Pressure Management

Some people have difficulty moving around and changing their own position. When this occurs, they may be at risk of developing a pressure ulcer.

What is a pressure ulcer?

A pressure ulcer is an area of localised injury to the skin and/or underlying tissue, usually over a bony prominence, as a result of pressure or pressure in combination with shear and/or friction. (European Pressure Ulcer Advisory Panel, Feb 2007)

“Pressure ulcer” is the current preferred terminology; however, other names have been used interchangeably in the past including: pressure sores, bedsores, ischaemic ulcers, and decubitus ulcers.

- Pressure ulcers mainly occur where the bones are closest to the skin, such as at the buttocks, sacrum, coccyx (“tail bone”), heels, toes and shoulder blades.
- When a part of the body is pressed against a hard surface for a prolonged period, creating unrelieved pressure, the blood supply may be reduced or cut off. This restricts the supply of oxygen and nutrients to the area and results in tissue damage or tissue death.
- A pressure ulcer may extend from the outer layers of the skin right through to the underlying skin layers, muscle and even down to the bone. It should be noted that the skin does not need to be broken (an open sore) for a pressure sore to exist. A reddened area on the surface of the skin that does not go away may indicate a pressure area below the surface.

Just pressure or other forces?

Pressure is a force exerting downwards. Pressure often occurs in conjunction with other forces, (eg shearing and friction), which when combined increase the risk of developing a pressure ulcer.

- **Shearing**: this is a sideways force where the skin stays in contact with the surface the person is sitting/lying on (the support surface), but the structures underneath move over each other and the bone causing the blood vessels to buckle. For example, a person sitting up in bed with their legs out straight who starts gradually slipping down the bed may be experiencing shearing forces.
- **Friction**: is a sideways force involving the skin rubbing over the support surface which then causes damage to the skin. This often occurs when changing position or transferring from one surface to another. Another common area for friction is to the heel area when a person moves back and forth in bed.
**Risk factors**

There are many factors that can increase a person’s risk of developing a pressure ulcer. These include (but are not limited to):

- Immobility or inability to regularly change position
- Impaired sensation—resulting in a decrease of the usual cues of discomfort or pain from the body indicating that it’s time to adjust position
- Poor circulation—skin receives less oxygen and nutrients leading to skin breakdown
- Age—skin condition reduces with age making it more susceptible to damage
- Weight—overweight causes greater pressure to be exerted, and underweight results in less protective tissue over the bony prominences where pressure areas usually occur
- Moisture and heat—the presence of moisture and/or heat reduces the skin’s tolerance to pressure. Common causes are sweat and/or incontinence.
- Poor nutrition or low fluid intake
- History of a pressure ulcer—when pressure sores heal, scar tissue is formed, which is then more susceptible to future damage.

**Early warning signs**

- It is important that those at risk of pressure ulcers are given adequate care to prevent any prolonged pressure that may result in skin breakdown. Prevention is always better than a cure and once a pressure ulcer occurs it can be very hard to heal. In serious cases it may even require hospitalisation, therefore it is important to do everything to manage pressure and check for warning signs.

- Currently there are four classification stages of pressure ulcers based on the depth of tissue damage. If pressure is applied to ‘healthy’ skin it usually blanches—goes white and then returns to its usual colour when the pressure is removed. If there is a reddened area that does not blanche, then this is generally considered to be a stage one pressure ulcer. Other early signs include ongoing pins and needles or numbness.

**Managing the risk of developing a pressure ulcer**

Prevention strategies involve awareness of the risk factors, appropriate regimes and pressure redistributing devices.

**Pressure redistributing devices**

A common way of managing pressure is through the use of pressure redistributing cushions, mattresses, or mattress overlays. In the past the terms ‘pressure relieving’ and ‘pressure reducing’ were used to describe these products. However the purpose of the products is to spread or ‘redistribute’ the pressure over a greater surface area.

Pressure redistribution devices may be either static or dynamic. Static devices usually achieve pressure redistribution via the cushion, mattress or overlay conforming to the user. Dynamic devices use a shifting surface to move pressure from one point to another, for example an alternating mattress overlay.
Pressure redistributing devices may be made from many different materials. The following are often used in static devices:

- **Foam:** is lightweight, allows some conforming, and is relatively inexpensive. However, it does insulate heat, deteriorate and requires frequent replacement. Viscoelastic or memory foams rebound more slowly when weight is removed and conform better to the user than standard elastic foams. Some mattresses and cushions use a ‘cubed’ cut to the foam to allow it to conform better and allow increased airflow. Foam can be customised but foam density must be chosen carefully to ensure the user does not sink so far into the foam that they touch the surface underneath (called ‘bottoming out’).

- **Gel:** is a semi-solid that also allows some conforming, and has some shear reduction properties. It draws heat away from the user so some people find it initially cold to sit/lie on. Gel is quite heavy and may be more costly than foam.

- **Gel modified materials:** gel can be manufactured with other substances which alter the viscosity of the gel fluid. Gel modified fluids with a low viscosity allow the material to move more freely (become more fluid) and allow more conformity to the user. However, they do pose a risk for puncture and are often combined with other materials (such as a foam base) in order to ensure that the fluid is contained where it is required and that the user does not ‘bottom out’. The fluid should always be kneaded back into place before the user sits on it.

- **Air:** is generally the most conforming, light and expensive medium. Air products do require correct set up, regular monitoring of inflation and are at risk of punctures. For users with issues maintaining posture or transferring on/off a surface, air products may provide an unstable surface. Sometimes air products are combined with a foam base/surround to provide more stability.

- **Dynamic (alternating) pressure redistributing devices:** generally consist of a series of air filled cylindrical cells connected to an electrically powered pump that inflates and deflates alternate cells over a period of time. Options include:
  - **Overlays** which sit on top of an existing mattress. To significantly reduce pressure on risk areas, a cell diameter of at least 10cm is recommended.
  - **Mattress replacement systems** often include a much greater cell depth, more complex cycle patterns and provide a greater level of pressure management.
  - **Rotation systems** rotate the user from lying on one side to the other.
  - **Low Air Loss systems** constantly release air through microscopic holes in order to reduce heat and moisture at the skin.
  - **Automatically adjusting systems** adjust the pressure in the cells according to the user’s weight and position. If the systems pressure is only adjustable manually, the pressure will need to be increased when a user spends time sitting up, as more weight is going through the cells under the buttocks.
  - **Seat cushions** are less common and may share a mattress pump.

- **Other materials** include a honeycomb-shaped polymer material which has some conforming properties and allows airflow to take heat and moisture away.

Consideration should also be given to the covering material for any cushion, mattress or overlay. A material with at least two-way stretch should be used so that it does not limit how much the user can sink into the pressure-reducing medium. Placing other
items (such as sheepskins, blankets) on top of pressure redistributing surfaces should be avoided as this may reduce the effects of the pressure distribution.

*Please note:* These devices should not replace regular repositioning. Always seek advice from a health professional with experience in pressure management prior to choosing a pressure redistributing device.

**Other pressure management strategies**

- Reposition regularly—at least every two hours, but if an individual can shift their own weight, aim for 15 minutes when sitting
- Avoid sitting or lying on creases and seams in clothing and bedding
- Take care when conducting transfers not to pull, knock or stretch skin. Use protective clothing or padding for activities which may cause skin breakdown
- Avoid other objects on a seat or in bed—objects as small as crumbs in bed have been known to contribute to a pressure ulcer
- Consult a professional about managing incontinence (if applicable)
- Avoid tight or restrictive clothing
- Perform regular skin checks for reddened areas
- Maintain nutrition and keep skin clean, dry and in good condition. Use moisturising lotion regularly. Consult a dietician if necessary and ensure adequate fluid intake.

**Contacting the Independent Living Centre**

For further information or to make an appointment to visit the display please contact the Independent Living Centre. The Independent Living Centre offers free advice on equipment and techniques to help you with everyday tasks.

Independent Living Centre  
11 Blacks Road  
Gilles Plains SA 5086  
Phone: 1300 885 886 (SA & NT callers only) or 8266 5260  
Email: ilcsa@dcsi.sa.gov.au  

Accessible off street parking is available. Bus services run nearby. Call 8210 1000 for timetable information.