

The Ins and Outs of Pressure Redistribution Mattresses

Medical Aids Subsidy Scheme

14th September 2023



Queensland
Government

Learning objectives



Understand clinical, personal, safety and environment considerations in pressure redistribution mattress prescription



Be aware of research pertaining to pressure redistribution mattresses and how this impacts on practice



Learn the features of pressure redistributions mattresses on the MASS Standing Offer Arrangement

Queensland Health

Introduction to pressure redistribution mattresses

Classifications and design features



Queensland
Government

Mattress classifications

- Reactive versus active
- Immersion vs off-loading
- Powered versus non-powered
- Materials: air cells, foam, fibre, gel, sheepskin, water bags, hybrids
- Design features: e.g., air holes (e.g., low-air-loss, air-fluidised), castellations, zones, layers, heel slopes
- Overlay (full bed and segments) versus mattress replacement



[NPIAP Terms and Definitions Related to Support Surfaces](#)

Reactive versus active

Reactive: Constant Low Pressure

INCREASING CONTACT AREA



e.g. cut, layered or formed foam,
static air, gel, fibre,
low-air loss, air fluidised

Maximises contact area and
redistributes pressure at bony
prominences

Active: Alternating Pressure

ALTERNATE INFLATION/DEFLATION
OF SUPPORT SURFACE



e.g. alternating pressure
air mattress

Alternating air cells can load and
off load the tissue to maintain
interface pressure below capillary
closing pressure



Immersion vs off-loading



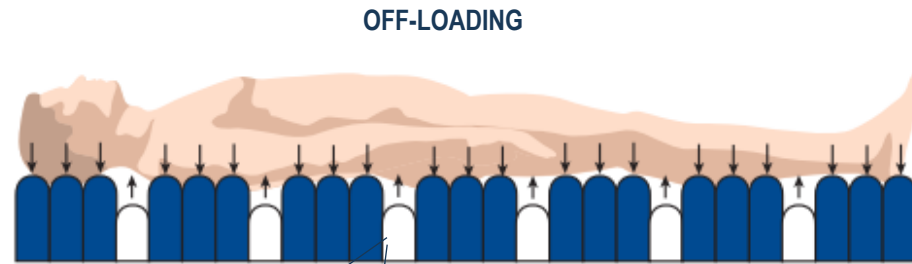
IMMERSION



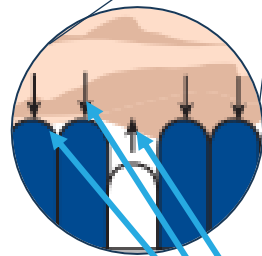
ENVELOPMENT



PARTIAL IMMERSION WITH ENVELOPMENT



OFF-LOADING



Off-loaded areas experience no pressure

Loaded areas experience increased pressure due to reduced contact area



Be careful of what is used on a pressure mattress. Non-stretch coverings such as tightly applied sheets, electric blankets, and continence barriers (e.g., Bluey, Kylie) can interfere with immersion and off-loading functions

Powered vs non-powered

Consider:

- Possible benefits of power (e.g., automatic adjustment, alternating and low-air-loss functions)
- Access to power
- Electricity cost
- Noise and vibration of pump



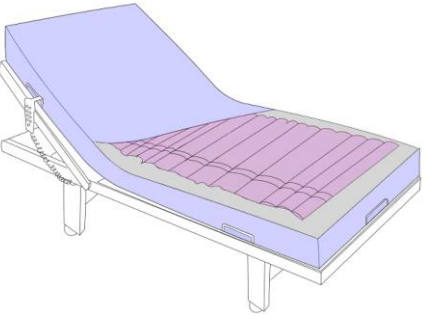
Curocell SAM BAS PRO



CuroCell AREA zone

Both reactive and immersive (not alternating or off-loading), both have air panels, one powered, one non-powered

Material type	Air cells	Foam	Fibre	Gel	Sheepskin	Water	Hybrid
Benefits	<ul style="list-style-type: none"> Light Can be adjustable Can allow features such as low-air-loss and alternating 	<ul style="list-style-type: none"> Customisable e.g. size and firmness Minimal maintenance Some can allow humidity to disperse 	<ul style="list-style-type: none"> Minimal maintenance Air flow Often very comfortable 	<ul style="list-style-type: none"> Minimal maintenance Cooling Can put on existing mattress and they don't raise the height much 	<ul style="list-style-type: none"> Minimal maintenance Often very comfortable 	<ul style="list-style-type: none"> Can be comfortable and reasonably effective 	<ul style="list-style-type: none"> Can combine different properties Looks more like a normal mattress Good surface for transfers and bed mobility
Challenges	<ul style="list-style-type: none"> Can make transfers difficult Can leak 	<ul style="list-style-type: none"> Can compress over time Can compress if they get urine or water into them Suffer from 'wear and tear' 	<ul style="list-style-type: none"> Do not necessarily have a high level of pressure redistribution 	<ul style="list-style-type: none"> Heavy Fluid gels can leak (not firm gels) Not moisture wicking 	<ul style="list-style-type: none"> Keeping clean Do not necessarily have a high level of pressure redistribution 	<ul style="list-style-type: none"> Heavy Rarely used Can leak Very difficult for bed mobility and transfers 	<ul style="list-style-type: none"> Wide range of combinations and layers
Other factors to consider (as well as minimum recommended weight and SWL)	<ul style="list-style-type: none"> Insulating 	<ul style="list-style-type: none"> Wide range of foam types and qualities (e.g., standard foam vs high specification foam) 		<ul style="list-style-type: none"> Range of viscosities 	<ul style="list-style-type: none"> Insulating Not within MASS Guidelines 	<ul style="list-style-type: none"> Not within MASS Guidelines 	<ul style="list-style-type: none"> Surface layer Level of firmness and softness will vary

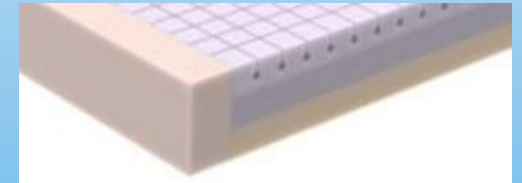


**Foam-specific
Design
Features**

Multilayer foam



Side Walls



Safety Sides

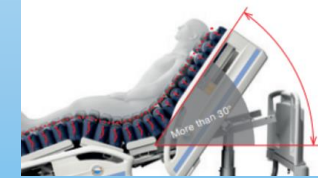


Hinging System



Alternating vs Continuous / Constant Low Pressure vs Pulsating

Fowler Boost



TurnAssist



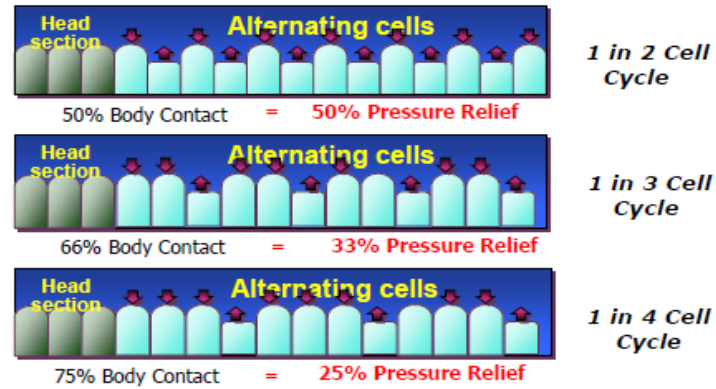
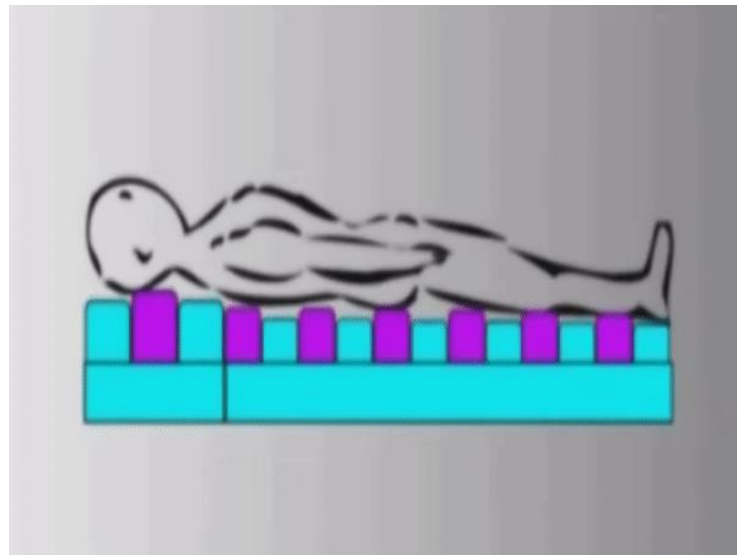
Sensors (e.g., auto-adjust), maximum inflation mode or variable cycle times

**Air-specific
Design
Features**

Alternating air

Alternating air can have differing¹;

- Cell heights and shapes
- Loaded to unloaded cell ratios
- Cycle times
- Degree of off-loading



Cell cycle ratios



Example of cell shapes: SoftForm Premier Active 2 – alternating but not offloading



Some air mattresses have multiple options such as alternating air, constant / continuous low pressure, and pulsation (less extreme inflation/deflation) modes

Design feature: Non-continuous surface

**Castellations /
crenelations**



Multi-cell air or hybrid



*Example: ROHO™
Mattress System*



Example: Cairmax foam air



Design feature: Moisture management

Castellations or air channels



Example: POLYFLOAT™ Aero



Example: Dunlop foam topper

Low-air loss mattress



Example:
ROHO™ SelectAir

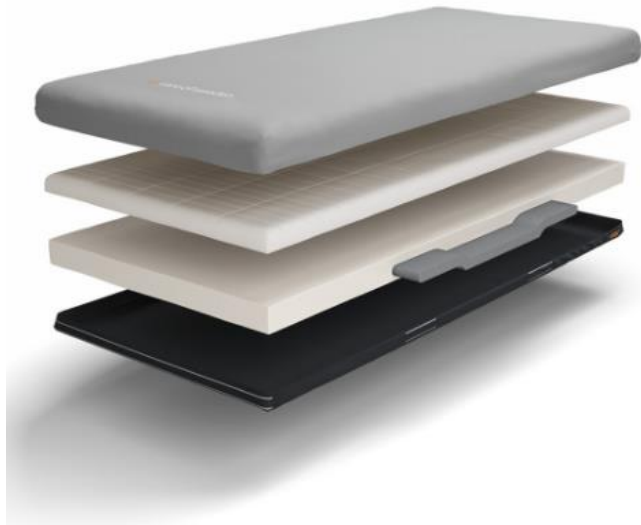
Mattress with a low-air-loss feature



Example: Talley Pulsair
Choice

Design feature: Zones

Zones to support function



Example: Optimal 5zon has firmer support under thighs and lower back to support sitting

Zones to protect high risk areas



Example: Heels slopes built into many foam and air mattresses



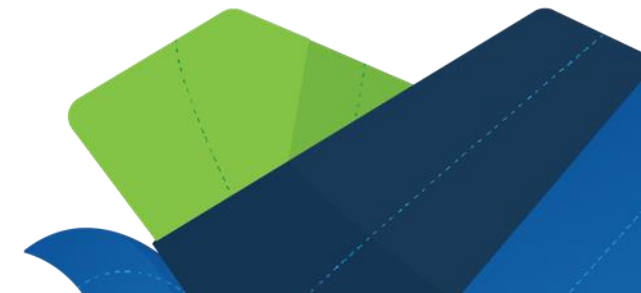
Overlay verses mattress replacement¹

Overlay

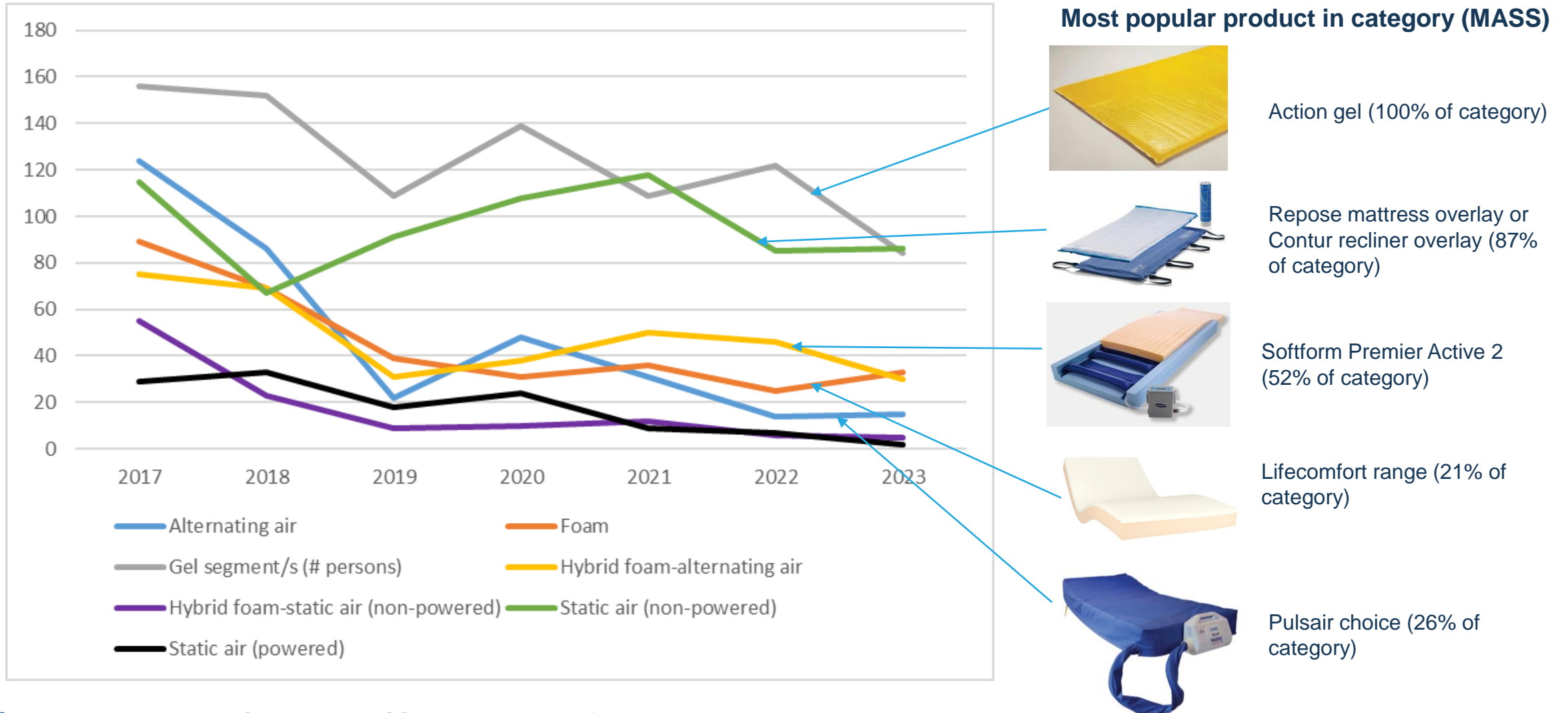
- May be easier for bed mobility and transfers
- Pressure relief may be sufficient for people with low body weight
- Can sometimes be used on a recliner chair as well as a bed
- May be more cost effective

Mattress Replacement

- May be more effective for people with very limited mobility
- More effective for people with bariatric needs as can provide air flow and keep skin temperature lower



MASS data - PRM prescriptions 2017 until now



MASS data – interesting findings (2017 until now)

- Gel segments were popular
 - About 1/3 got 1 segment
 - About 1/3 got 2 segments
 - About 1/3 got 3 segments
- Percent of people who had 2 or more of the same Repose product over the period
 - Repose Contur: 2.7%
 - Repose Mattress Overlay: 0.6%

Diagnostic groups that were more than twice as likely (as average) to get a mattress types

Alt air	SCI, CP, Spina Bifida
Foam	Devt delay, CP
Hybrid foam-alt air	SCI, ABI
Hybrid foam-stat air	Devt delay, CP, ABI, amputation
Static air (non-powered)	Nil *
Static air (powered)	ABI, CP
Gel	MH, Alcohol / substance abuse

* No diagnostic groups were more than twice as likely to get a static air (e.g., repose), but people with diabetes, pain and autoimmune diseases were 70-80% more likely to receive one of these

Queensland Health

Clinical assessment

Pressure Redistribution Mattresses



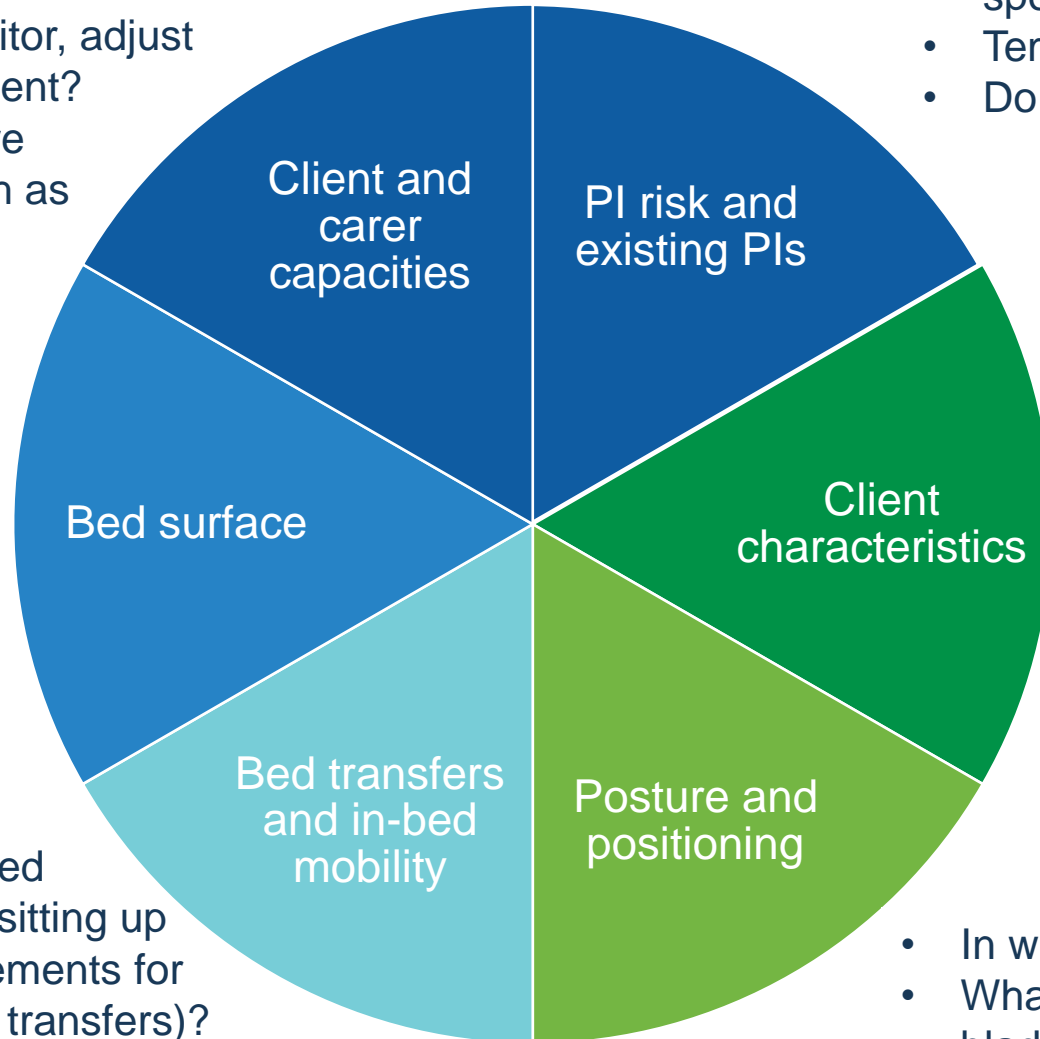
Queensland
Government

Clinical considerations

- What capacity does the client or carer have to monitor, adjust and maintain equipment?
- What in-bed cares are provided (if any) such as toileting?

- What sort of bed do they sleep on (e.g., electric adjustable)?
- What size bed do they have, and how does this affect provision of cares?
- How stable is the surface and how will an overlay attach?

- Transfer on and off the bed
- Bed mobility e.g. rolling, sitting up
- Are there specific requirements for mattress height (e.g., for transfers)?
- Is there a risk of falls out of bed?



- PI risk assessment score
- PI staging
- Are there any specific areas that need special risk reduction (e.g., heels)?
- Temperature regulation
- Do they require air flow features?

- Can they tolerate alternating air movement (e.g., vertigo, nausea)?
- How well do they tolerate noise?
- What is their preference for surface tension (e.g., soft/medium/firm, can they handle firm alternating air)?
- How much do they weigh?
- What funding are they eligible for (and capacity for co-payment)?
- Are they incontinent and how is it managed?
- Do they smoke in bed?

- In what positions do they sleep and sit?
- What functional tasks do they do in bed (e.g., bladder/bowel management / dressing)?

Example assessment forms / guides

Spinal Outreach Team PRM Assessment Tool

Spinal Outreach Team
PRM Assessment Tool

PART TWO: Pressure Redistribution Mattress (PRM) assessment tool

Client Name: _____ Phone/Email: _____
Address: _____ Living situation (alone, in formal support care): _____
Date of assessment: _____
Level of injury: _____
Details of other health professionals involved with device & equipment: _____

Clinical conditions: Include recent (injury, surgery, other medical conditions that may impact on skin health and tissue viability (e.g. diabetes, cardiovascular conditions), general health and nutrition, if a smoker etc.) _____

Eligibility for funding (MASS, DIAK, Insurance, Work Cover etc.)

Body shape, weight, muscle tone and contractures
Body shape: _____ Height: _____ cm Body shape (e.g. thin, obese, bony): _____
Weight: _____ kg Height: _____ cm Body shape (e.g. thin, obese, bony): _____
Does client experience spasms in bed? **Y/N**
Is there any muscle wasting/loss of muscle mass? **Y/N** What triggers the spasms? _____
What part of the body? _____
Does the limb return to the resting position or remain in post-spasm position? **Y/N**
Any contractures impacting on position in bed? **Y/N**

Sensation
Describe sensation below level of injury (e.g. none, patchy, normal, distorted) _____
Can client roll independently? **Y/N**

Bed mobility
What position does the client lie in at night? _____
How long is spent in this/these positions? _____
Does client get turned to another during night? **Y/N** How often? _____
Does client get turned to another during night? **Y/N** How often? _____
What assistance is required for bed mobility? _____
Do any non-adjustable postural issues or bony prominences impact on positioning in bed? **Y/N**

Transfers
List equipment used in transfers (e.g. MWC, PWC, MGC, type of pressure cushion, slide board, hoist) _____
Describe how client transfers to & from bed? _____

SA Equipment Program Pressure Mattress Clinical Considerations

Equipment Program
Clinical Considerations for Prescribers
Pressure Mattresses

Clinical Assessment

- Evidence of pressure injury, skin integrity, past history of pressure injury, potential risk factors that may lead to pressure injury such as limited mobility, sensory loss, awareness of age (old, >65), level of consciousness, decreased circulation/smoking, chronic illness, palliative illness, poor skin hygiene, incontinence, over head pole, bed (tick etc)
- Functional ability of client: transfer technique, assistance required, use of other equipment to assist movement in bed (e.g. rails, over head pole, bed (tick etc))
- Maintain hydration
- Bony Prominences – consider heels, elbows, ankles, ears
- Compliance to pressure management: skin inspection and any other prescribed equipment
- Client positional supports (i.e. use other surfaces they sit/lying on during the day)
- Client tolerance to motion, noise and vibration
- Confidence
- Pressure redistributing abilities of client (i.e. positional changes). Affect of positional changes on mattress e.g. sitting versus lying. Assessment: review of turning regimes
- Weight of client – lighter clients may move with alterations of mattress – ensure risk of entrapment is assessed. Check maximum weight capacity of mattress to ensure that client will not 'bottom out'.
- Changes in weight gain/loss
- Potential risk of entrapment whilst in bed

Caretaker Assessment

- Access to power points – is an extension cord required?
- Ease of use and ability of carer (e.g. control box)
- Affect on care assistance in transfers, are firm edges or static mode required
- Use of rails/railways can increase the overall height of the mattress and hence decrease height of rails
- Review of turning regimes (positional changes are still required after prescription of a pressure redistributing mattress)
- Ensure carer is familiar with placement and use of CPR tag and alarms of prescribed mattress

Environment & Installation Considerations

- Access to power points – is an extension cord required? If so use cable ties/built in loops of mattress to keep off floor.
- Not/vibration of pump can pump be placed on floor or bed and
- Bedroom set up – access to equipment, available space for hoist and transfers.
- Mattress or base for alternating air mattress to be set up on.
- Fire retardancy of mattress: remembering that air mattresses take in air from surrounds, hence if room is cold, mattress may feel cold to client lying on it. Do not use electric blankets on mattresses – consider heating the room.
- Some mattresses may take some time to inflate – consider inflating prior to client visit.

Mattress Options (options available and considerations)

Form: Standard (Lithium & Visco Elastic) – Visco elastic will conform to client's body shape (may be uncomfortably warm)

Layers: Single or Multiple – Generally single layer provide minimal pressure redistribution and have lower weight capacities. Multiple layers can provide client bottoming out.

Thin side perimeter – Can provide safe transfer support and also assist in entrapment issues if risk of entrapment.

Used sections: None – If heels are vulnerable, heel sections with visco foam or a sloped heel section can assist in redistribution of pressure in this area.

Color: Don't stretch up 2 & 4 way stretch – Don't stretch is generally the most most resistant, 2 or 4 way stretch provides better tension and envelopment.

Air Mattresses

Static: Non-powered air mattresses – work by client immersing into product, with air redirecting to lower pressure areas as client moves.

Powered: Active air mattresses – Provide redistribution by loading/unloading through inflation and deflation of air sections.

Static: Active air mattresses – The air sections allow air to flow toward the client to control temperature and affectiveness of air mattress is affected when the footrest on an electric bed is raised.

Powered: Active air mattresses – Ensure client is not at risk of bottoming out or pressure is transferred to other areas of air and foam – can assist in reducing motion felt by client of air inflating/deflating.

General product type	Notes
Standard pressure support required	
Deflation foam mattress	
1-air overlay	Require a mattress under an overlay – consider lowest height.
2-air overlay	Height of overlay required for transfers?
3-air overlay	Require a mattress under an overlay – consider overall height.
4-air overlay	Is static mode required for transfers?
Static mode required for transfers?	

Mattress combination

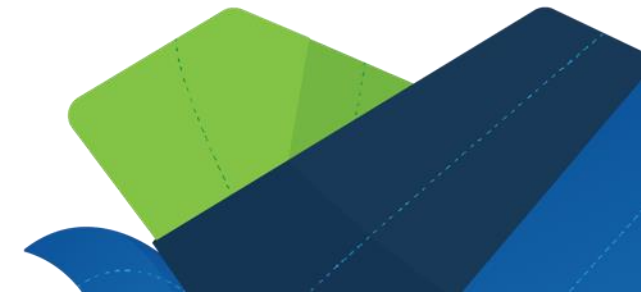
Only as standard or as indicated

Client's pressure risk

attached to pump, CPR tag visible and accessible

Safety considerations

- Always follow manufacturers' instructions for use
- Is fire retardant material required (e.g., smoking in bed)?
- Do carers know how to adjust settings (e.g., powered air mattresses) or can this be locked?
- Is there a rapid deflation feature for CPR
- Are there in-built alarms (e.g. low pressure, power fail, pump fault)
- Have power and air cables been managed safely (e.g., trips and falls)?
- What happens if the mattress/overlay fails (e.g., deflated air mattress)?
- Is there a transport mode?



Hygiene, maintenance and cleaning

- Is the mattress cover impermeable to bacteria and fluids?
- Is the mattress cover easy to clean?
- Does the mattress cover have resistance to bleach for infection control?
- Foam mattress – is it treated for antimicrobial and antibacterial properties?



MASS video: Mattress and mattress overlay cleaning, maintenance and faults



NPIAP Best Practices for Cleansing, Disinfecting, and Care of Polyurethane Support Surface Covers

Pragmatic considerations

- Your training and competence (Beeckman et al., 2019)
- Availability of materials and resources (Beeckman et al., 2019)
 - MASS SOA
 - Supplier stock
 - PCEP loan pools
- Access to repairs and maintenance, back-up plans



Queensland Health

Research

Pressure Redistribution Mattresses



Queensland
Government

Latest Cochrane review

Inclusions: 68 studies for preventing pressure ulcers, 12 studies for treating pressure ulcers



“reactive sheepskin surfaces may reduce PI risk compared with 'standard hospital surfaces' for people in acute and long-term care settings”



“reactive water surfaces may reduce PI risk compared with 'standard hospital surfaces' for people in acute care settings”



“in operating rooms, reactive gel surfaces probably reduce PI risk compared with 'standard hospital surfaces'”



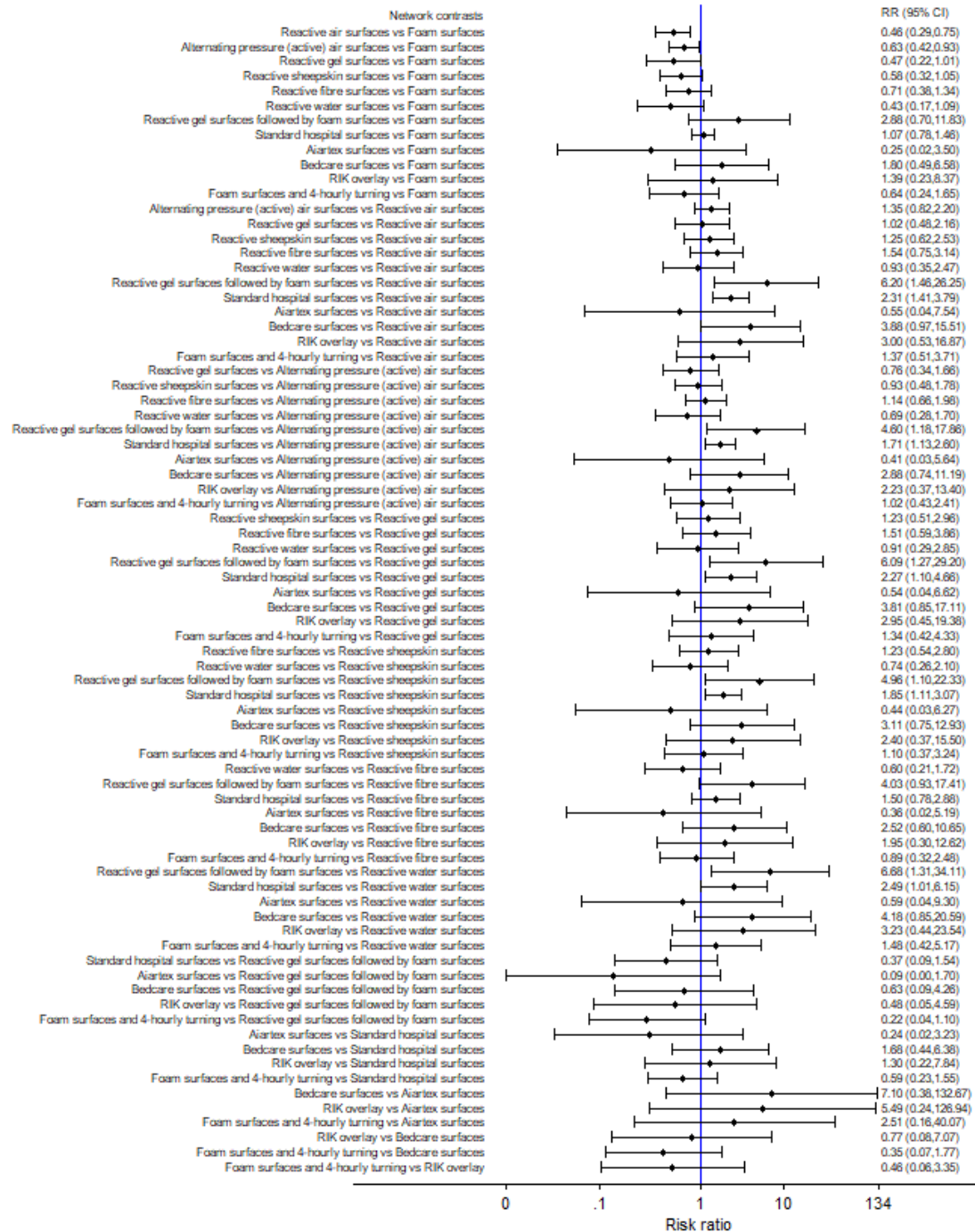
“alternating pressure (active) air surfaces may reduce PI risk compared with standard hospital surfaces or foam surfaces for people in acute and long-term care settings”



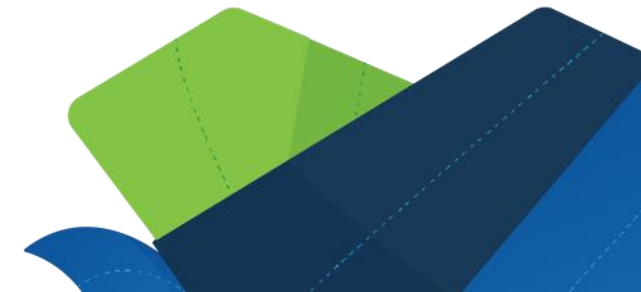
“reactive air surfaces may reduce PI risk compared with foam surfaces for people in acute and long-term care settings”

Relative effectiveness (risk ratio) of 78 comparison

Note how few studies show a clear difference between 2 surfaces (i.e., how many studies don't cross the blue line)



Shi, C., Dumville, J.C., Cullum, N., et al. (2021). Beds, overlays and mattresses for preventing and treating pressure ulcers: an overview of Cochrane Reviews and network meta-analysis. *Cochrane Database of Systematic Reviews 2021, Issue 8.*



Rankings

Preventing PIs

reactive air surfaces

foam surfaces plus
four-hourly turning

alternating pressure (active)
air surfaces

reactive sheepskin surfaces

foam surfaces

standard hospital surfaces

May be
more
effective



May be
less
effective

Treating PIs

reactive air surfaces

alternating pressure
(active) air surfaces

reactive water surfaces

foam surfaces

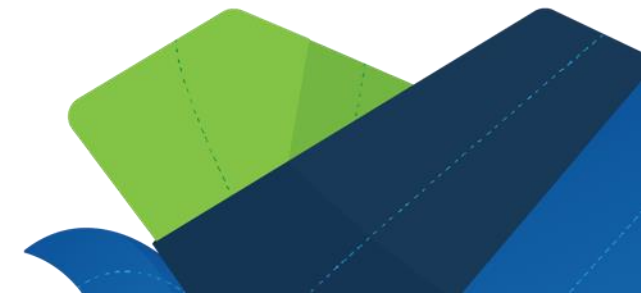


Take-home messages from the Cochrane review

- There's a lot of uncertainty around what pressure redistribution mattresses or overlays work best
- It is entirely conceivable that no surface is generally superior
- Everything is better than a standard hospital mattress
- It would be reasonable to consider reactive air, alternating air, gel, high-specification foam and sheepskin as common options
- We know very little about what helps in the community



High-specific foam mattresses is a term used to define foam mattresses with features such as multiple layers, shaping or castellations. NPIAP suggest this may be becoming an outdated term, since it is not a 'standard' find in hospitals. [Reference](#)

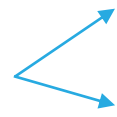


Repose vs alternating air

Population

308 nursing home residents at high risk or with stage 1 PI

Design

RCT 
→ Repose mattress overlay + cushion + wedge + foot protector
→ Standard practice (alternating air mattress or overlay + heel protectors and seat cushions)

Quality

High, low risk of bias

Results

Stage II-IV PI development: Repose 5.2% vs alt air 11.7%
PI median development time: Repose 10.5 days vs alt air 5.4 days
Estimated cost per day: Repose 0.74€/day vs alt air 2.28€/day

Take home messages

Repose was more effective and cost-effective than alternating air
Estimated average lifespan: Repose 2 years, alt air 7 years

High-spec foam alternating air



VS

Population

2,029 participants with high risk of PI (bedfast/chairfast or cat 1 PI) across 42 secondary and community hospitals in the UK

Design

RCT  Alternating air mattress (hospital stock)
High specification foam mattress (hospital stock)

Quality

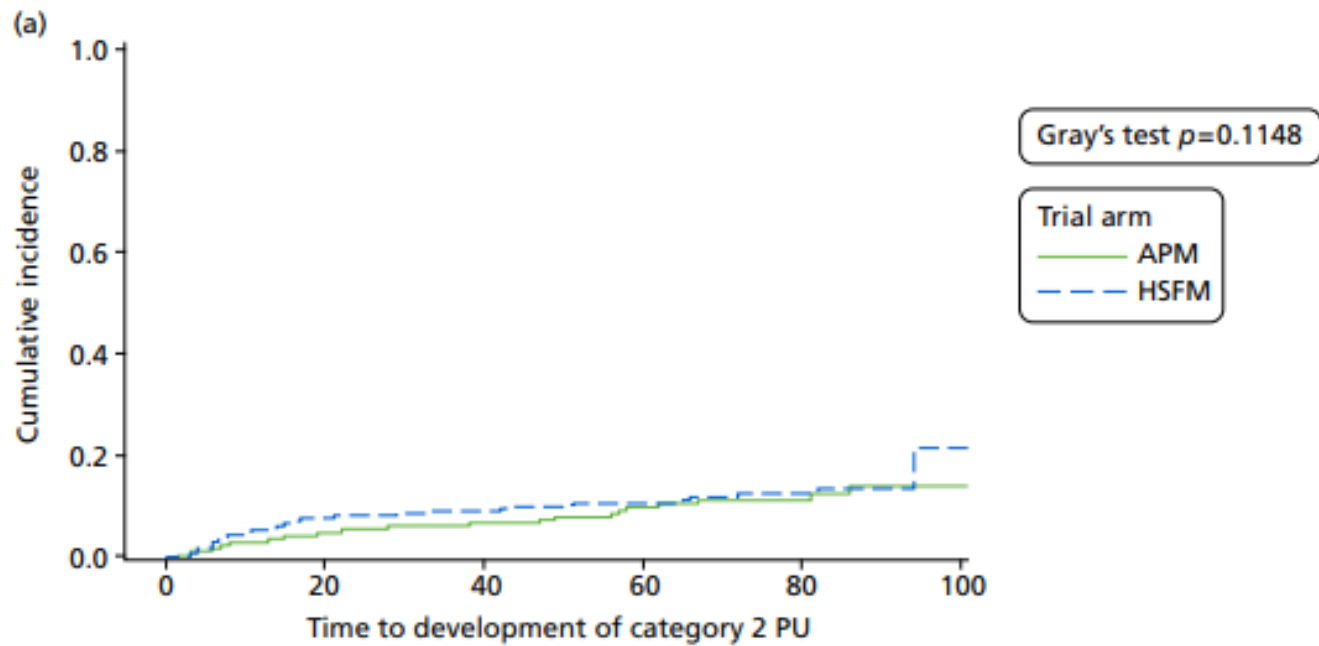
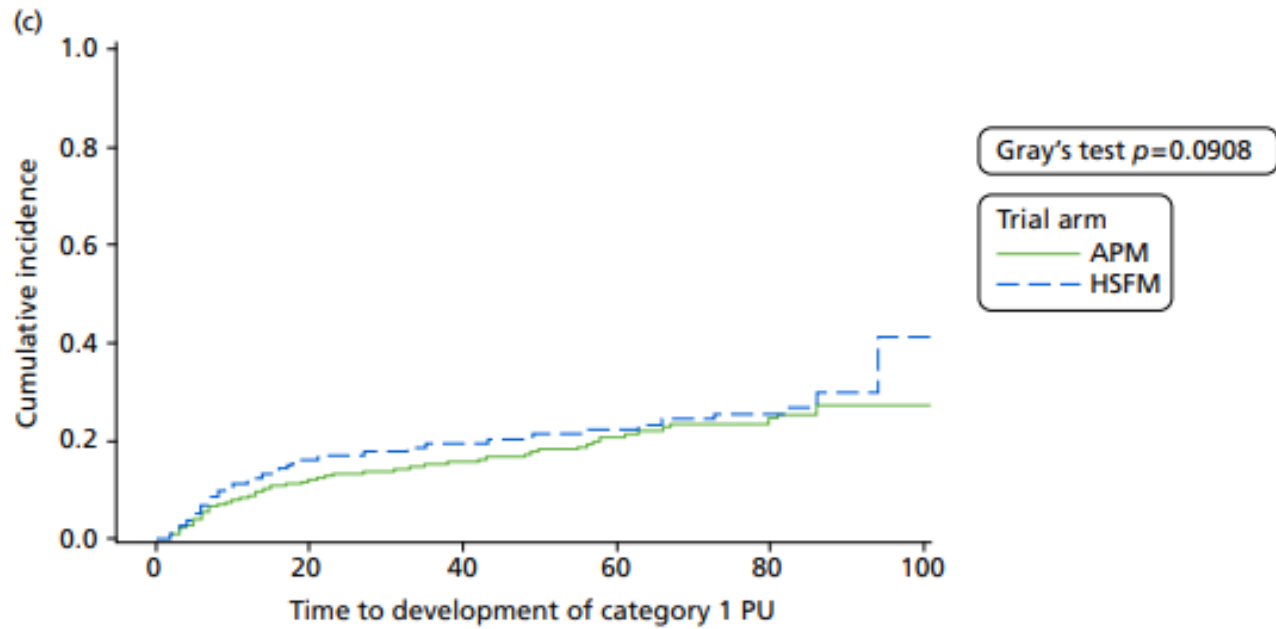
Moderate-high, low risk of bias

Results

Slight difference in development of $PI \geq 2$, not significant
No significant in time to develop $PI \geq 2$
No significant difference in time to healing of existing $PI \geq 2$

Take home messages

Alternating air may reduce $PI \geq 2$ risk from 8.9% to 6.9%, but
This is not a significant difference and
Cost-effectiveness analysis is questionable

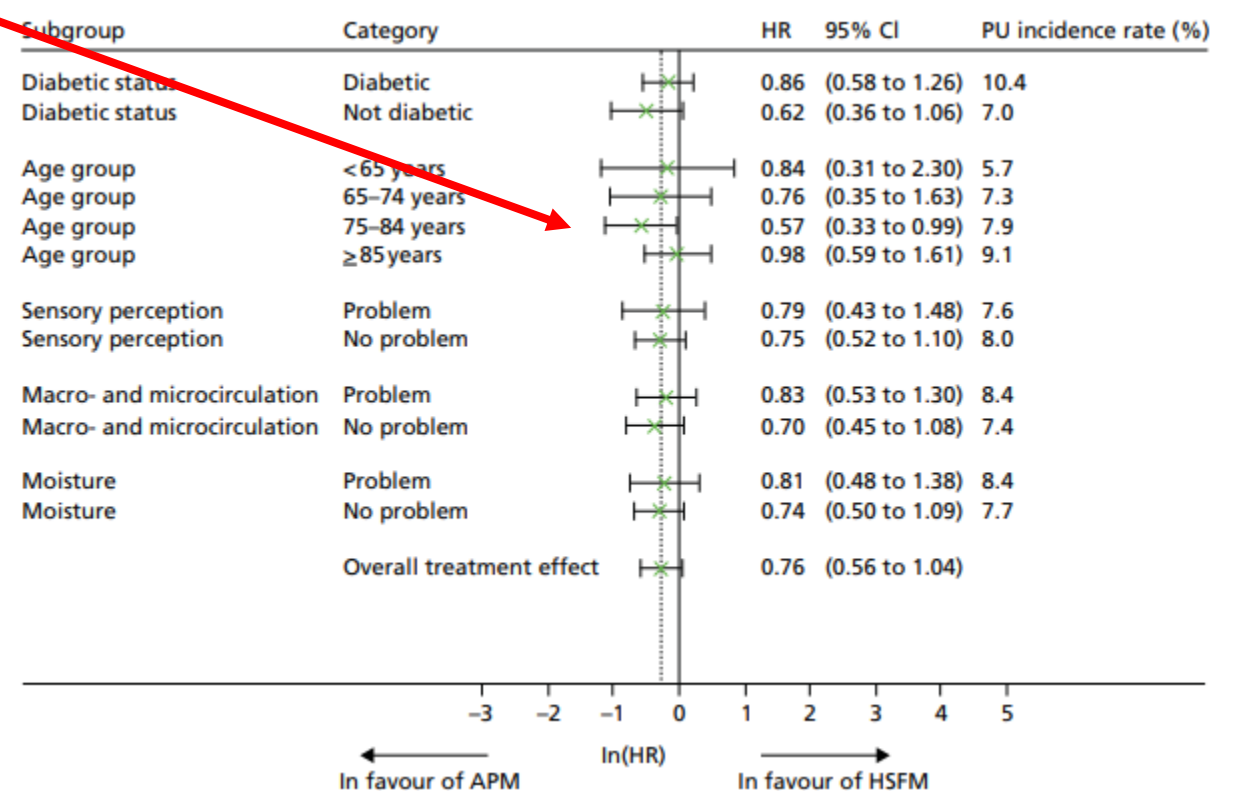
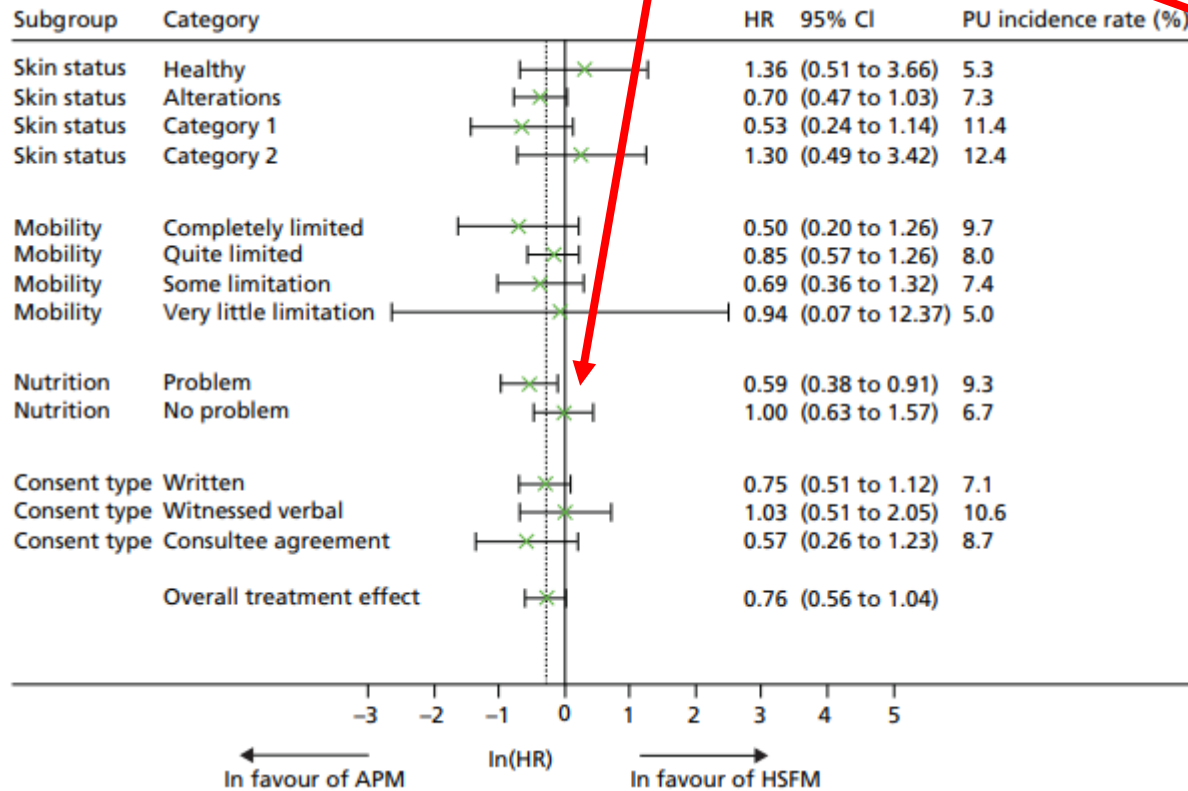


Nixon, J., Brown, S., Smith, I.L., et al. (2019). Comparing alternating pressure mattresses and high-specification foam mattresses to prevent pressure ulcers in high-risk patients: the PRESSURE 2 RCT. Health Technology Assessment, 23(52), 1-176.



Interesting bits

Nixon, J., Brown, S., Smith, I.L., et al. (2019). Comparing alternating pressure mattresses and high-specification foam mattresses to prevent pressure ulcers in high-risk patients: the PRESSURE 2 RCT. Health Technology Assessment, 23(52), 1-176.



Reason for first change from randomised mattress, *n* (%)

	Trial arm		
	APM	HSFM	Overall
Participant requested mattress change			
To aid movement	20 (9.0)	0 (0.0)	20 (4.5)
Mattress not comfortable	90 (40.5)	28 (12.7)	118 (26.7)
Participant no longer at risk	1 (0.5)	0 (0.0)	1 (0.2)
Ward-led mattress change			
Participant no longer at risk	4 (1.8)	1 (0.5)	5 (1.1)
To aid rehabilitation	29 (13.1)	5 (2.3)	34 (7.7)
Participant comfort	5 (2.3)	17 (7.7)	22 (5.0)
Participant clinical condition	3 (1.4)	130 (59.1)	133 (30.1)
Participant safety/health	4 (1.8)	2 (0.9)	6 (1.4)
Reason unknown	0 (0.0)	2 (0.9)	2 (0.5)
In error	1 (0.5)	0 (0.0)	1 (0.2)
Ward transfer	40 (18.0)	20 (9.1)	60 (13.6)
Technical fault	11 (5.0)	0 (0.0)	11 (2.5)
Mattress was required by another patient	3 (1.4)	0 (0.0)	3 (0.7)
Home leave	2 (0.9)	2 (0.9)	4 (0.9)
Slept in chair	1 (0.5)	1 (0.5)	2 (0.5)
Hospital transfer	0 (0.0)	2 (0.9)	2 (0.5)
Reason unknown	8 (3.6)	10 (4.6)	18 (4.0)
Total	222 (100.0)	220 (100.0)	442 (100.0)

Foam alternating air



VS

Population

76 participants with medium-high risk of PI in medium- and long-stay facilities in France, no repositioning regime.

Design

RCT  Alternating air mattress (Axtair One)
Foam mattress (Alova)

Quality

Moderate (unusual sample size calculation, underpowered, minimal comparison to other studies).

Results

Axtair One alt air had far fewer PIs (6.46%) than Alova foam (38.91%). No difference in mattress satisfaction (felt comfort).

Take home messages

Alternating air may be better than foam (if there is no turning regime), but very high number of PIs in foam group much higher than other studies and may be due to sample size method.

Foam alternating air

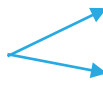


VS

Population

1,204 participants in critical care across seven Chinese hospitals

Design

RCT  Alternating air overlay (YQ-PBV Sanma)
Viscoelastic foam overlay (Alpha-PLA-s)

Quality

Moderate-high quality, but moderate risk of bias (supplier funding)

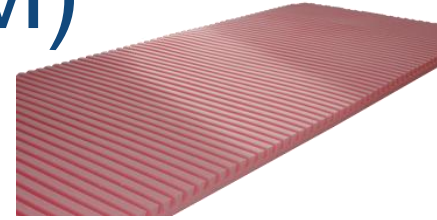
Results

No significant difference in PI incidence between viscoelastic foam + 4 hours repositioning vs alternating air + 2 hour repositioning

Take
home
messages

Repositioning (at least every 4 hours) may reduce the differences in performance seen with pressure cushions.

Standard hospital mattress (SHM) ^{VS} SHM + viscoelastic overlay



Population

110 participants with high risk of PI in neurology, oncology and pulmonary inpatient care units in Korea (standard hospital care + 2hourly turning)

Design

RCT  Standard hospital mattress
SHM + Viscosafe overlay (viscoelastic foam with channels)

Quality

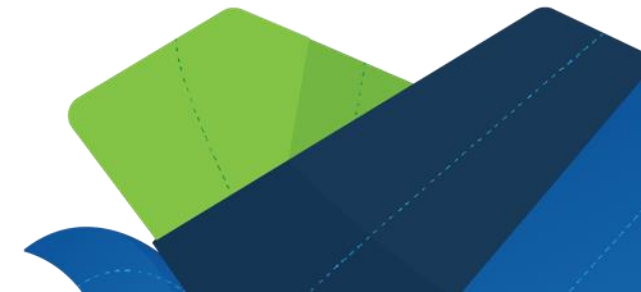
Moderate-high (slightly underpowered), low risk of bias

Results

Adding overlay to a standard hospital mattress reduced rates of PI (over a two week period) from 27.3% to 3.6%

Take home messages

A viscoelastic, channelled surface may improve the performance of foam



Emerging research in pressure mattresses

The screenshot shows a YouTube video player with a search bar at the top. The video content is a presentation slide titled "Methodology" with a grid background. The slide is divided into five columns, each with a question in a speech bubble and a list of details below it. A small video inset of a woman is visible in the top right corner of the video frame.

Who?	What?	Where?	When?	How?
<ul style="list-style-type: none">People aged 50+ with an existing pressure injury- Stage 2- Unstageable- SDTI	<ul style="list-style-type: none">Different types of pressure mattress<ul style="list-style-type: none">- alternating (active)- static (reactive)Excluding hybrid mattressesCushion for when sitting out of bed	<ul style="list-style-type: none">Based in the home settingPeople living in their own homes and sleeping on their own beds	<ul style="list-style-type: none">On the allocated mattress until:<ul style="list-style-type: none">- one week after pressure injury has healed- eight weeks	<ul style="list-style-type: none">- Randomised pragmatic RCT- Survey looking at subjective aspects of the mattress

Emerging research in pressure redistribution support surfaces
Unlisted

MASS Education
20 subscribers

Analytics Edit video

0 Share Download Clip

[Link to recorded presentation](#)

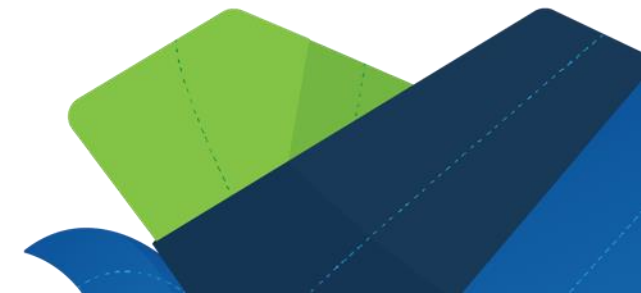
Pressure mapping technologies



Outputs from continuous pressure imaging are well-received by staff and family and may influence how pressure relief is provided. Cost is a likely barrier at this time.

(Ocampo et al., 2022)

Ocampo, W., Sola, D.Y., Baylis, B.W., et al. (2022). Healthcare provider and patient/family perceptions of continuous pressure imaging technology for prevention of pressure injuries: a secondary analysis of patients enrolled in a randomized control trial. *PLoS One*, 17(11), e0278109.



A piece of paper

In a small RCT (n=135), using a piece of unwrinkled, uncoated paper on the sacrum (replaced when contaminated) reduced skin moisture, however there were too few PIs to determine whether it reduced PI occurrence (one 1 in the experimental group and 3 in the control group)

(Choi & Kim, 2021)



EBP Summary

- Research evidence
- Clinical expertise
- Patient's values and circumstances
- Practice context

1. All pressure redistribution mattress types may be effective
2. There is no clear hierarchy of pressure mattress performance
3. Alternating air may be poorly tolerated for comfort and function
4. Foam may be better suited to those who can reposition themselves or receive at least 4-hourly repositioning
5. Consider individual client factors (e.g., mobility, comfort, moisture) in surface selection
6. Hybrids have been under-studied but are anecdotally often effective
7. Surfaces are only a small part of overall pressure injury prevention

Queensland Health

MASS SOA

Pressure Redistribution Mattresses



Queensland
Government

Alternating air

Pulsation/alternating/CLP modes,
constant air temp, heel slope

Curocell A4 C10



100mm height



Curocell A4 C16



160mm height



Curocell A4 C20



200mm height



Alternating air

Active Air 4



Alternating
100mm height



Active Air 5



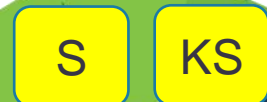
Alternating
130mm height



Active Air 8



Alternating/CLP
200mm height



Alternating air

Active Air Acute 8 with turn assist



Alternating/valves on the side of the mattress engage lateral turning through integrated air cells



Active Air Bari 10



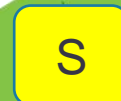
Integrated turning therapy



Alpha Active 4



Two modes of operation: active / alternating and reactive / static



Alternating air

CARI-CHAIR



Recliner and chair long, automatic adjustment

Carilex Entrix 5



Low profile, alternating, rolls up into a bag



Carilex Entrix 7



Alternating/CLP, manual adjustment, air with foam underlay, low air loss



Alternating air

Talley Pulsair Choice



M

MedexCare 8"



M

Curocell UNO



M

Active 1-in-4 cycle. TISSUEgard air cell technology with ODS/low air loss feature

S SL

Static, Alternating and Max inflate modes

S

Alternating/pulsation/CLP/Max firm, automatic adjustment

S KS

Alternating air

ProCair



Automatic pressure setting, 1-in-4 alternating, Manual Fowler Boost mode adjusts the mattress pressure to provide increased support under the sacral area when the backrest is raised



ProCair Plus



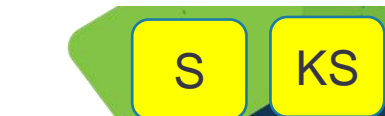
HeelCair, automatic weight-sensing, Fowler Boost mode



ProCair Quad



1-in-4 alternating, HeelCair, Fowler Boost mode, automatic pressure setting



Alternating air

Quattro Acute



1-in-4 alternating, CLP mode, max inflation, deep cell therapy, TISSUEgard and ODS



Quattro Plus



1-in-4 alternating, CLP mode, max inflation, TISSUEgard and ODS



Quattro Sentinel



For bariatric up to 370kg



Alternating air

BetterLiving



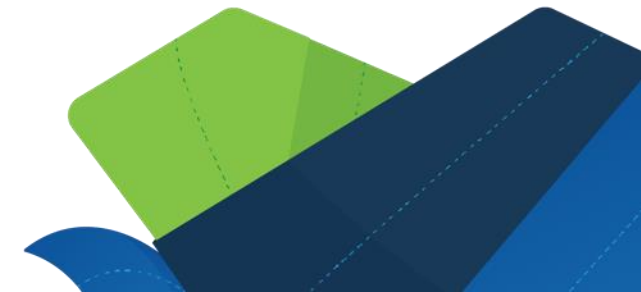
Alternating, automatic weight sensing, 2 cell cycle therapy



BetterLiving



Alternating, Automatic pressure sensing



Alternating air

Nimbus 4



Alternating, Automatic adjustment of cell pressures, Heelguard and Wound Valve Technology



Dual Plus



Alternating, designed for easy carrying, Localised healing can be created by easily swapping any of the 8" cells with the 5" bridging cell, providing reduced pressure zones, for example, heel zone



Centrius 5/5 XL



5" air cell, max inflation, dynamic/CLP therapy modes, automatically adjusts internal mattress pressure



Alternating Air

Centrius 7



5" Air Cells, 2" built in foam underlay,
CLP mode, max inflation,
low noise levels



Centrius FIT



Alternating, 8" air cells proves excellent
immersion, CLP mode, low noise
levels, max inflation



Centrius LUX



7" air cells, max inflation,
CLP mode, low noise levels



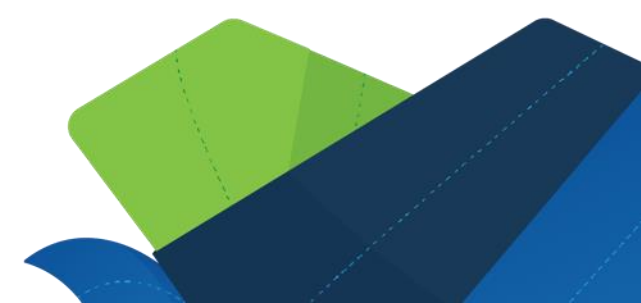
Alternating air (paediatric)



Coziny 100/200/300 Paediatric



Alternating air, available in paediatric cot / crib sizes



Static air (powered)

Curocell SAM BAS PRO



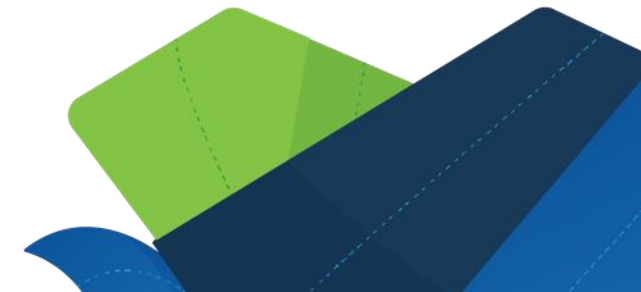
Manual adjustment of pressure



Curocell SAM



Manual adjustment of pressure



Hybrid alternating air

CuroCell Cirrus A4



Alternating/pulsation/CLP, soft foam, foam surface, automatic adjustment



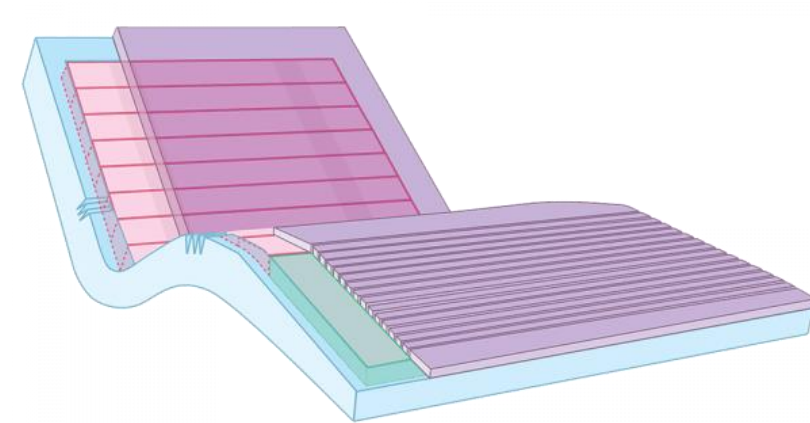
Softform Premier Active 2



Can be used as static foam or powered alternating air, 1-in-2 cycle



Aspire Hybrid Comfort



Viscoelastic surface layer (moves independent of air cells)



Hybrid alternating air

CairMax Duo

M

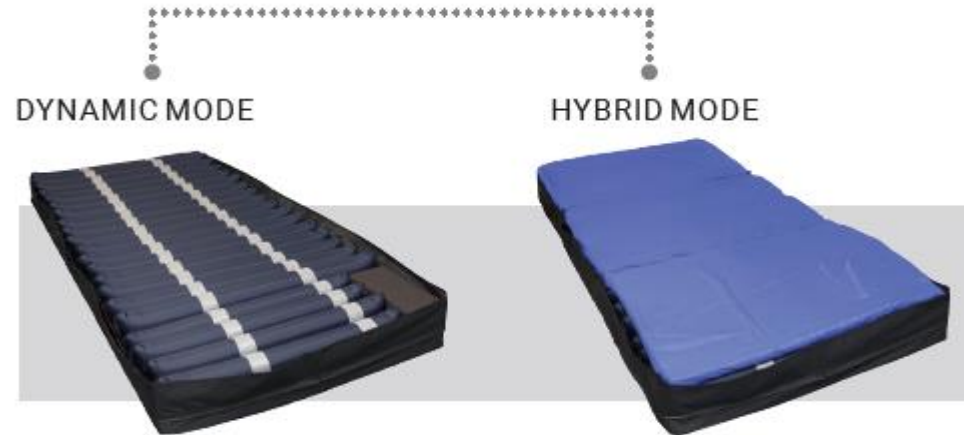


Can be used as static castellated foam (in air channels) or powered alternating air, 1-in-2 cycle

S KS

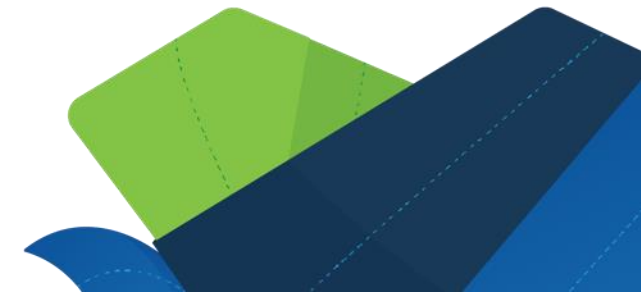
Procair Prime

M



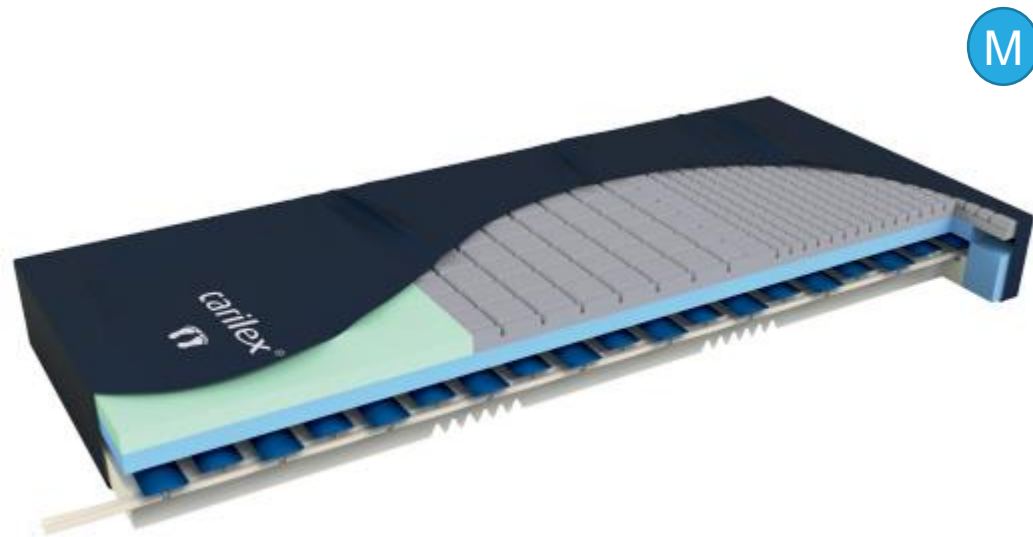
Can be changed from alternating air to hybrid, automatic adjustment

S KS

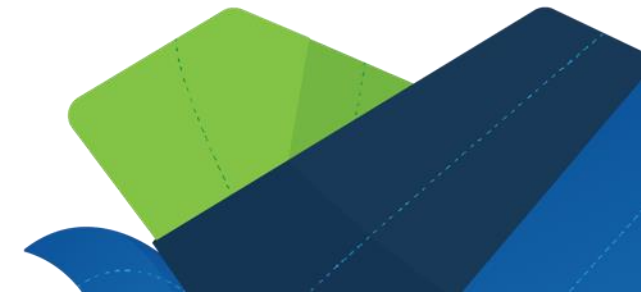


Hybrid foam/gel/air

Carilex Dual Flex System



Cooling/breathable
gel-infused foam,
castellated foam,
alternating air (2:1
ratio, 10min cycle),
can be used with or
without pump





Kevin

SCI with paraplegia

Previously tolerated alternating air well in rehab, but prefers 1-in-4 cycle

Finds it hard to transfer without max-inflate mode

Previous PIs on heels with fragile skin (needs heel zone)



Talley Quattro Plus



Reactive air

Repose mattress overlay



Vicair 415



Note: not available on SOA but available through PCEP



Reactive air (+ foam segments)

ROHO mattress sections



ROHO levelling pad



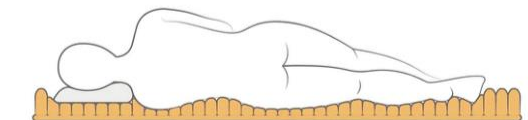
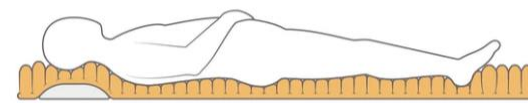
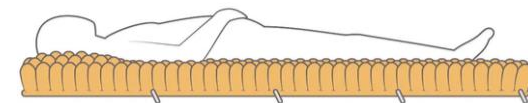
ROHO foam insert pad



Lifecomfort mattress with insert



Star mattress sections



Reactive air/foam hybrids

CuroCell AREA zone



S

KS

Memory foam surface

Arjo AtmosAir 9000

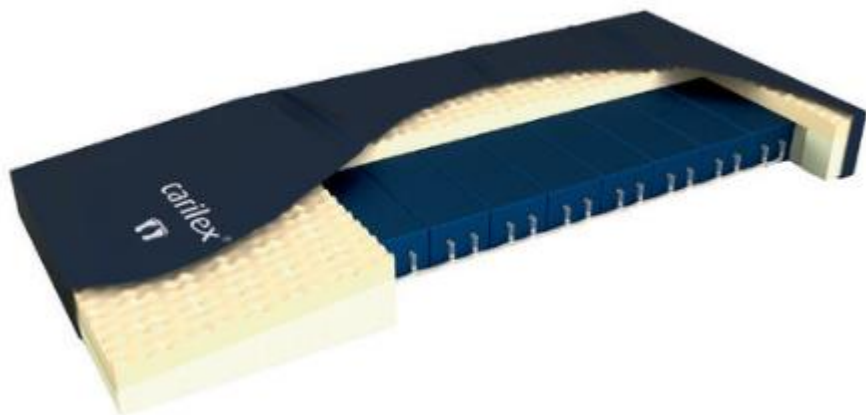


S

Convoluted foam surface

Reactive air/foam hybrids

Carilex AirMax



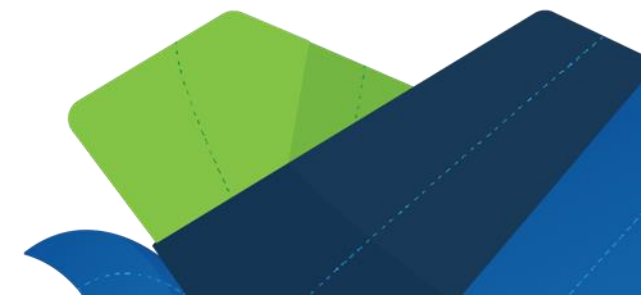
Convoluted foam surface



CairMax Foam Air Support Surface



Easy glide layer



Gel

Action gel bed segments





Lacey

Palliative cancer diagnosis with metastases

Previous radiation therapy make skin very sensitive

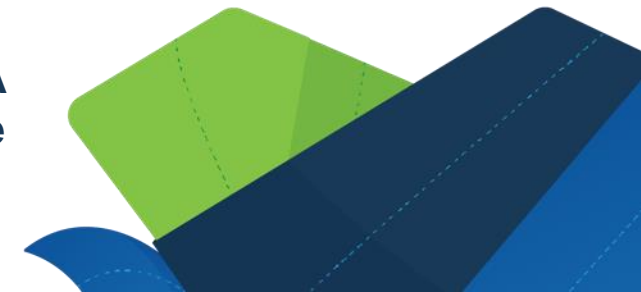
Gets cold easily due to low body weight



**Repose
Mattress
Overlay**



**Curocell AREA
Zone**



Foam

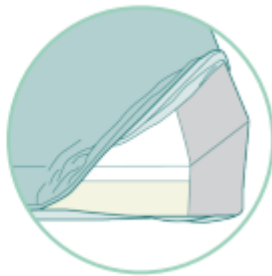
Aspire Lifecomfort Standard



Dual layer, visco memory foam upper
Can get bevelled safety sides



AVAILABLE WITH SAFETY SIDES
An adaptation of the LIFECOMFORT Standard Mattress to include side wall support to help minimise the risk of falls from bed.



Aspire Lifecomfort Deluxe



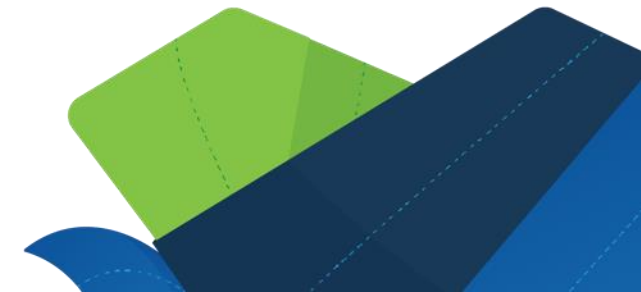
Three layer (memory foam upper)



Aspire Lifecomfort Pressure Reducing

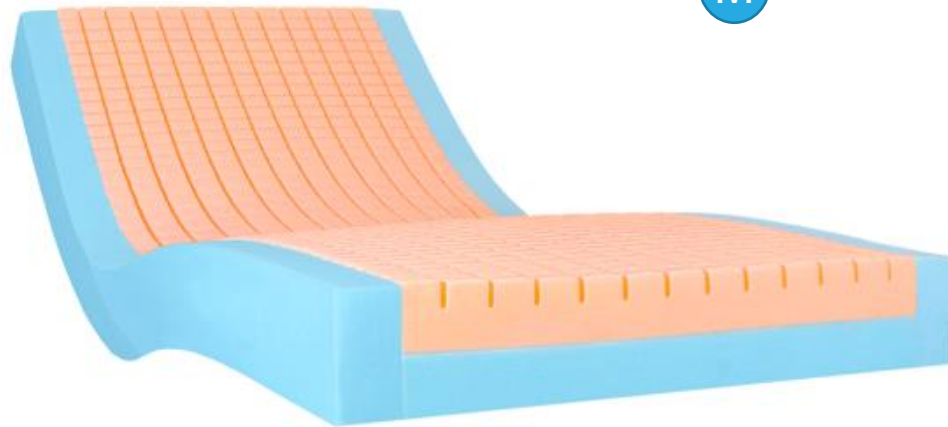


Three layer (memory foam upper) with supportive sides



Foam

**Aspire Lifecomfort
Acute Care**



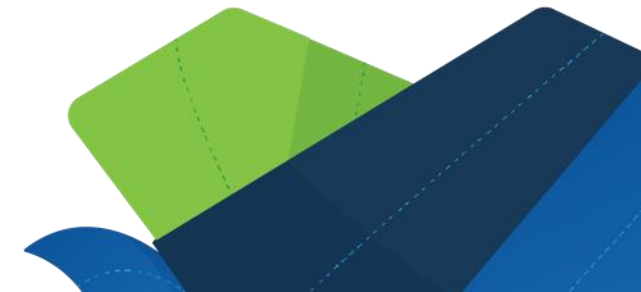
Crenelated foam, firm sides,
highly resistant cover



**Aspire Lifecomfort
Bariatric**



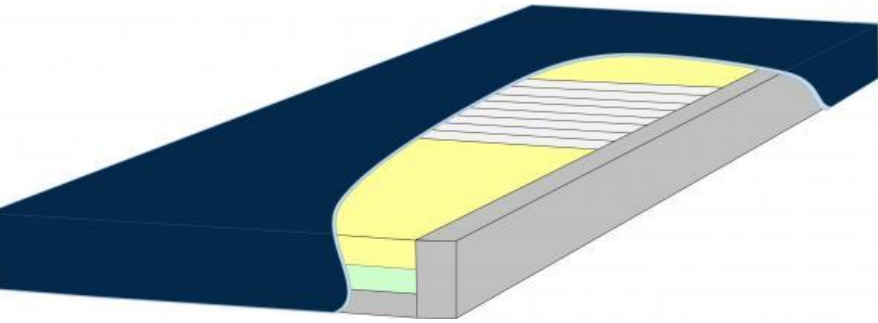
Memory foam upper, SWL
300kg



Foam

MacMed Hospital Ultimate

M



Triple layer,
crenalated sacral
area, firm walls

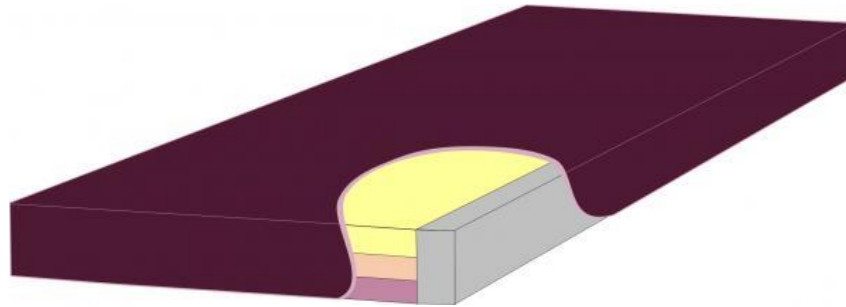
S

KS

Custom

MacMed Nursing Home Ultimate (with / without safety sides)

M



Triple layer, firm
walls, safety sides
available

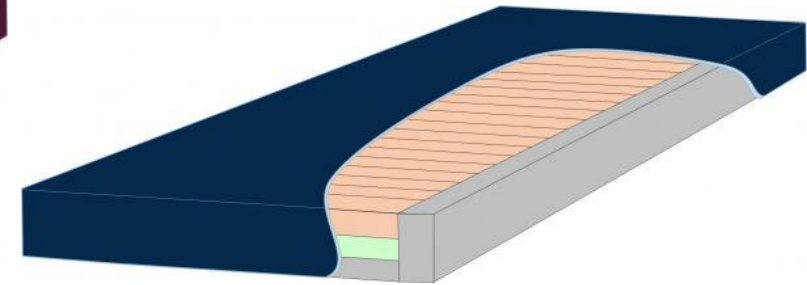
S

KS

Custom

MacMed Spinal Deluxe

M



Triple layer,
crenalated upper, firm
walls

S

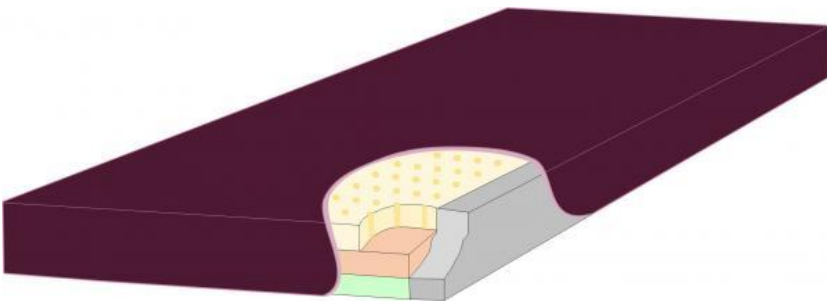
KS

Custom

Foam

MacMed Platinum Plus

M

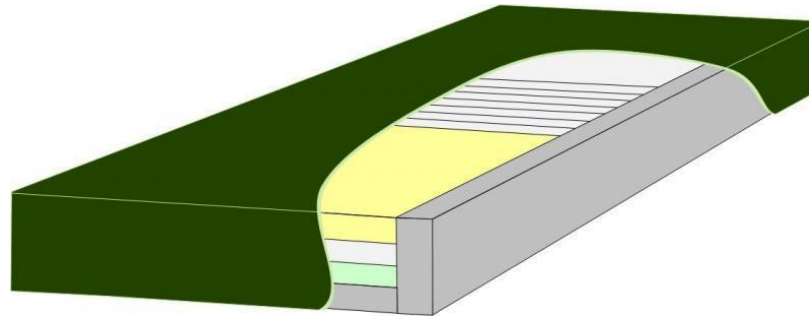


Temperature control (visco-elastic open cell upper)

- S
- KS
- Custom

MacMed Bariatric Standard

M

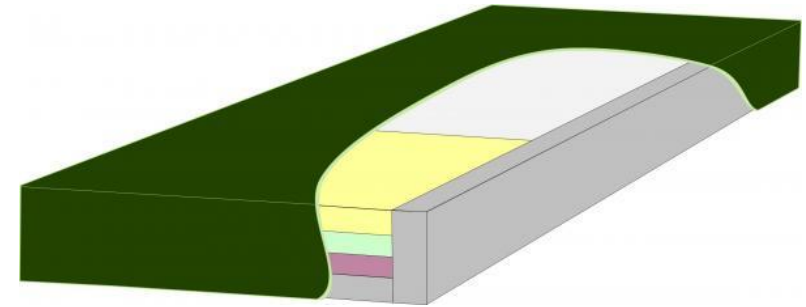


Four layer, crenelated sacral area, firm walls, SWL 300kg

- S
- KS
- Custom

MacMed Bariatric Ultimate

M

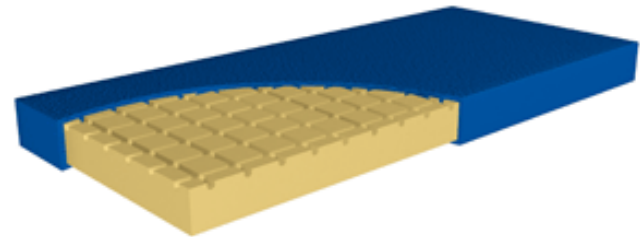


Four layer, firm walls, SWL 400kg

- S
- KS
- Custom

Foam

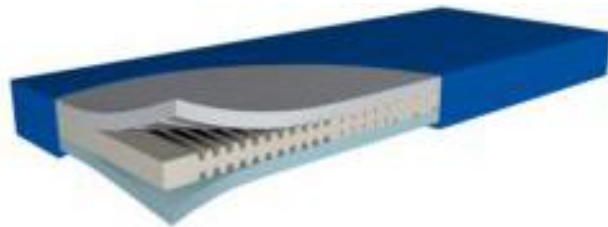
Funke Hyper Foam 1



Hyper-elastic foam, crenelated



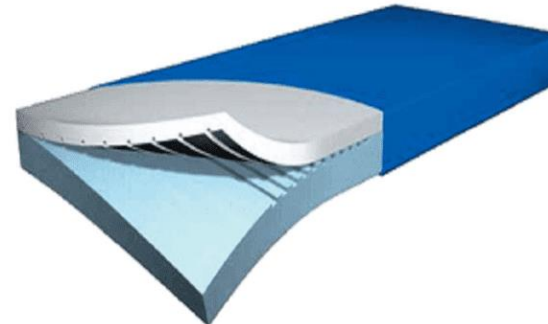
Funke Hyper Foam 2



Hyper-elastic foam,
air ventilation



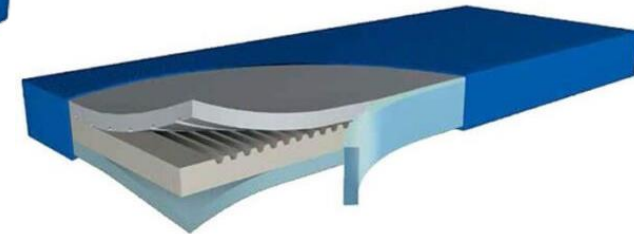
Funke Hyper Foam Plus



Hyper-elastic foam,
air ventilation



Funke Maxx250



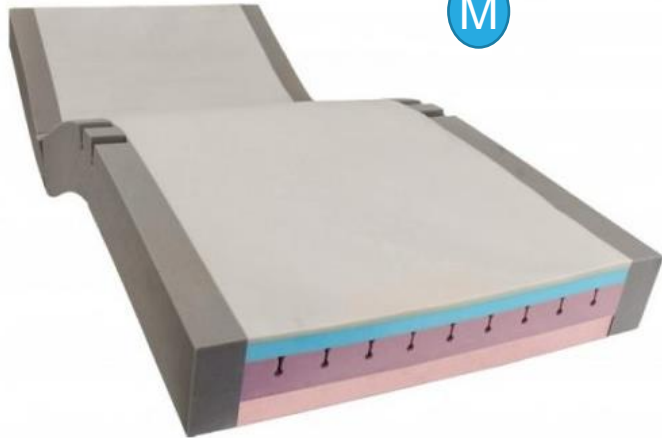
Similar to Hyper Form
2 but with firm sides
and 250kg SWL



Foam

Forte Sovereign Plus

M



Cooling upper layer, ventilation channels, firm sides, sloped heel region



Forte Icon Plus

M



Cooling upper visco-elastic layer, firm sides



Forte Icon Maxx Bariatric

M



SWL 350kg / 500kg



Foam

Eurocare Foam (Staebel Zonecare Foam Mattress)



Crenelated, open cell foam, firm sides



Optimal 5zon 850/1050



Crenelated, firmer support under lower back and thighs for sitting



ComfortFlex multi layered foam

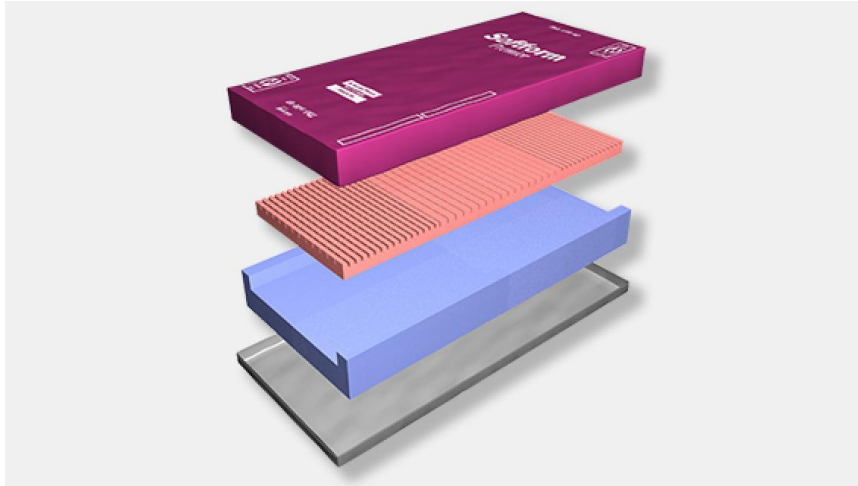


Crenelated, open cell foam, firm sides



Foam

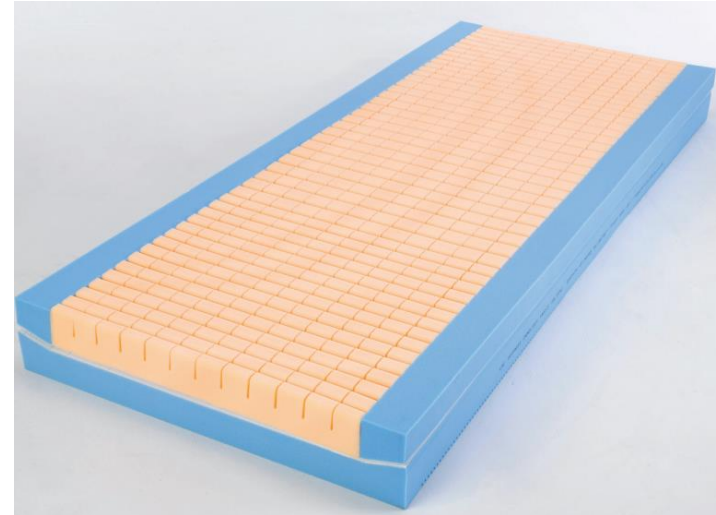
Invacare Softform Premier M



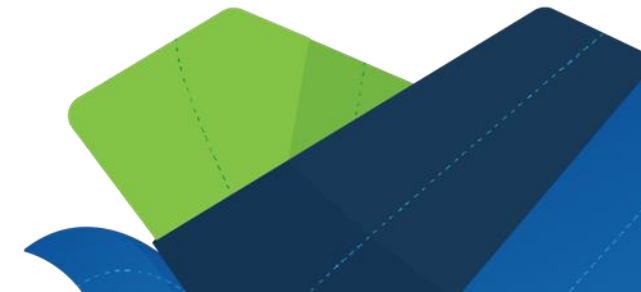
Castellated foam, tough polyurethane base, firm side walls



Invacare Softform Premier Maxiglide M



Castellated foam, tough polyurethane base, firm side walls





Peter

Dementia with agitation and wandering at night, rolls self in bed

Moderate-high pressure risk

Successful continence management with continence aids



**Aspire Lifecomfort
Pressure Reducing**



Foam recap

When selecting a foam mattress ask yourself;

- Do I need extra layers (e.g., 3-1/4-layer) for extra pressure relief?
- Do I want surface crenellations for extra pressure relief?
- What surface layer do I want?
 - Viscoelastic “memory” foam (warmer) → Aspire
 - Viscoelastic “memory” foam with cooling feature (cooler) → Forte
 - Open-cell foam (cooler) → Staebel
 - Hyperelastic foam (for person who moves a lot) → Funke
- Do I want aeration through the mattress (humidity/temperature management)?
- Do I want solid sides (transfers, and to help stay centred)?
- Do I want safety sides (resist rolling out of bed)?



Other reactive surfaces

CareQuip Silicone Fibre



Silicone coated fibre overlay, low cost

Dunlop Foam Latex Topper



Low cost, perforated, 4 firmness choices

S

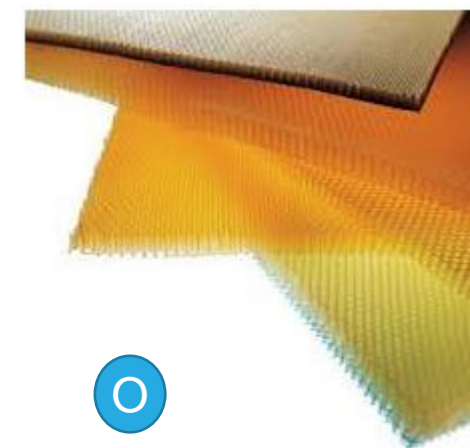
KS

Supracor Crib Mattress



Paediatric, 24/27/28"

Supracor Medical Zone 3



Paediatric, with / without side bolsters

Queensland Health

Prescribing PRMs through MASS



Queensland
Government

Eligibility



Remember to include justification from your clinical assessment (e.g., Waterlow, Braden), functional status, individual circumstances, etc.

MASS [Link to guidelines](#)

- Queensland resident with administrative eligibility (e.g., Qld Senior Card, Pension)
- Basic subsidy (\$2,500) = at risk of, and/or current, PI
- Non-basic subsidy (\$6,000) = significant history of PI and/or severe mobility restriction
- Successful 3-night trial
- Single or king-single ‡

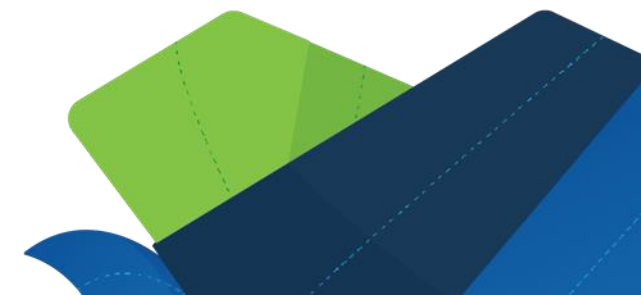
PCEP [Link to guidelines](#)

- Queensland resident with confirmed prognosis < 6 months
- AKPS score $\leq 50^*$
- RUG score $\geq 10^*$
- Single †

* Or other score with clinical justification assessed by PCEP advisor

† King single available with clinical justification

‡ May get larger, but subsidy based on single / king single equivalent



MASS Standing Offer Arrangement (SOA)

Medical Aids Subsidy Scheme (MASS) Assistive Technology SOA effective 1st November 2014 - Extension 2023-24
 Pressure Redistribution Mattresses/Overlays
MASS Assistive Technology SOA Product List - Last Review: 24/07/2023
 Please use drop-down arrows to filter items required. Select (ALL) to return to full list.
 *Base price of equipment falls within the subsidizable funding level at SOA review, refer to supplier for current pricing. Product price does not indicate eligibility of item to be subsidized within the non-barcoded category, refer to the relevant Guidelines.

Supplier	Product Brand	Product Name/Description	Product Code	Sizing width/length (mm)	Height (mm)	PRM Overlay or Replacement	Product Type Foam/Hybrid/Air/Gel	Powered/ Non-powered/ dual/option	Electric pump Manual override/disconnect	Program Modes available Alternating/Static/CLP/Turning/Fan/Support	Decrease d Noise/vibration (db re 1m)	Fowler's positioning (weight lifting 45-90 degrees)	Minimum Recommended Weight (kg)	Safe Working Load (kg)	Base Price within basic subcid
Active Medical	ActiveGel	1x Bed Segment	3183	690x230	18	Overlay	Gel	Non-powered	N/A	N/A	N/A	Not reported	10	300	Y
Active Medical	ActiveGel	2x Bed Segment	3183	690x260 (2 segments)	19	Overlay	Gel	Non-powered	N/A	N/A	N/A	Not reported	10	300	Y
Active Medical	ActiveGel	3x Bed Segment	3183	690x190 (3 segments)	20	Overlay	Gel	Non-powered	N/A	N/A	N/A	Not reported	10	300	Y
Active Medical	Care of Sweden	CuroCall A4 C210 1950	AS101-105200-SE0000	1050x2000	100	Overlay	Air	Powered	Auto Adjusting	Pulsation/Alternating/CLP	Leu 17 IBA	Not reported	0	200	N
Active Medical	Care of Sweden	CuroCall A4 C210 850	AS101-085200-SE0000	850x2000	100	Overlay	Air	Powered	Auto Adjusting	Pulsation/Alternating/CLP	Leu 17 IBA	Not reported	0	200	N
Active Medical	Care of Sweden	CuroCall A4 C216 1050	3628	1050x2000	160	Mattress Replacement	Foam/Air	Powered	Auto Adjusting	Pulsation/Alternating/CLP	Leu 17 IBA	Not reported	0	200	N
Active Medical	Care of Sweden	CuroCall A4 C216 850	3626	850x2000	160	Mattress Replacement	Foam/Air	Powered	Auto Adjusting	Pulsation/Alternating/CLP	Leu 17 IBA	Not reported	0	200	N
Active Medical	Care of Sweden	CuroCall A4 C230	3641	850x2000	200	Mattress Replacement	Foam/Air	Powered	Auto Adjusting	Pulsation/Alternating/CLP	Leu	Not reported	0	250	N
Active Medical	Care of Sweden	CuroCall A4 C26A Zone 1000	36312	1000x2000	100	Mattress Replacement	Foam/Air	Non-powered	N/A	N/A	N/A	Not reported	0	220	N
Active Medical	Care of Sweden	CuroCall A4 C26A Zone 850	36312	850x2000	100	Mattress Replacement	Foam/Air	Non-powered	N/A	N/A	N/A	Not reported	0	220	N
Active Medical	Care of Sweden	CuroCall Cirrus A4	367484	850x2000	200	Mattress Replacement	Foam/Air	Powered		Alternating, CLP, alternating* *rot inflation and CLP *rot inflation	27 IBA	rot inflation mode	0	160	N
Active Medical	Care of Sweden	CuroCall Cirrus A4 (K3)	3674A4	1050x2000	210	Mattress Replacement	Foam/Air	Powered		Alternating, CLP, alternating* *rot inflation and CLP *rot inflation	27 IBA	rot inflation mode	0	220	N
Active Medical	Care of Sweden	CuroCall SAM 1050	3672	1050x2000	100	Overlay	Air	Powered	Yes	CLP	22 IBA	Not reported	0	200	Y
Active Medical	Care of Sweden	CuroCall SAM 300	3671	900x2100	100	Overlay	Air	Powered	Yes	CLP	22 IBA	Not reported	0	200	Y
Active Medical	Care of Sweden	CuroCall SAM 850	3670	850x2000	100	Overlay	Air	Powered	Yes	CLP	22 IBA	Not reported	0	200	Y
Active Medical	Care of Sweden	CuroCall SAM BAS Pro 850	3663	850x2000	160	Mattress Replacement	Foam/Air	Powered	Yes	CLP	22 IBA	Not reported	0	250	Y
Active Medical	Care of Sweden	CuroCall SAM BAS Pro 1050	3648CS1050	1050x2000	160	Mattress Replacement	Foam/Air	Powered	Yes	CLP	22 IBA	Not reported	0	250	Y
Active Medical	Care of Sweden	CuroCall UNO	3651	850x2000	200	Mattress Replacement	Foam/Air	Powered	same	Alternating, pulsating, static and CLP	24 IBA	Not reported	0	250	N
Active Medical	Care of Sweden	CuroCall UNO 1050	3651K51050	1050x2000	200	Mattress Replacement	Foam/Air	Powered	same	Alternating, pulsating, static and CLP	24 IBA	Not reported	0	250	N
Active Medical	EuroCare	EuroCare Foam (Stabel Zonecare Foam Mattress)	3723	850x1900x150	150	Mattress Replacement	Foam	Non-powered	N/A	N/A	N/A	N/A	0	160	Y
Active Medical	Care of Sweden	Optimal 5000 350	3771	850x2000x140	140	Mattress Replacement	Foam	Non-powered	N/A	N/A	N/A	Dual Over/2 function	0	160	Y
Active Medical	Care of Sweden	Optimal 5000 King Single 1050	3775	1050x2000x140	140	Mattress Replacement	Foam	Non-powered	N/A	N/A	N/A	Dual Over/2 function	0	160	N
Active Medical	Care Oup	Silicone Fibre	2740	900x1900	100	Overlay	Silicone coated Hallau fibre	Non-powered	N/A	N/A	N/A	Not reported	10	100	Y
ROHO	ROHO	1 dry flotation section of 20 x 34	PTH636320	840x980	80	Overlay	Air	Non-powered	N/A	N/A	N/A	Not reported	0	na/limit	Y
Aidacare	ROHO	2 dry flotation sections of 20 x 34	MATTRESS-SECT	840x980 (2 segments)	80	Overlay	Air	Non-powered	N/A	N/A	N/A	Not reported	0	na/limit	Y
Aidacare	ROHO	2 dry flotation sections of 20 x 34 and 2 foam insert pad	MATTRESS-SECT/HIP2134	840x1960 (4 segments)	80	Overlay	Air/Foam	Non-powered	N/A	N/A	N/A	Not reported	0	na/limit	Y
Aidacare	ROHO	3 dry flotation sections of 20 x 34	MATTRESS-SECT	840x1470 (3 segments)	80	Overlay	Air	Non-powered	N/A	N/A	N/A	Not reported	0	na/limit	Y
Aidacare	ROHO	3 dry flotation sections of 20 x 34 and 1 foam insert pad	MATTRESS-SECT/HIP2134	840x1960 (4 segments)	80	Overlay	Air/Foam	Non-powered	N/A	N/A	N/A	Not reported	0	na/limit	Y
Aidacare	ROHO	4 dry flotation sections of 20 x 34 w/Cover	PTH636325	840x1960 (4 segments)	80	Overlay	Air	Non-powered	N/A	N/A	N/A	Not reported	0	na/limit	N
Aidacare	Aspire	ACTIVE AIR ACUTE & TURN - King Single	PTH63940T	1050x2000x200	200	Mattress Replacement	Air	Powered	Yes	Alternating (1 in 3)/Static/Countdown pressure/T	Yes Auto protect 25 & 45	20	250	N	
Aidacare	Aspire	ACTIVE AIR ACUTE & TURN - King Single	PTH63940T	900x2000x200	200	Mattress Replacement	Air	Powered	Yes	Alternating (1 in 3)/Static/Countdown pressure/T	Yes Auto protect 25 & 45	20	250	N	
Aidacare	Aspire	ACTIVE AIR BARI 10 - King Single	PTH63950	1070x2000	270	Mattress Replacement	Air	Powered	Yes	Alternating (1 in 2)/1 in 4)/Static/Infl	Yes Auto protect 25 & 45	20	450	N	
Aidacare	Aspire	ACTIVE AIR BARI 10 - Single	PTH63950	900x2000	270	Mattress Replacement	Air	Powered	Yes	Alternating (1 in 2)/1 in 4)/Static/Infl	Yes Auto protect 25 & 45	20	450	N	
Aidacare	Aspire	ACTIVE AIR BARI 10 - Super King	PTH63950	1230x2000	270	Mattress Replacement	Air	Powered	Yes	Alternating (1 in 2)/1 in 4)/Static/Infl	Yes Auto protect 25 & 45	20	450	N	
Aidacare	Aspire	Foam Insert Pad (3/4, 1/2, 1/3)	PTH634220	260x490	80	Overlay	Foam	Non-powered	N/A	N/A	N/A	Not reported	0	160	Y
Aidacare	Aspire	HYBRID Comfort Foam/Air Mattress - Single	PTH638005	895x1980	170	Mattress Replacement	Foam/Air	Powered/Non-powered	Yes	Alternating (1 in 2)/Static	Leu	Profile Hinge	50	230	Y
Aidacare	Aspire	HYBRID Comfort Foam/Air Mattress - King Single	PTH638006	1050x1980	170	Mattress Replacement	Foam/Air	Powered/Non-powered	Yes	Alternating (1 in 2)/Static	Leu	Profile Hinge	50	230	Y
Aidacare	ROHO	Localling Pad	PTH636360	840x2032	80	Mattress Replacement	Foam	Non-powered	N/A	N/A	N/A	Not reported	0	160	Y
Aidacare	ROHO	Localling Pad with 1 dry flotation section of 20 x 34 -short	PTH636360	840x500	80	Mattress Replacement	Foam	Non-powered	N/A	N/A	N/A	Not reported	0	160	Y
Aidacare	Aspire	Lifecomfort Active Air 4 Alternating Overlay - Single	PTH639100	850x2000	100	Overlay	Air	Powered	Yes	Alternating (1 in 2)	Leu	Not reported	30	125	Y
Aidacare	Aspire	Lifecomfort Active Air 5 Alternating Overlay - King Single	PTH639210	1050x2000	120	Overlay	Air	Powered	Yes	Alternating (1 in 2)/Continuous Leu	Leu	Not reported	20	175	Y
Aidacare	Aspire	Lifecomfort Active Air 5 Alternating Overlay - Single	PTH639200	850x2000	120	Overlay	Air	Powered	Yes	Alternating (1 in 2)/Continuous Leu	Leu	Not reported	20	175	Y
Aidacare	Aspire	Lifecomfort Active Air 5 Alternating Mattress Replacement - King Single	PTH639310	1050x2000	200	Mattress Replacement	Air	Powered	Yes	Alternating (1 in 2)/Static	Not reported	Not reported	20	200	N
Aidacare	Aspire	Lifecomfort Active Air 5 Alternating Mattress Replacement - Single	PTH639300	900x2000	200	Mattress Replacement	Air	Powered	Yes	Alternating (1 in 2)/Static	Not reported	Not reported	20	200	N
Aidacare	Aspire	Lifecomfort Acute Needs - King Single	BEM04645	1050x2020	150	Mattress Replacement	Foam	Non-powered	N/A	N/A	N/A	Cartollated surface	50	250	Y
Aidacare	Aspire	Lifecomfort Acute Needs - Single	BEM04645	850x1980	150	Mattress Replacement	Foam	Non-powered	N/A	N/A	N/A	Cartollated surface	50	250	Y

MASS SOA spreadsheet contains filters including:

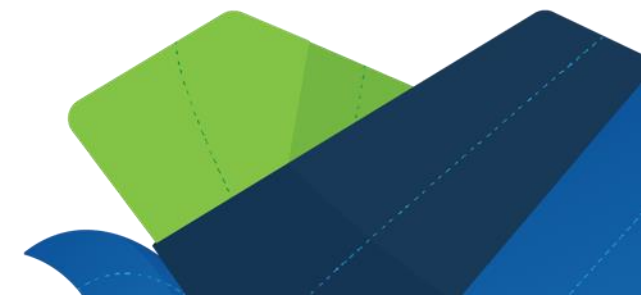
- Minimum recommended weight
- Safe weight limit
- Whether the base price is within subsidy

[Link to SOA spreadsheet](#)

Questions & feedback



Complete the feedback form by scanning the QR code above or following [this link](#). You will receive a certificate of completion after completing the form.



Contacts

Sharon Clark, Principal Clinical Advisor Daily Living Aids

Sharon.Clark2@health.qld.gov.au (t: 3136 3527)

Bridget Manning & Kieran Broome, Advanced Clinical Educators (t:3136 3526)

MASS-Education@health.qld.gov.au

Equipment repairs (t: 3136 3524)

MASS-Equipment@health.qld.gov.au

MASS-Equipment-TSV@health.qld.gov.au



Upcoming MASS CPD

DATE	TOPIC
12 October, 2023	The Role of Static Bathing and Toileting Aids in Enhancing Safety and Independence Register to join webinar
8 November, 2023	Contenance Management Strategies Register to join webinar
27/28 November (1 day workshop, repeat)	Introduction to Wheelchairs and Seating Workshop Register to join workshop (27 th) / Register to join workshop (28 th)
29 November (am and pm sessions)	Introduction to Maintaining and Adjusting Assistive Technology Register to join workshop
30 November (am and pm sessions)	Pressure Cushion Prescription Workshop Register to join workshop