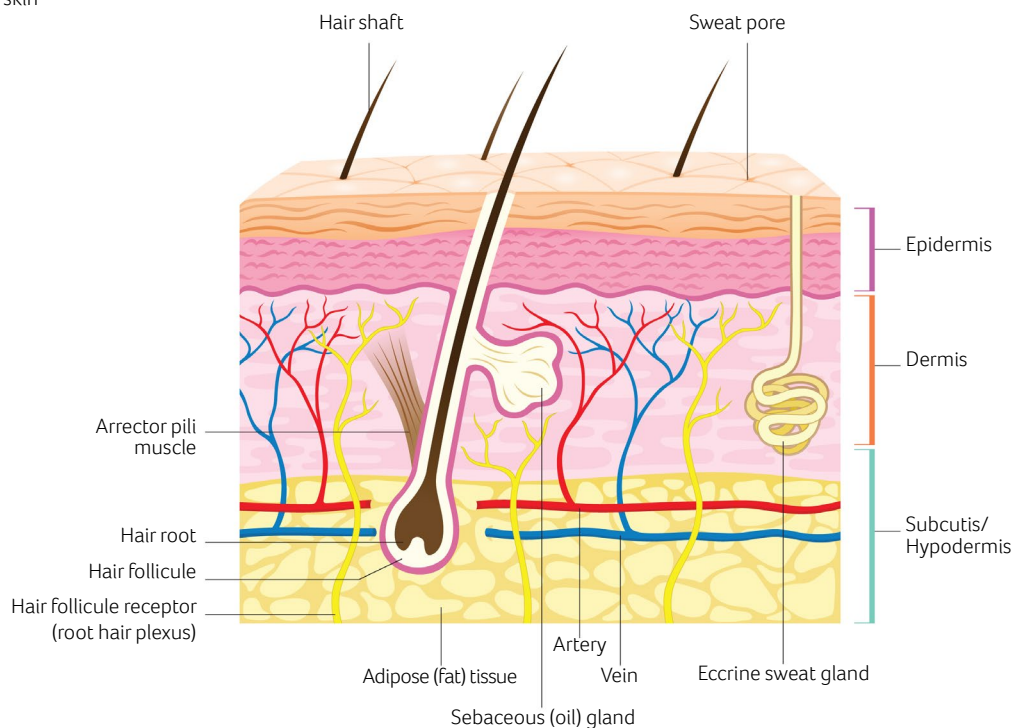
Relying on skin colour changes such as redness in those with darker skin tones can leave them at risk and vulnerable to pressure damage because redness may not be visible in the darker skin tones (Wounds UK, 2021). For this reason it is essential to understand a person's usual skin tone and observe the skin slightly differently for changes. It may be that skin colour change due to pressure is visible and the skin tone may appear darker than surrounding skin. However, it is also

important to touch and feel the skin. Notice if the area at risk feels warmer or harder than surrounding skin. This may indicate an inflammatory response to pressure. If it feels cooler or boggier this may indicate a later stage of pressure ulcer development. Ask the person to report pain or discomfort over the at risk sites as early as possible. These signs can also be relevant in wound care more generally and are also important to observe when considering wound infection.

Anatomy of the skin:

The skin contains 3 main layers:

Fig 1 Diagram of the skin



Epidermis – The epidermis is very thin and contains no blood vessels. It is made up of five cellular layers and the cells move from the base of the epidermis through the layers to the surface, changing shape and structure as they go. The outer layer is renewed every 3–4 weeks. Once damaged, the epidermis repairs itself by a process known as regeneration.

Dermis – the main function of the dermis is to provide physical support and nutrients to the epidermis. Key substances found in the dermis include collagen (protein) and elastin (elastic fibres). Collagen is important because it helps give support and protection within the skin. The dermis also contains nerve endings, sweat glands, sebaceous glands, hair follicles and blood vessels. The nerve endings sense pain, touch, temperature, and pressure, and are a vital part of the body's protective mechanisms.

There are more nerve endings in certain parts of the body such as the fingers and toes.

Sebaceous glands secrete sebum into hair follicles. Sebum is an oily substance that keeps skin moist and acts as a barrier against foreign substances.

Hair follicles produce various hair types that can be found around the body, so can affect a person's appearance. Hair is also involved in protecting the body from injury and can improve sensation.

The blood vessels within the dermis are also involved in temperature regulation.

Subcutaneous layer – is made up of adipose (fatty) and connective tissue, and contains larger blood vessels. The function of this layer is to provide support to the dermis, protection, and insulation.

The effects of ageing on the skin

Ageing results in both visible and structural changes to the skin. Sebum, the skin's natural moisturiser, decreases secretion and this can lead to the skin becoming drier, flaky and more fragile. Dry skin is itchy, and this can lead to scratching and skin breakdown. Nerve endings decrease in number as we age, which

may have an impact on the protective function of the skin. As we get older, there is a decrease in collagen present in the skin, which causes it to appear thinner and less elastic. This affects its ability to protect the underlying structures of the body.



Can you think of any reasons why the skin might become red, and list them here?

- 1.
- 2.
- 3.
- 4.
- 5.



.....
Have a discussion with your colleagues and consider when skin redness due to pressure might not be visible.
.....



.....
Consider, and make a note of, the special measures you take for people who have fragile skin.
.....

How do pressure ulcers develop?

Our body is designed to withstand certain levels of pressure. Fatty (subcutaneous) tissue and muscle over bony areas provides padding, which helps prevent pressure damage occurring.



.....
Think about sitting on the floor. The padding on your bottom provides some protection against the hard surface, but you will soon need to shuffle and adjust your position.
.....

Compare this with a sofa, which enables you to sit for longer. What about your elbow? How long can you lean on a table before it hurts? Try timing it.

In healthy, fully mobile individuals, movement is a natural process when pressure becomes uncomfortable. Prompted by discomfort, this is how we protect ourselves from pressure damage. People who are immobile cannot move independently, and individuals who have reduced sensation will not respond to the normal pain signal to move position. If pressure is sustained, pressure damage will occur. How soon this happens depends on several factors.

The layers of the skin, and indeed all cells in our body (and our bodies are made up of trillions of cells), require nutrients, water and oxygen – just like you do. The natural force of gravity will continually be pulling us towards the centre of the earth. It is this force that creates the pressure force. When you sit for instance, the surface you are sitting on and the sitting bone (real name is Ischial Tuberosity) will be squashing the muscle, soft tissue, and therefore all the structures and cells in your bottom.



Consider all the sites on the body where a pressure ulcer might develop because of a bony prominence and write them down.

Definition of a pressure ulcer

Now is a good moment to define what a pressure ulcer is.

A pressure ulcer is localised damage to the skin and/or underlying tissue, usually over a bony prominence (or related to a medical or other device), resulting from sustained pressure (including pressure associated with shear). The damage can be present as intact skin or an open ulcer, and may be painful.

(NHS Improvement 2018a)

A pressure ulcer will develop when pressure has been present for a period of time long enough to lead to cell death. It is worth noting that the skin is better protected from pressure than deeper tissue like muscle is. As the highest point of pressure will be near the bone, cell death will begin deeper in the layers.

There are two main mechanisms that lead to tissue death following pressure:

1. Pressure (between the bone and the surface the person is sitting or lying on, or the medical device is pressing against) causes the blood vessels to be squashed, and therefore the blood flow can become restricted. As it is the blood that is bringing oxygen to an area, if this reduces then cells can start to “choke”. They may then subsequently die. The eventual tissue death related to this is called ischaemia.

2. Pressure squashing the cells in the tissues and structures causes cell deformation. As a cell gets deformed in shape, its exterior wall can start to leak, or even burst, and cell contents can spill out causing cell death. It is now believed that this is the primary mechanism for pressure ulcers developing. (EPUAP/NPIAP/PPPIA, 2019)

Both mechanisms can lead to an inflammatory response in the body. This leads to more fluid collecting in the tissue spaces (oedema) which leads to further deformation and death of the cells.

So, what we have is a cascading event of catastrophic cell death that is very difficult to reverse once it starts to happen. We know from cell research that cells can die in as little as one hour when under pressure. It is far better to prevent this from happening in the first place.



Discuss with your colleagues any people you have cared for that have developed ischaemia.

(This would likely be dry, black areas of hardened skin on the feet, fingertips, lower legs and over pressure points).

What did it look like?

Do you know what caused it?

How did it make you feel?

How did the person with the ischaemia feel?

Other causes of skin damage are:

Shearing – a mechanical force that occurs when a person’s body slides down a surface such as a chair or bed. As the skeleton slides down the surface the skin is dragged in the opposite direction, and the result is a stretching and twisting of the cells, vessels, and tissues. Shearing in combination with pressure will cause a pressure ulcer.

Friction – occurs when the skin is rubbed in an abrasive action against another surface; this could be due to badly fitting footwear, poor manual handling techniques or moisture-damaged skin.

Moisture – when moisture is present on the skin due to incontinence or perspiration, it will increase the risk of skin breakdown.

Whilst these three aspects do not cause pressure ulcers alone, they can certainly contribute to a more rapid breakdown of the skin due to pressure. Friction can increase with moist skin and surfaces, further increasing skin damage.



Circle all that apply.

Shearing can occur when a person...

- a. is lying flat on the bed
- b. is sliding down the bed
- c. is sliding off a chair
- d. is walking to the toilet

Friction can occur when...

- a. hoisting a person off the bed
- b. changing sheets when a person is in bed
- c. moving a person up the bed using a bed sheet
- d. the feet resting against the bed end

Spotting pressure ulcer development early

Remember: this is taking place deeper in the tissue before it happens in the skin, which is visible to us.

Light or white skin

There are 2 early signs of pressure damage:

1. Pain
2. Redness

Darker skin tones

There are 2 early signs of pressure damage:

1. Pain
2. Discolouration



.....
Think about when you have woken up after lying on your hand. Did you have that ‘pins and needles’ sensation along with some numbness? This is caused by reduced blood supply to the area because of pressure. The same happens when localised areas are affected by pressure, and one of the first sensations the person affected will complain of will be pain or numbness.
.....

If you notice an area of redness/discolouration over a bony prominence or under a medical device, then press it lightly with your finger. Can you see the area turn white then back to red? We call this blanching erythema. It means that the skin and the cells in the skin are reacting to the pressure. You may have noticed this on your knees when you cross your legs. Usually, skin that is red due to infection, moisture damage, skin rash etcetera will blanch white when pressed. This blanching may not occur in some darker skin tones and so cannot be used as an indicator of early pressure damage. Instead use reports of pain/discomfort and touch to feel the texture and temperature of the skin in relation to surrounding skin.

If the area of redness over a bony prominence or under a medical device stays red when you press it with your finger then this is now a pressure ulcer, category 1. In darker skin tones this may present as discolouration (often darker tone) in the area compared to surrounding skin tone. This may also feel warm, tender and hard to touch.

Remember that the skin is better protected against pressure than the deeper tissues such as muscle, this means the deeper tissue will be turning red, purple and black before the skin does. This creates a challenge because what we see at skin level is often happening after what is happening deeper in.

What do I do if I see skin changing colour because of pressure, or a person is complaining of discomfort over a pressure point?

ACT NOW

Refer to module three for what to do

What do I do if this is someone who cannot feel pain/discomfort in their skin and/or redness cannot be seen on their skin?

Refer to module three for what to do

Assessment of risk: the 'a' of aSSKINg

How to identify those people who might be at risk of a pressure ulcer occurring.

This module aligns to the session two within the Accora Pressure Ulcer Programme.

Once you have attended the module and completed this section of the workbook you should be able to:

- Recognise the key primary factors that can increase risk of pressure ulcer development
- Understand other factors that might impact further on the risk
- Understand the place and relevance of risk assessment tools and why they score as they do

What is risk assessment?

We risk assess all the time in our daily lives, probably without even being aware we are doing it, such as when crossing a road. Or we may want to move a piece of furniture at home; we feel it for how heavy it is, and then we get help so two of us are moving it.

We have:

1. Identified a situation that may cause harm: *we want to move a heavy piece of furniture*
2. Ascertained the likelihood of the situation occurring: *we are going to move the piece of furniture and it is heavy*
3. Ascertained the level of harm that might occur: *if we move this on our own, we might hurt our back*
4. Identified and implemented a strategy to prevent the situation occurring: *cannot prevent, we need to move the piece of furniture*
5. Or to reduce the likelihood of the situation occurring if it cannot be prevented fully: *cannot prevent, we need to move the piece of furniture*
6. And to reduce the level of harm caused should the situation occur: *we will move the piece of furniture with someone else, and perhaps a piece of lifting/moving equipment, so that two of us reduce the load.*



.....
List some of the risk assessments that are carried out at work, both for yourself and for the people you look after.

A risk assessment allows us to consider the likelihood that a situation may occur, and the level of harm that could occur should the situation take place.

In pressure ulcer risk assessment, we are considering what risk factors a person may have that might mean they could develop a pressure ulcer in our care.

The National Institute for Health and Care Excellence (NICE) advises us to “Consider using a validated scale to support clinical judgement when assessing pressure ulcer risk”. (NICE, 2014)

When is risk assessment carried out?

National Wound Care Strategy Programme (NWCSP, 2023) recommends that:

- Everyone receiving care from a health or care professional should be screened for pressure ulcer risk using the PURPOSE T tool, or other validated risk assessment tool that, as a minimum, contains the same risk factors.
- Those identified as being potentially at-risk following screening should receive a full pressure ulcer risk assessment using the PURPOSE T tool, or other risk assessment tool that, as a minimum, contains the same risk factors.

Risk assessment should be done:

- Within 6 hours of admission for those admitted to hospital or a care home with nursing
- At the first face-to-face visit in a community health care service. This includes virtual contact via telephone or video and may be based on questioning the patient about their skin.

NWCSP (2023) also recommends that we reassess pressure ulcer risk:

- If there is a change in that person’s condition, circumstances or environment
- Weekly in acute care and monthly in community settings or care homes

However, do check your local policy/guidance as this may differ from national recommendations and that will take precedent.

Risk assessment using clinical judgement

In Module one, we described the mechanism of how a pressure ulcer occurs. We ascertained that pressure needs to be present for a period of time long enough to cause cell deformation and reduced blood flow sufficient to cause cell and tissue death.

The number one risk factor therefore is immobility. If a person cannot independently move themselves, or cannot do this often enough to protect them from pressure, then they are most likely to develop a pressure ulcer.

However, there is another risk that can cause a pressure ulcer independently of immobility and that is:

A device, medical or otherwise, that is resting against the skin.

The third factor that can seriously increase a person’s risk of developing a pressure ulcer is their ability to feel. If they have any sensory loss that reduces their ability to feel the discomfort or pain caused by pressure, then they do not know to move, or to move the medical device. Whilst sensory loss or impairment does not directly cause a pressure ulcer, it can have a significant impact on an individual’s ability to recognise that pressure is causing a problem. This means they won’t know to move, to alert someone else they need to move, or to move the medical device.

Complete the table below, thinking about the people in your care.



Reason for immobility or reduced mobility	Reason for sensory loss or impairment	Devices that might press against the skin

Other factors increasing risk

In Module one, we talked about how long it can take to develop a pressure ulcer. If someone is well but has reduced mobility, a young adult with spina bifida for instance, they may be able to live independently moving themselves frequently. If they cannot move, the fact that they are well fed, hydrated and oxygenated, means it would take longer for pressure damage to occur than someone who may also have spina bifida, but is under-nourished and has a respiratory or vascular disease, for example.

Any interference with oxygenation to the skin can also increase the likelihood of pressure ulcer development when pressure/shear are present. Conditions such as peripheral vascular disease or Chronic Obstructive Pulmonary Disease may reduce available oxygen or blood flow further heightening the risk of pressure ulcer development if pressure/shear are present.



Complete the table below, thinking about the people in your care.

Consider what might affect the flow of blood to an area, or the level of oxygen/nutrients/water in the blood, and what might affect the skin and tissues to better protect itself from pressure

Other factors increasing risk - intrinsic	Other factors increasing risk - extrinsic

Risk assessment tools

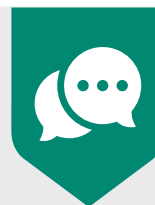
You might be familiar with using a pressure ulcer risk assessment tool such as Waterlow, Braden or PURPOSE T. These tools are designed to help you identify those people who might be at risk of developing a pressure ulcer, so you can target prevention strategies and resources to prevent one developing. They are designed to be used as a guide alongside clinical judgement. There are multiple variables within the scores that can impact on a person's final score – remember, if they can move independently, and they do so frequently enough to prevent pressure damage occurring, then their risk level is lower at that time, even if their score is higher. Of course, their risk level may change rapidly if something happens to restrict their mobility. PURPOSE T, however, does not use a score. It uses colours to select risk factors and the final risk level outcome and associated pathway is also colour coded.

Very often the final risk assessment score is used to help select pieces of pressure prevention equipment, such as a mattress or cushion. Rather than considering just the score, it is best to consider the factors specific to that person and base equipment choice on this. This will be explored further in Module 3a: Surface.



.....
Take a look at the risk assessment tool used in your area, if you use one, and make a note of the factors scored in the tool that are listed above.
.....

Now notice the score they are given, and how much individual factors can score higher (or lower if using Braden) than others. If you use PURPOSE T then notice what scores red, orange or blue.



.....
Reflect on all the people you may have cared for. How many of them were experiencing pain and taking analgesia for it? Do you think this might have increased their risk of developing a pressure ulcer?
.....

Discuss this with your colleagues and manager.

Prevention – aSSKINg:

The key elements of the PU prevention bundle

This module aligns to the session three within the Accora Pressure Ulcer Programme.

Once you have attended the module and completed this section of the workbook you should be able to:

- Understand the aSSKINg bundle and how this supports the most important aspects of pressure ulcer prevention
- Gain deeper insight into each aspect of aSSKINg, what the key aspects of care within each element of the bundle are, and the importance of documentation
- Recognise the early warning signs of pressure damage, and what actions must be taken immediately

The SSKIN PU prevention bundle has been in place within NHS settings for several years now. Most recently NHS Improvement (2018b) adapted the bundle slightly for an educational framework, aSSKINg.

The 'a' represents assessment, which we have covered in the previous module.

The 'g' represents giving information. At every stage of pressure ulcer prevention, it is important to provide information and education to the person affected, their family, carers and anyone else involved in providing their care.

These two elements of the aSSKINg bundle don't in themselves prevent pressure ulcers. SSKIN represents five important elements of care that are required to directly reduce someone's risk of developing a pressure ulcer.



.....
Have you heard of SSKIN before?
What do you think each letter
stands for?
.....

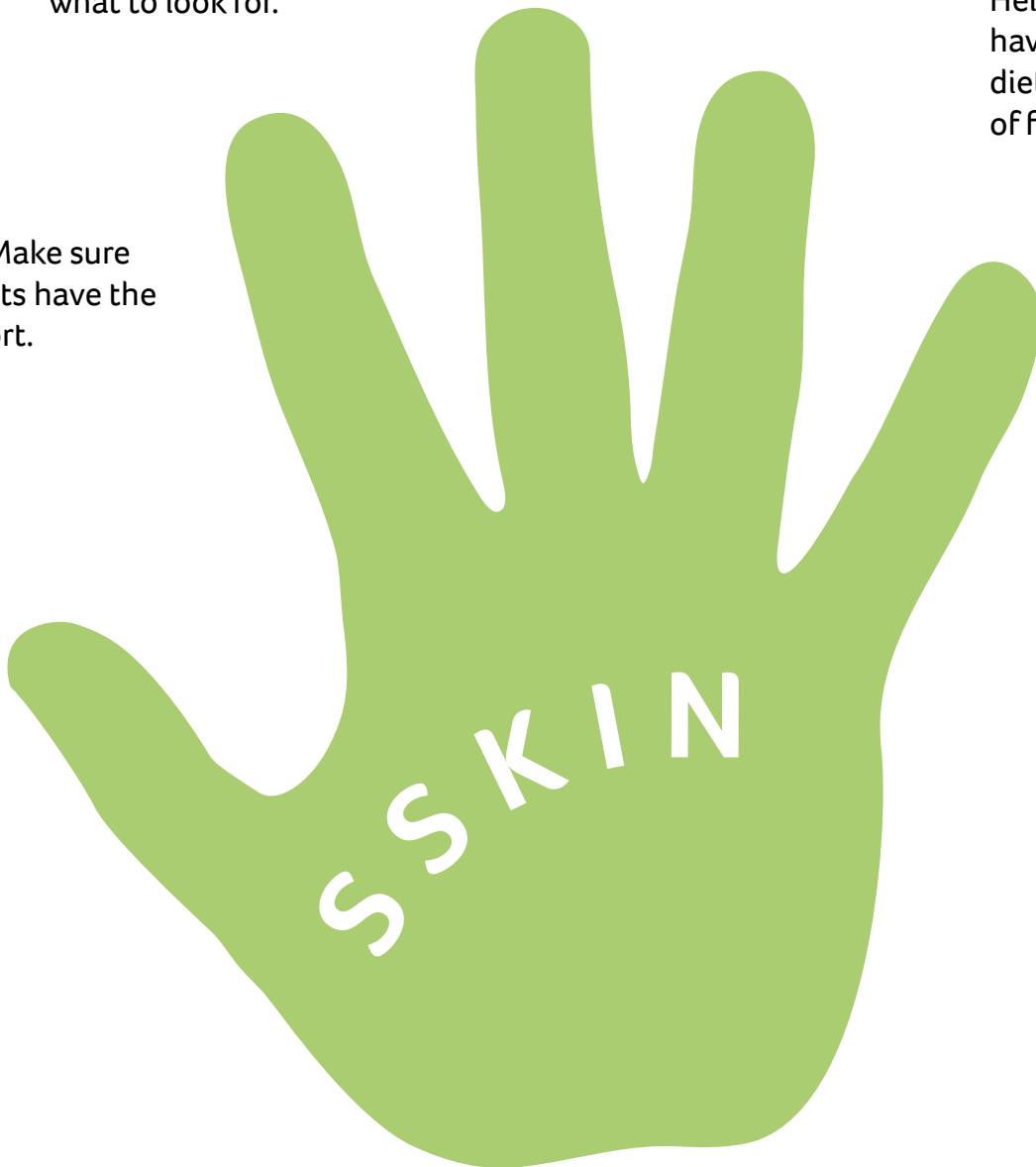
Keep your patients moving.

Skin Inspection:
Early inspection means early detection. Show patients and carers what to look for.

Incontinence/ Moisture:
Your patients need to be clean and dry.

Nutrition/ Hydration:
Help patients have the right diet and plenty of fluids.

Surface: Make sure your patients have the right support.



Module 3a: Support surface

When a person is lying or sitting, pressure is exerted through the skin onto the soft tissue. The amount of pressure is related to their weight, and the size of the contact area between them and the surface. Using an appropriate support surface is key to preventing and managing pressure ulcers, as well as increasing comfort.

A support surface can be:

- A specialist bed
- A mattress or overlay
- A cushion for use in chairs and wheelchairs
- A specialist chair, such as a riser recliner or tilt in space chair
- Heel protectors
- Other pressure redistribution devices for other contact areas, such as under medical devices

A support surface reduces the level of pressure on one area of tissue. This is known as pressure redistribution.

Support surfaces redistribute pressure by either allowing a person’s body to sink into them (we call this immersion), therefore the weight is spread over a larger area, or by intermittently removing pressure (pressure relief) from certain areas of the body, allowing tissues to recover before pressure is exerted again.

Pressure redistribution	Pressure relief
Static foam and air/gel mattresses	Alternating air mattresses and cushions
Low air loss mattresses	Alternating hybrid foam and air mattresses
Static foam and air/gel cushions	Specialist chairs with integral alternating air cushions
Specialist chairs and wheelchairs with integral static cushions	
Silicone, foam, gel, microbead products	

There are also products available that can slightly tilt a person in bed. These can be a tilting mattress or a platform that lies underneath the mattress. These will tilt a person from left to right and back over a period of time, thereby reducing the time spent on any one pressure area, and reducing the need for them to be “turned” as frequently as may be necessary to protect the skin. These are useful for people who cannot move at all in bed, find moving painful or are at the end of their life and comfort is paramount.



.....
Write down all the different mattresses and support surfaces you use within your care setting.

What type of support surface are they?
 (use the Great Skin How To: Use Support Surfaces Effectively to help you)

When should a support surface be used?

Anyone at risk of, or suffering with, existing pressure damage should be nursed on a support surface, and as a bare minimum on a high-density foam mattress. When a person is in bed, sitting in a chair or travelling in a vehicle, a support surface should be used. Any person sitting in a chair for long periods of time is at greater risk than when in bed, because pressure is exerted on a smaller area.

By choosing and using an appropriate support surface, tissue damage caused by pressure can be reduced. Remember that regular inspection of the skin over bony prominences will allow for early detection of reddened areas, even when using a support surface.

It is **important** to remember that if you are using a support surface, people should still be encouraged to change position or be repositioned often.

Selecting the surface

Which mattress or cushion/seating system to use depends on several factors:

- Risk of pressure ulcer development, in particular relating to the person's ability to move
- Person's choice and comfort
- The person's need to independently mobilise or rehabilitate
- Compatibility with the bed or chair
- Whether the current support surface is adequately protecting the skin from pressure or not

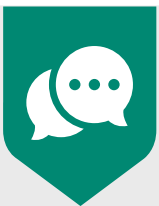
Make sure everyone knows how to use support surfaces correctly.

Read the manufacturers guidance! Google the name of the equipment.

There are a huge range of mattresses and other support surfaces available. The cost can be a challenge to individual organisations, and approaching the correct person to gain advice is essential. It may be necessary to contact specialist services and apply for funding when people have special requirements. Funding access can vary.

Documentation

Record which types of support surfaces are in use, how the person using them finds them in terms of comfort, and that they are fully functioning as expected. Maintain a daily record for staff to check that alternating air mattress settings are correct for the person's weight, and that the mattress is switched on and working.



**How often should a person be repositioned when using a support surface?
Does it differ for each individual person?**

When is it necessary to reposition more frequently?

Repositioning is covered in Module 3c- Keep Moving in more detail

Module 3b: Skin inspection

Skin inspection is a vital part of daily care for the people you care for. **Early detection means early intervention and prevention.**

Early signs of pressure damage include:

- Reddened areas of skin on light skinned people
- Discoloured patches on dark skinned people
- Blisters
- Hot/cool areas
- Swelling
- Patches of hard skin
- Areas that feel hard or boggy
- Painful or numb/tingling areas



Remind yourself which areas of skin in particular you are inspecting on the people you care for.

Remember this relates to pressure damage, not other causes of skin damage.

Self care

Where they are able to, encourage the people in your care to inspect their own pressure points for damage. Using mirrors might help. For some parts of the body, they might need to rely on family members, or you, to do this for them.

Non-blanching persistent erythema [category 1 pressure ulcer]

When an area of redness or skin discoloration is observed over a bony prominence, non-blanching erythema can be detected by applying light finger pressure over the area for 10 seconds. The area in healthy skin should turn white and when pressure is released will return to normal colour. In an area of persistent erythema, the skin will remain reddened when applying pressure. This will be the point of identification of risk, and should trigger the use of the SSKIN bundle if not already in place.

See red?

See colour change?



Act now

Feel pain?



Write down here some instances when you might not be able to see redness in the skin due to pressure, or when someone might not be able to feel or report pain over pressure areas or under devices.

Won't see redness	Won't feel or report pain

What to look out for when redness isn't visible, and the person cannot feel or report pain.

- Darker brown/bluish/purplish patches that do not go away
- Blisters, or damage to the skin
- Patches of hot skin, hard skin or cool skin
- Swelling
- Pain over the bony area

If they cannot move, cannot report/feel pain and you cannot see skin colour changes readily then they are very high risk.

Module 3c: Keep moving

It is important that you work with the people in your care to find ways to help them move around and change position. This will include the importance of:

- Sitting and lying correctly
- Making regular small adjustments to their position
- Offloading pressure on the heels
- Using equipment correctly

People who are able to get out of bed or a chair should be encouraged to do so often. Sitting time should be restricted to less than 2 hours in any one period. Encourage standing or tilting to alter position in this time frame. This will reduce the amount of time spent on a damaged or at risk area. It is important to ensure the chair and cushions allow for correct support distribution of weight, postural alignment, and support of the feet. This may include using riser recliner chairs, heel protectors and/or placing feet on a footstool.

How often should someone change position?

How often someone needs to be encouraged to move, advised to move, or helped to move will very much depend on their risk factors, their skin, and their environment.

Generally, a good rule of thumb is to **move when pain/ numbness or redness/discolouration** in the skin are occurring – these are the indicators that the skin is not tolerating the pressure. Regular inspection of the skin over bony prominences when moving and assisting people will help to inform the time period needed between position changes, and to identify areas of damage early.

Some people who live on their own and cannot move independently, may only be helped to move four times during the day and never overnight, depending upon their care package. As such they may be in the same position for 12 hours overnight. With the right support surface this may be adequate, but if their skin is red and painful in the morning, then the support surface will need reconsideration.

If the person is to remain in bed and cannot move independently, their position should be changed at regular intervals. This is usually at least every 4 - 6 hours (NICE, 2014). However, poorly managed pain, mental capacity, being at end of life and personal choice may prevent this level of frequency. Of course for those in their own homes who need help to reposition this is rarely possible. Maximising the support surface, posture and the bed or chair positions at the visits can help to reduce pressure over high-loading areas.



Useful tips to remind when to move

If you are in a care home setting you can use clockfaces (often called turning clocks) to remind you when someone is next due to be repositioned.

Set an alarm in the sitting room to remind residents to move when it goes off.

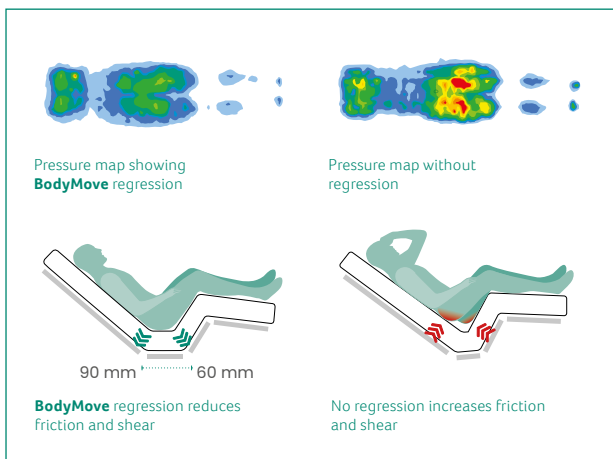
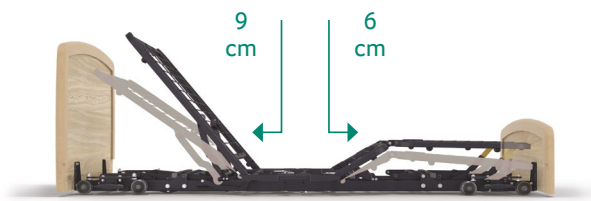
People in their own homes can be reminded to move when a TV or radio programme finishes.

Tilting devices and the profiling function of the bed and recliner chairs can be used to alter positions slightly where larger positional changes aren't possible or tolerated.

What positions can be used?

In bed, pillows can be used to position the person on alternate sides to avoid pressure on a bony prominence for a prolonged period. Maintain a [30-degree lying position](#) (NHS Midlands and East how to keep moving) where possible. Research has shown that this is more effective at preventing pressure ulcers, and takes less time than when lying people on their hips at what is called a 90-degree position (Moore et al., 2011).

Electric profiling beds can also be used to change position.

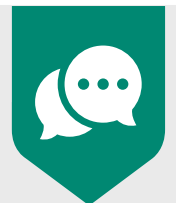


With your colleagues, watch this video demonstrating how to position a person using the 30-degree tilt.

<https://www.youtube.com/watch?v=zoMaR1FmeDs>

Now practice with each other if you have the opportunity.

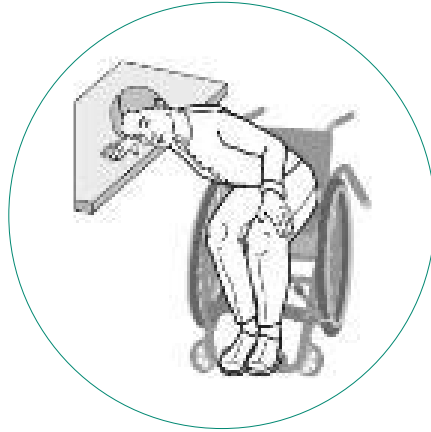
Discuss some of the people in your care and consider who might benefit from this way of positioning.



In chairs, assist people to stand up and go for a walk frequently. Encourage them to use the toilet and walk there or sit them nearer the toilet if this makes this easier for them.



Leaning from side to side



Lifting



Leaning forward

Images ref: Spinal Injuries Association, Living with SCI Factsheet

Leaning positions can also be encouraged. Every 20 or 30 minutes, advise people to lean to the side, forwards or push up with their arms using the arms of the chair.

Where tilt-in-space or riser recliner chairs are in use, then the moving functionality of these can be used to change positions, often independently by the user. Teach them how to use the controls.



Friction and slide sheets

Movement and moving people can lead to friction.

Using slide sheets provides some protection for you by reducing the likelihood of injury to you, and reduces the risk of skin injury to the person being moved.

When moving someone up the bed, you must always use a slide sheet if they cannot move themselves. But, are their heels also protected? What about when hoisting out of bed? What happens to the heels? Use slide sheets under the heels also to protect them from friction damage.

If you do not know how to use slide sheets, then please ask your employer to provide some training. This is a Health & Safety requirement by law.

What if someone already has a pressure ulcer?

If the person you are caring for already has a pressure ulcer, it is important that they remain off that area **at all times**. If the ulcer is on their sacrum or ischial tuberosity this may mean them spending many hours in bed. International guidelines recommend for an individual with pressure ulcers in the seating area that sitting sessions are limited to three times a day for durations of 60 minutes or less (EPUAP/NPIAP/PPPIA, 2019). Psychosocial needs do need to be taken into account when agreeing this kind of life activity restricting plan. Helping them sit out of bed for meals can be useful and also help them eat better.

Documentation

At risk people need to have a repositioning chart in place. This should be regularly reviewed, to assess how often repositioning should take place. Turning clocks can be used together with charts to act as a visual reminder.

People in their own homes can be encouraged to fill in a movement diary. Perhaps their family members can help with this?

Times of movement are also times of opportunity to inspect the skin for marking and pain due to pressure.

Remember, if you have any concerns about the integrity of the skin in the people you care for, and you are worried they might develop a pressure ulcer despite your best efforts to prevent one, or you can see one is developing, contact your local community or practice nurses.

People agreeing to the care plan

You will come across some people who do not like moving, or do not want a special mattress or bed. It is important to ensure that they are fully informed of the risks of not agreeing to this treatment and equipment. They need to understand just how bad a pressure ulcer can be, and what the severest of consequences might be if they do not move or protect their skin from continued pressure. However, should they still not wish to agree to suggested interventions a shared decision care plan needs to be made that perhaps allows some compromise that they are agreeable to.



.....
This [video](#) is a good tool to use if the person is willing to watch it
.....



.....
Think about all the people you provide care for. Next time you visit them, consider their position and how often this might be changed.
.....

What help can you provide to them to support them with moving more?

Module 3d: Incontinence

Managing Incontinence and moisture

Both incontinence and pressure ulcers are common and often co-exist. People with incontinence are most likely to be immobile and elderly, both of which increase pressure ulcer development.

A skin care programme should be implemented immediately to prevent damage.

Who is affected?

It is estimated that around 7 million people in the UK (5-10% of the population) have urinary incontinence (Hall, 2019).

Combined faecal and urinary incontinence can affect almost 50% of nursing home residents. It is important to establish the cause of incontinence through a full assessment. This should include an examination of the urine to exclude a urinary tract infection. Where possible the cause of the incontinence should be addressed as well as the symptoms. This may involve a referral to the community nursing or incontinence nursing team.

This module section is concerned with skin care – to learn more about incontinence, who is at risk and how to manage it visit the Incontinence UK website



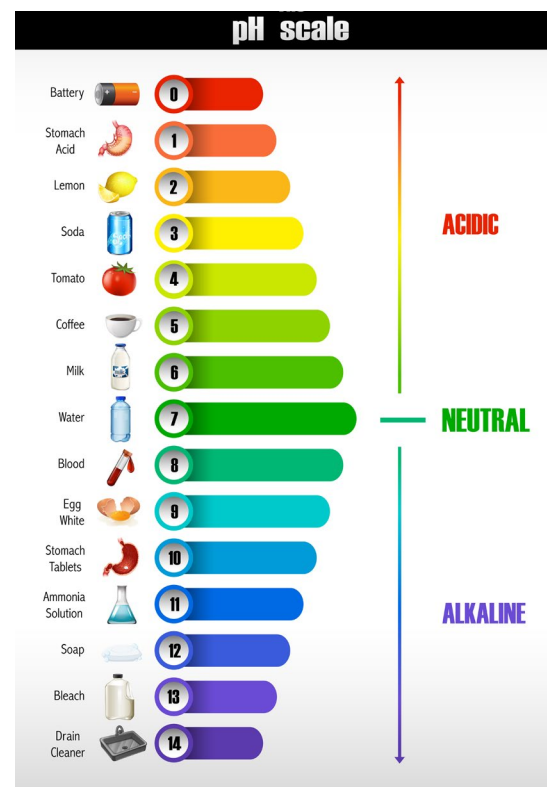
Moisture damage

Intact skin provides a barrier against excessive moisture. If the skin is in contact with fluid such as sweat, urine or faeces for a prolonged period it will become wrinkled, soft and soggy. This will make it more susceptible to damage. When ageing skin is exposed to moisture, because it is thinner and more fragile it is even more vulnerable.

A moist area of skin or surface also increases the friction, which can also lead to skin damage.

Moisture affected skin, particularly on the bottom, can be more at risk of developing a pressure ulcer.

The normal pH of the skin is between 4.5 – 5.5 (acidic). In people with urinary incontinence urea can change the skin environment, breaking down the barrier and changing the natural pH, making it more alkaline. When mixed with faecal enzymes which can produce ammonia, this can become very corrosive. This causes the skin to become red and break down. This skin irritation is known as maceration, incontinence associated dermatitis (IAD), moisture associated skin damage (MASD) or excoriation. Any ulcers that develop as a result are called moisture lesions.



Skin protection

The maintenance of skin integrity is vital for the prevention of pressure ulcers and moisture lesions (Hall, 2018).


The aim is to keep skin clean and dry. This can be achieved by the following:

- Gentle skin cleansers or soap substitutes
- Simple moisturisers
- Protective skin barrier products
- Incontinence products
- Faecal management systems

After each episode of incontinence, the area should be cleansed using pH balanced soap or a soap substitute, and avoiding harsh soaps. The skin should then be carefully dried, and the barrier product of choice applied correctly.

A barrier film or cream can act as a waterproof physical barrier between the skin and other substances. This can be used in combination with continence products. Selection of a pad is important to achieve a suitable level of absorbency, the correct size and shape for the person. Using large amounts of thick creams and ointments must be avoided. Ensure that all care staff are made aware of the correct amounts of each product to use for a skin care regime to ensure the incontinence pads are able to absorb fluid effectively.

If the skin is not protected from exposure to urine and faeces this can eventually lead to a pin prick pattern of redness, followed by excoriated weepy skin lesions. If a lesion develops, it is important to identify whether it is due to moisture associated damage or pressure damage.




.....
[Check out this link for more detail on skin care](#)
.....

Incontinence pads

Body worn incontinence pads are designed to absorb the urine and fluid from faeces away from the skin. It is never advisable to use a surface pad to protect the seat cushion or mattress, unless it is for during a procedure such as cleaning up. Surface pads can reduce the effectiveness and benefit of any pressure-reducing cushion or mattress.

Body worn pads need to be considered carefully to ensure the right size, level of absorbency and type are used to meet the needs of the person.



.....
[Check out this link for more detail on incontinence pads and how to apply them](#)
.....

Other moisture lesions

There are other common types of moisture lesions, as well as those caused by incontinence.

The most common, **sweat**, can cause moisture damage known as *Intertrigo* in the creases and folds of the skin. Commonly this is seen under the breasts, under an overhanging tummy (called the apron), in the natal cleft of the bottom, in the groin and under the arms. People who are very overweight may have more skin folds, and so have more areas that intertrigo can occur.




Hotter weather may lead to an increase in intertrigo – inspect skin folds

The skin damage may present as a fissure (crack) in the skin fold. This will be narrow, long and linear in shape.

Washing using soap substitutes and using barrier creams can prevent intertrigo. Using some barrier creams or films can help to heal any fissures that have developed.

Infection caused by bacteria or fungus can make the whole area very red and sore. If you see this then you may need to involve the doctor or community nurse.

Assessment of those in your care should help to identify if an individual is at risk of developing a moisture lesion.



.....
Write down what you think might put someone at risk of developing moisture associated skin damage.
.....

Differentiating between pressure ulcers and moisture lesions

It is important to understand the difference between moisture lesions and pressure ulcers, because the treatment approaches are different.

There is often confusion when trying to assess whether a person has a moisture lesion or a pressure ulcer. The link above will help you with this. It is important to remember that if moisture lesions are not treated correctly, they can worsen, and individuals can develop secondary pressure damage and ulceration more readily.



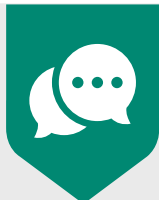
Moisture lesions are due to exposure of excessive moisture and are not caused by pressure

Follow this [link](#) and open the pdf download to a useful pictorial guide to help differentiate between moisture lesions and PU

Moisture lesions do not “turn into” pressure ulcers but pressure ulcers can develop within moisture lesions. Moisture lesions can also become infected, and this can sometimes erode the tissue into a deeper wound, particularly when faeces are involved. This does not mean it is a pressure ulcer.

The table below describes the differences between a pressure ulcer and a moisture lesion.

Pressure ulcers	Moisture lesions
Pressure or shear must be present	Moisture will be present
Situated over a bony prominence	A lesion that is limited to the natal cleft and has a linear shape is likely to be a moisture lesion
Have a regular shape, mostly circular	Diffuse different superficial spots over the buttocks
Will have depth, partial thickness or full thickness skin loss with distinct wound edges	Necrosis is rarely present
Necrosis can be present	Perianal redness and skin irritation
Red skin non-blanchable or skin colour changes in darker skin tones	Red skin widely spread and blanches



Discuss with your colleagues how much barrier cream or spray should be used, and how often it should be applied. Read the labels on the products or look at the company websites for more information.

Demonstrate to your colleagues the amounts of each product and how it should be applied.

Module 3e: Nutrition and hydration

Eating well and drinking enough water are very important for good skin health. It is particularly important for people at risk of developing a pressure ulcer, or those with an existing pressure ulcer, as their condition may worsen without it.

As we have discussed, pressure ulcers are caused by many different factors. While immobility is an important factor in the development of pressure ulcers, there is also a strong relationship between nutrition and hydration, and development of skin damage. So, whilst it does not cause pressure ulcers, malnutrition is likely to influence the ability of the skin to deal with pressure and the damage that it causes. Fortunately, malnutrition is a reversible risk factor, and it is therefore important to get nutritional care right in health and social care settings.

Impact on skin and body function

As the body gets older, cell loss and organ degeneration can significantly change body function. There can be loss of muscle and an increase and re-distribution of body fat. A reduction in mobility can lead to obesity. Bone density also reduces with age, and bones become thinner. This leads to an increased risk of bone fracture and a loss of height.

As we have seen previously in the workbook, as skin ages it becomes thinner, loses its tensile strength and elasticity. Blood

vessels become more fragile, making bruising easier. There is an increased risk of injury, and even a small injury can damage the skin, which takes longer to repair. All this can happen in healthy, normally nourished individuals. If you add in the effects of under-nutrition, where the right building blocks for tissue repair are missing, then it is easy to see how important nutritional care is. Wounds can also take longer to heal in malnourished individuals.

Recognising malnutrition and dehydration

Malnutrition is common and often under-recognised. The effects can take weeks or even months to become noticeable. Screening for malnutrition is a way that nutritional problems can be identified early to enable treatment to take place. You might have heard of **MUST**. This is a screening tool for malnutrition that nurses and other health professionals will use. It is a simple tool and NICE recommended (NICE, 2012).



Follow the [link](#) here to the BAPEN web pages where you can explore more information about malnutrition and MUST.

Signs of dehydration may be recurrent urinary infection, constipation, dark urine, dry mouth, dry skin, headache and history of falls. It can be caused by sweating, hot weather, diarrhoea, diuretic therapy and dysphagia. People need 6-8 cups of fluid per day to stay well hydrated.



Follow the [link](#) here to play the NHS Stop The Pressure Nutrition Game online.



Write down what you and your colleagues can do to ensure adequate nutrition and hydration for people in your care setting.



You can play this with colleagues, friends or family.

Once you've done that, check out the NHS Stop The Pressure's really easy to read How to: Maintain high quality nutritional care leaflet available [here](#). This has some nice Dos and Don'ts to guide you.

Module 3f: Giving information

At any point along this journey of preventing pressure ulcers, it is important that the people you are caring for, or their relatives, friends and carers, are provided with enough information so they fully understand what you are wanting to do and why. If they understand just how bad a pressure ulcer can be, and they understand what they need to do themselves to prevent them from happening, they can support the care you are delivering.

Information leaflets

You may have access to a leaflet you can use, or maybe the community nurses have given the person a leaflet if required. If not, there are a couple online you can easily access.



.....
This [leaflet](#) is from NICE

And [this](#) is from the Public Health Agency for Northern Ireland
.....

Treatment of pressure ulcers

This module aligns to the session four within the Accora Pressure Ulcer Programme. These sessions differ slightly depending on whether you are a nurse or not.

Once you have attended the module and completed this section of the workbook you should be able to:

- Gain insight into the main aspects of care in the treatment of pressure ulcers (including categorisation)
- Non-nursing
 - understand what your role is within the management of a pressure ulcer
 - know how to find out more information about the dressings in use
- Nursing
 - understand wound management with regard to pressure ulcers, including wound assessment and management decision-making
 - understand some of the dressings that may be used in the management of pressure ulcers

Sometimes, despite all the absolute best efforts (and sometimes because care was inadequate), pressure ulcers can still develop.

Usually, when this happens, nursing will become involved to care for any wound that might have developed.

All NHS organisations also report all pressure ulcers, and investigate any pressure ulcers that developed whilst under their care.

You may be familiar with pressure ulcers being “graded” or “categorised”. In 2018 (a) NHS Improvement stipulated that they would be called categories.



Before reading any further, have a think and write down the categories of pressure ulcers you might have heard of.

Can you also say something about that category – what it is about the ulcer that makes it that category?

Categorising pressure ulcers

NHS England produced a very handy poster (2020) to help determine what category a pressure is. It also helps you recognise mucosal pressure damage, medical device related pressure damage and moisture associated skin damage. This is being updated in line with the NWCSP (2023) recommendations which now only includes category 1, 2, 3 and 4. Unstageable will be recorded and reported as a category 3 and Deep Tissue Injury will not be reported and will be recorded as vulnerable skin unless it is evident that the extent of tissue damage is deep and the damage is likely to evolve to category 3.

Pressure ulcers are categorised to:

- Ensure consistent communication between departments, organisations, patients and staff
- Provide some level of recognition of the severity of the pressure ulcer

Treating pressure ulcers

The first step in treating pressure ulcers is to carry out all the actions needed to prevent them too.

Key treatment steps



Keep off the pressure ulcer AT ALL TIMES. Where this is not possible, reduce time on the pressure ulcer to 1-2 hours as long as a supportive pressure-reducing surface is in place.



Maintain good nutrition and hydration and consider how nutritional intake can be boosted, particularly protein- and carbohydrate-based foods.



Protect any open ulcers from infection and contamination, especially where the person is incontinent and the ulcer is on the bottom.

Some nuggets of information

A category 1 pressure ulcer increases the likelihood of developing a higher categorised pressure ulcer.

An unstageable pressure ulcer will usually be a category 3 or 4 once it has debrided and the full depth can be visualised. Hence they will now be category 3 in England.

A deep tissue injury can resolve without the skin ever breaking but, equally it may evolve into a necrotic wound that will then be re-categorised as an unstageable (now category 3 in England).

Once a pressure ulcer is improving it does not move back down the category stages. For example, if it was a category 4 but now is superficial (like a category 2) then it will be a “healing category 4 presenting as category 2 damage”.

Deep tissue injuries can look like bruises. If you find a deep purple/blue mark and it is over bone and circular in shape consider how pressure could have caused the damage.

An unstageable (category 3 pressure with extensive slough/necrosis present) pressure ulcer will seem to be getting worse before it gets better. This is because as the dead tissue is debrided away, the ulcer will appear deeper and bigger. It is just presenting its true level of damage.

Refer

Once a person has developed a pressure ulcer (except for category 1) then you **must involve a nurse** to provide the wound care. If the ulcer is a deep tissue injury category and not an open wound, then it is still important to notify the nurses, as this wound will probably evolve into an unstageable, and then when it has debrided (dead tissue has been removed by body or dressing) it will probably be a category 3 or 4.

Dressings

A dressing is a product designed to be used on an open wound.

These are used for several reasons:

1. To provide a sterile covering to protect the wound from contamination and infection
2. To absorb any exudate (watery or purulent fluid) that is leaking from the wound
3. To facilitate the debridement of any dead (necrotic or sloughy) tissue
4. To promote healing by providing a moist environment
5. To reduce any bad smell (malodour) that might be present
6. To actively reduce the microbial count and infection in the wound

Sometimes a dressing will be in place to support **up to 5** of the above conditions.

Sometimes two dressings might be used; one as the contact layer with the wound and another to cover this one. Usually the outer dressing will stick to the skin but sometimes when a bandage is used the dressings might not be sticky.

Dressings will be covered in more detail in the presentations.



.....
A useful resource is The Wound Care Handbook
.....

This is readily accessible [here](#). You can type most dressings, bandages, creams and even compression garments names into the search box and they will be found.



.....
With your colleagues, discuss the different dressings you might have seen being used on the people you care for.
.....

Do you know the names of any of them?
Write them down if so.

Conclusion

You have now completed the workbook and should, alongside this, have completed the first four sessions of the Pressure Ulcer Programme. Please always re-visit the presentations, as they may contain updated detail missing from the workbook.

Resources

Many resources available online have links to them throughout the workbook. For ease this section provides links to those and some other sites.

Love Great Skin – how to use support surfaces appropriately

<https://www.lovegreatskin.co.uk/downloads/howtogreatskinsupportfinal.pdf>

Love Great Skin – Skin inspection guide

<https://www.lovegreatskin.co.uk/downloads/LOVE%20GREAT%20SKIN%20A5%20SKIN%20INSPECTION%20SHEET%20WEB%2027%2006%202013.pdf>

Love Great Skin – how to keep patients moving. Includes 30 degree tilt pictures

<https://lovegreatskin.co.uk/downloads/howtogreatskinmovingfinal.pdf>

NICE (2015) Pressure ulcers: Quality standard QS89 NICE

<https://www.nice.org.uk/guidance/qs89>

How to use the 30 degree tilt video. 2 minutes 45 seconds long

<https://www.youtube.com/watch?v=zoMaR1FmeDs>

SIA Leaflet includes nice picture of seated tilting

<https://www.spinal.co.uk/wp-content/uploads/2018/12/Pressure-Ulcers-the-basics.pdf>

NHS East of England Stop The Pressure video to inform patients 2 minutes 49 seconds long

<https://www.youtube.com/watch?v=QRYxmWKE-PI>

Incontinence UK Website – fantastic resource

<https://www.incontinence.co.uk/>

Skin care page:

https://www.incontinence.co.uk/incontinence-skin-care-products?utm_source=blog_post&utm_medium=how_to_put_on_incontinence_pads_and_pants&utm_campaign=related_blog_post

Continence pads page

<https://www.incontinence.co.uk/how-to-put-on-incontinence-pads-and-pants-for-an-individual>

Pictorial guide to differentiate between PU and moisture lesions

<https://multimedia.3m.com/mws/media/10125140/3m-cavilon-moisture-lesions-vs-pressure-injuries-a4-educational-card.pdf>

BAPEN Website: Introducing MUST <https://www.bapen.org.uk/must-and-self-screening/introducing-must/>

The Nutrition Game site

https://games.focusgames.co.uk/nhs_nutrition/iPhone/index.html

Stop The Pressure Games page – includes online pressure ulcer games

<https://www.stopthepressure.co.uk/#/>

Love Great Skin How to maintain high quality nutritional care leaflet

<https://www.lovegreatskin.co.uk/downloads/howtogreatskinnutritionfinal.pdf>

NICE Public information leaflet

<https://www.nice.org.uk/guidance/cg179/resources/pressure-ulcer-prevention-treatment-and-care-pdf-322345138885>

Public Health Northern Ireland PU public information leaflet

https://www.publichealth.hscni.net/sites/default/files/Pressure_Ulcer_Prevention_Book_03_17.pdf

The Wound Care Handbook

<https://www.woundcarehandbook.com/>

References

- European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance (2019). *Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline*. Emily Haesler (Ed.). EPUAP/NPIAP/PPPIA
- Guest JF, Fuller GW, Vowden P (2020) . Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018: update from 2012/2013. *BMJ Open* 2020;10:e045253. doi:10.1136/bmjopen-2020-045253
- Hall S. (2018) *The importance of using incontinence skin care products* Incontinence UK https://www.incontinence.co.uk/incontinence-skin-care-products?utm_source=blog_post&utm_medium=how_to_put_on_incontinence_pads_and_pants&utm_campaign=related_blog_post
- Hall S. (2019) *What Percentage Of The Population Are Affected By Incontinence?* Incontinence UK <https://www.incontinence.co.uk/what-percentage-of-the-population-are-affected-by-incontinence>
- LFPSE (2023) <https://www.england.nhs.uk/patient-safety/patient-safety-insight/learning-from-patient-safety-events/learn-from-patient-safety-events-service/>
- Moore et al (2011) A randomised controlled clinical trial of repositioning, using the 30 degree tilt, for the prevention of pressure ulcers *Journal of Clinical Nursing* **20**, 2633–2644
- NHS England Patient Safety Incident Response Framework (2023) <https://www.england.nhs.uk/patient-safety/patient-safety-insight/incident-response-framework/>
- NHSI (2018a) *Pressure ulcers: revised definition and measurement* <https://www.england.nhs.uk/wp-content/uploads/2021/09/NSTPP-summary-recommendations.pdf>
- NHSI (2018b) *Pressure ulcer core curriculum* <https://www.nationalwoundcarestrategy.net/wp-content/uploads/2021/06/Pressure-ulcer-core-curriculum.pdf>
- NICE (2012) *Nutrition Support in Adults Quality Standard 24* London NICE <https://www.nice.org.uk/guidance/qs24>
- NICE (2014) *Pressure ulcer prevention: The prevention and management of pressure ulcers in primary and secondary care.* <https://www.nice.org.uk/Guidance/CG179>
- Nixon J, Nelson EA, Rutherford C, Coleman S, Muir D, Keen J, et al. Pressure Ulcer Programme Of reSEarch (PURPOSE): using mixed methods (systematic reviews, prospective cohort, case study, consensus and psychometrics) to identify patient and organisational risk, develop a risk assessment tool and patient-reported outcome Quality of Life and Health Utility measures. *Programme Grants Appl Res* 2015;3(6).
- NWCSP (2023) *Pressure Ulcer Recommendations and Clinical Pathway* <https://www.nationalwoundcarestrategy.net/wp-content/uploads/2023/11/NWCSP-PU-Clinical-Recommendations-and-pathway-final-24.10.23.pdf>
- NRLS <https://report.nrls.nhs.uk/nrlsreporting/>
- PURPOSE T <https://ctr.leeds.ac.uk/purpose/purpose-t/?cn-reloaded=1>
- Wounds UK (2021) *Best Practice Statement: Addressing skin tone bias in wound care: assessing signs and symptoms in people with dark skin tones*. Wounds UK, London.

Accora

UK: Charter House, Barrington Road, Orwell, Cambridge SG8 5QP
T: +44 (0)1223 206 100 **E:** info@accora.care **W:** www.accora.care

IE: 38 Main Street, Swords, Co. Dublin, Ireland K67 E0A2
T: +353 (0) 1 695 0614 **E:** info@accora.care **W:** www.accora.care