



## Skin Viability when using Alert-iT Bed or Chair Sensors

In order to assist carers to be vigilant to potential health risks, Alert-iT offer a number of monitors that require some kind of sensor that the user lies or sits on. There is a risk that such sensors could:

- Place undue pressure on the skin leading to rupture and a pressure sore
- Increase the friction on the skin leading to skin burns if the user moves
- Increase the friction to the extent that there is skin shear
- Reduce air flow, leading to increase skin wetness and hence frangibility

These sensor components include:

- Thin plastic bed and chair mats used to sense vacation of the bed/chair
- Cotton sheets with embedded wires to detect enuresis
- Thick absorbent cotton sheets (Kylie) with sensing to detect over wetness

The possible risks and mitigations are detailed below.

### Bed vacation pads

Potential Risk	Mitigation	Comment
Sweating from lack of air flow	Fitted under the mattress cover sheet, which could be made thicker to provide sweat absorbing	
Pressure at the edges	The mats are very thin and spread over a wide area. The mattress cover sheet will also spread the load	
Skin sticks to plastic, causing skin shear	Carers must ensure the cover sheet is secure	
Plastic material may cause irritation	Carers must ensure the cover sheet is secure	
The mat could harbour infection	The mats are sealed (IP64), smooth and capable of being disinfected by wiping.	

## Chair Vacation Ribbon Sensors

These thin ribbons are very adaptable to detecting frail and vulnerable people leaving their chair. They can be hidden in or under the cushion and are proven to prevent falls. In addition, they can detect people sitting too long in the chair and alert staff to get them to walk around. Hence they can assist in ulcer prevention.

Potential Risk	Mitigation	Comment
Sweating from lack of air flow	They are very narrow and thin and do not restrict airflow at all	
Pressure at the edges	This could be an issue if the ribbon was on the surface of the seat and in direct contact with the user. They are designed to operate under a cushion	
Skin sticks to plastic, causing skin shear	Ditto	
Plastic material may cause irritation	Ditto and materials are compliant to EN12182	
The mat could harbour infection	The ribbon is sealed (IP67), smooth and capable of being disinfected by immersion.	

## Thin Cotton Enuresis Sheets

Potential Risk	Mitigation	Comment
Sweating from lack of air flow	This will not occur as the cotton is as open as the normal cover sheets	
Pressure at the edges and seams	These are very thin and no worse than the cover sheet. The wires are also very thin and unlikely to impart any pressure	
Skin sticks to sheet	The cotton should pose no issue	
Material may cause irritation	The cotton is compliant to EN12182 (e.g. no formaldehyde)	
The sheets could harbour infection	They can be sterilised at 85°C and with bleach	
User gets wet from urine, which causes skin friability	The purpose of the sheet is to alert staff the moment the user has passed urine. There is no lying in a damp state for any period, and the use of pads which adds to the problem can be abandoned for those with mild incontinence (see next sheet type)	



## Thick Absorbent Cotton Sheets

Many care homes have bad experiences with Kylie sheets, which needs to be researched to find out why. The following comments may give a clue. However, the use of ours to detect wetness will remove some potential causes of skin friability.

Potential Risk	Mitigation	Comment
Sweating from lack of air flow	There is slightly less air flow than for the thin sheet, due to the waterproof back. However, any sweat will be absorbed and not lead to skin deterioration	
Pressure at the edges and seams	These are reasonable thick and have pocket seams throughout the surface, which may be the cause of issues. The edges are bound which could lead to pressure points at the edges.	
Skin sticks to sheet	The cotton should pose no issue	
Material may cause irritation	The cotton is compliant to EN12182 (e.g. no formaldehyde)	
The sheets could harbour infection	They can be sterilised at 85°C and with bleach	
User gets wet from urine, which causes skin friability	The purpose of the sheet is to absorb small amounts of urine while keeping the user dry. Unlike the ordinary Kylie, however, the user will not be lying in a damp state for any period as the alarm will go off if they over wet the sheet. The advantage of the sheet is that the use of pads can be abandoned for all users	

## Plastic Enuresis Sheets

Alert-iT do not offer these because of poor performance compared to the cotton. This includes false alarms from the excess sweating induced, poor comfort, bad noises as the user moves and poor life as they break if crumpled in the bed.

Potential Risk	Mitigation	Comment
Sweating from lack of air flow	They are renowned for inducing severe sweating. They need to be used inside a number of pillow cases or under towelling to operate at all.	
Pressure at the edges and seams	These are very thin unlikely to impart any pressure	
Skin sticks to sheet	They certainly have this potential and hence should only be used if protected (e.g inside a pillow case)	
Material may cause irritation	Possibly true as they are printed metal strips on plastic	
The sheets could harbour infection	They can be wiped with disinfectant	
User gets wet from urine, which causes skin friability	<p>The purpose of the sheet is to alert staff the moment the user has passed urine. There is no lying in a damp state for any period, and the use of pads which adds to the problem can be abandoned for those with mild incontinence (see next sheet type).</p> <p>They are also used in conjunctions with standard Kylies to sense when the sheet overflow urine onto the bed. A poor alternative to an proper "intelligent" Kylie as above</p>	