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Sleep Angel[®]

Clinically proven barrier to pathogens.



We believe bedding should not be involved in spreading infection, and we have designed products to make sure it isn't

SleepAngel bedding provides a clinically proven barrier to product contamination and features the patented PneumaPure™ Filter Technology which enables the product to ventilate but prevents the passage of liquid and air borne pathogens that colonise the interior of standard bedding products.

Gabriel Scientific is an award winning life sciences company based in Ireland. The company has addressed the significant risk posed to Safe Patient Environments through the invention of the SleepAngel™ range of barrier bedding.

SleepAngel™ range is produced by Elers Medical, a Scandinavian healthcare innovator who accelerates next generation infection control products into reality. Product development is carried out in cooperation with multiple healthcare specialists. We believe all people, worldwide, deserve access to safe healthcare in a clean and comfortable patient environment.



SleepAngel products are researched & developed by Gabriel Scientific



ELERS
MEDICAL

Bedding's Role in Infection Control

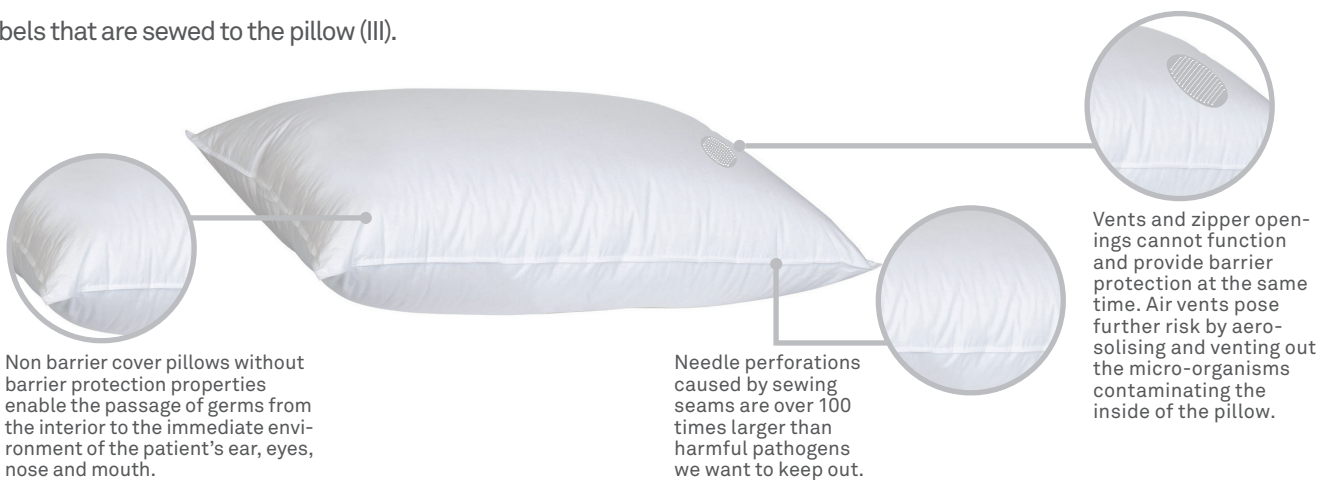
It is generally accepted that pathogens can remain viable on common hospital surfaces up to several months (ix). Hospitals are obliged to make best efforts in preventing hospital-acquired infections (HAI). Patient cross-infection and HAI's in general pose a major problem for hospitals greatly increasing suffering and causing considerable expense. WHO asserts that 9% of healthcare budgets are taken up with problems related to HAI's (i, ii).

There is an increasing body of evidence that hospital bedding may contribute the transmission of healthcare-associated pathogens (iii, iv, v). Bacteria colonizes bedding interiors, and it becomes a reservoir of infection, posing an increased risk of Hospital Acquired Infections. Mottar et al. (2006) have further studied what are the most significant vectors for pathogens to get inside of the pillow. They concluded these are pillow seams and care labels that are sewed to the pillow (III).

"Often only the bedrail has been sampled during investigation of outbreaks, rather than more important potential reservoirs of infection, such as mattresses and pillows, which are in direct contact with patients. It is essential that these items and other bed components are adequately decontaminated to minimise the risk of cross-infection" (v).

THE PILLOW IS A VECTOR FOR INFECTION

Standard hospital pillow designs are inherently flawed, enabling pathogen ingress through the cover fabric, side stitching, vents or a combination of all these entry points. In addition the movement of contaminated pillows around hospital wards and through hospital laundries is identified as a mode of spreading pathogens (vi, vii, viii).



i World Health Organization Emerging and other Communicable Diseases, Surveillance and Control SEA-HLM-343
 ii World Health Organization Guidelines on Prevention and Control of Hospital Associated Infections, January 2002
 iii Mottar R, Roth M, Allen M, Gerber R, Jeffers BR. Pillow Talk: Examining Pillow Cores in a Regional Burn Center. Am J Infect Control 2006; 34 (5): 107-108.
 iv Weernink, A, Severin, WP, Tjernberg, I., Dijkshoorn, L. 1995. Pillows, an unexpected source of Acinetobacter. J Hosp Infect. 29 (3): 189-99.
 v Creamer E, Humphreys H. The contribution of beds to healthcare-associated infection: the importance of adequate decontamination J Hosp Infect. 2008 May;69(1):8-23.
 vi Brunton WA. Lancet. Infection and hospital laundry. 1995 Jun 17; 345(8964):1574-5
 vii Orr KE, Holliday MG, Jones AL, Robson I, Perry JD. Survival of enterococci during hospital laundry processing. J Hosp Infect. 2002 Feb; 50(2):133-9.
 viii Hellickson L.A., Owens K.L. Cross-contamination of Clostridium difficile spores on bed linen during laundering. Amer. J. Infect. Control. 2007; 35: 32-33.
 ix Kramer A, et al. BMC Infectious Diseases 2006)

Infection Prevention & Control

SleepAngel™ barrier bedding combats product contamination risks by using our patented and award winning PneumaPure™ Filter Technology, a microbiological filter that blocks pathogens while allowing the product to breathe.

SleepAngel™ products are deployed in the most advanced public and private healthcare systems across the world.

SleepAngel™ CE Class I Medical Devices are long life, highly comfortable, liked by staff and compatible with existing bedding cleaning protocols. All SleepAngel™ products are easy to wipe down and clean using standard cleaning protocols and are liquid-proof and highly stain resistant. Due to the unique fully welded construction, SleepAngel™ products are extremely durable and our evidence demonstrates that using SleepAngel™ saves your hospital money.

REDUCE INFECTION RISKS, IMPROVE PATIENT CARE, SAVE YOUR HOSPITAL MONEY

SleepAngel barrier bedding products are hermetically sealed on all seams and ventilation is enabled through the PneumaPurre microbiological filter on the cover. The design is a proven barrier to germs and allergens getting inside, including MRSA and C. diff. The ventilation allows the the cushioning device to conform for pressure distribution and to be comfortable. The interior is designed to provide support, conformity and pressure reduction. Can be cleaned in the event of heavy or blood soiling with 10,000 ppm chlorine. Premium filter-enabled and hermetic cover complete with water and air-tight zipper also available.

SleepAngel products are compliant with the relevant Flame Safety regulations.

CE Certified as Class I Medical Devices in the EU
 Registered Class I Medical Device with the FDA



Durable, soft touch and high performance textile that blocks out contaminants. Vapour permeable and waterproof.

Heat sealed seams provide complete barrier – no stitching holes.

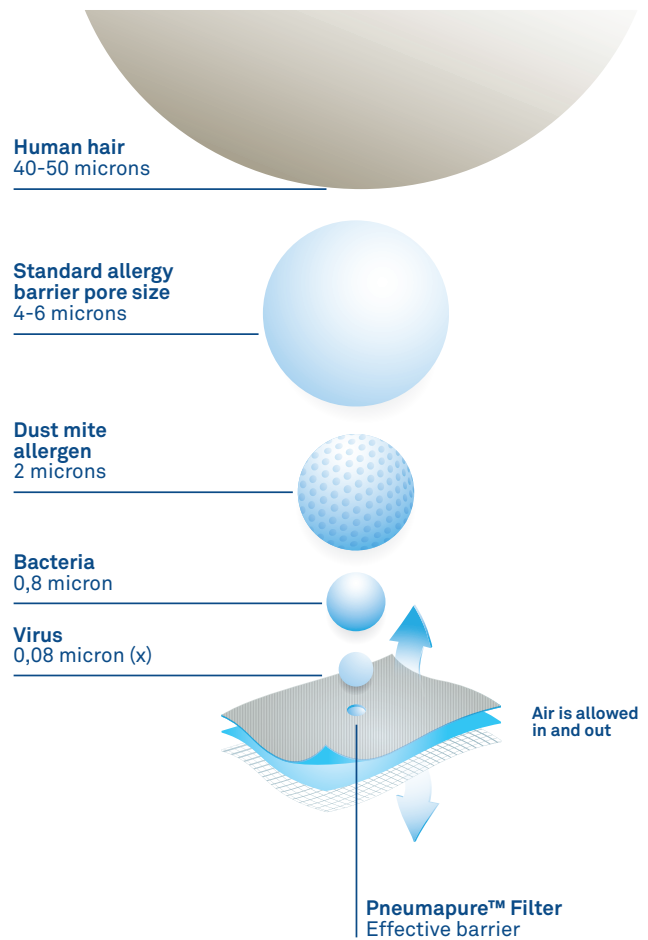
Breathable mechanical filter that allows clean air flow into the pillow but blocks out pathogens and allergens.

PneumaPure™ Filter Technology

PneumaPure Technology is the intelligent application of a liquid-proof filter mechanism to a cushioning product – a pillow, duvet, mattress and cushion.

The filter is a liquid-proof nano-porous composite; it is hydrophobic and acts as a breathable barrier. The filter is uniquely strengthened and adapted to cushioning applications. In effect, the PneumaPure filter prevents the passage of liquid and air borne pathogens to the interior of the product, whilst allowing the product to breathe. (Air transport in and out of the product is essential to allow proper shaping and draping to the patient). All products are made with high quality, durable polyurethane coated fabric designed to dissipate heat and moisture away from the patient. Creating a new standard in hospital bedding, all products are Class 1 Medical Devices (xi).

PneumaPure Technology is proven to be 99.9% effective in preventing the ingress of pathogens e.g. MRSA, Norovirus, C. diff, E. coli, etc. to the interior of a bedding product.



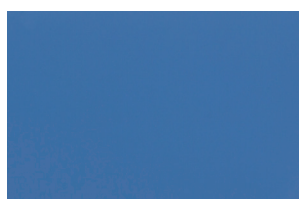
(x) Airmid Health Group, 29th February 2016. Airmid Health Group is an ISO/IEC 17025:2005 INAB accredited testing laboratory Reg. no. 284T
 (xi) Directive 93/42/EEC

EXPRESS RANGE - fast delivery, standard size and colour



Fabric specifications

Fabric: 150 g/m²
Face: 100% Polyurethane
Backing: 100% Polyester
Label: Heat seal



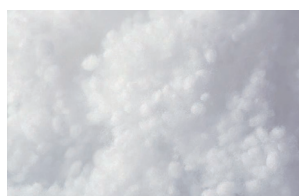
Blue fabric



White fabric

Filling specifications

Blown fibre: HC FR 7D 32 mm
Wadding: 100% Polyester
thermobonded wadding
Memory foam: Density 45 kg/m³



Blown fibre



Memory foam



Thermobonded wadding

CUSTOMIZED RANGE - personalized prints available



Fabric specifications

Fabric: 180 g/ m²
 Face: 100% Polyurethane
 Backing: 100% Polyamide
 Label: Screen Print



White fabric/ Grey print



Royal blue fabric / white print

Filling specifications

Carded fibre: HC FR 7D 64 mm
 Wadding: 100% Polyester
 thermobonded wadding
 Memory foam: Density 45 kg/m³



Carded fibre



Memory foam



Thermobonded wadding

MATTRESS RANGE



Range is designed by Dr Duncan Bain and David Woolfson, who are experts in the field of support surface technology and material science & support surface design.

We brought their skills together and incorporated two key medical mattress design criteria; pressure area care (Tissue Viability) and Infection Prevention and Control.

Our range is categorised to align with a clinical assessment of the risk profile of the patient with regards to developing pressure sores. Foams are castle cut for enhanced pressure reduction and mattress flexibility on manual or powered adjustable beds. Mattress flexibility along with the supple finish on the cover textile help to minimise shear forces.

Using the most advanced protocols and test

equipment in the market SleepAngel has been evaluated for:

- pressure distribution
- microclimate including heat and moisture
- vapour transfer rates
- durability

Applying the same protocols and test methods devised for the UK NHS, the SleepAngel range scored in the highest percentile across the three parameters (data available upon request).

SleepAngel visco memory foam medical mattress with edge zone strengthening offers pressure relieving properties and a good edge support. Recommended for a patient with a moderate-high risk of pressure sores."

Fabric specifications

Fabric: 230 g/m²
Face: 100% Polyurethane
Backing: 100% Polyamide
Label: Screen print



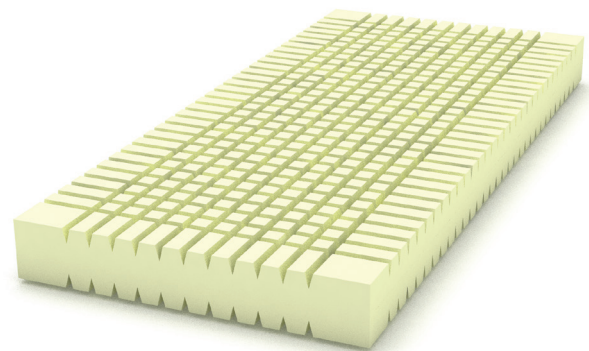
Mattress top: dark purple



Mattress bottom: dark grey anti-slip

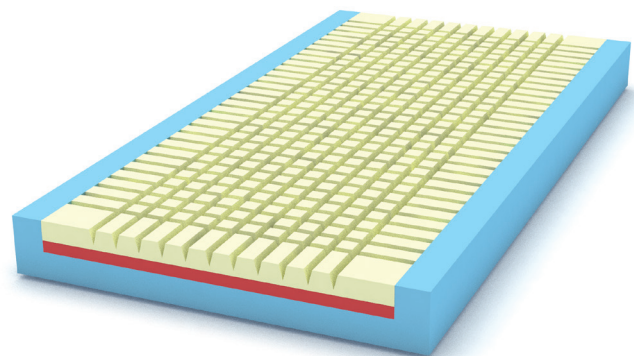
LOW-MEDIUM RISK

Size: Three standard sizes, foam height 15 cm. Custom sizes are available upon request
Filling: Castle-ated soft polyurethane foam
Density: 40 kg/m³
Fatigue class: Very Severe



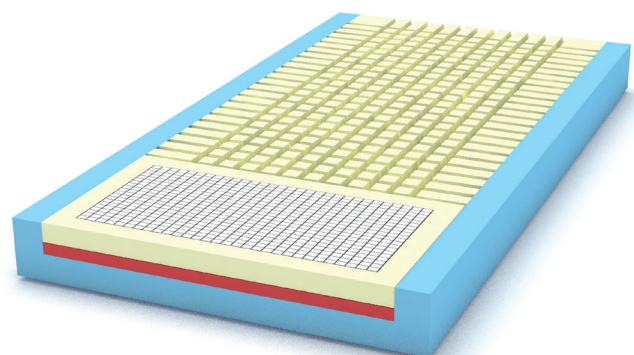
MEDIUM-HIGH RISK

Size: Three standard sizes, foam height 15 cm. Custom sizes are available upon request
Top: Castle-ated soft memory foam
Density: 60 kg/m³
Middle part: Soft polyurethane foam.
Density: 40 kg/m³
Side walls & base: Hard polyurethane foam.
Density: 40 kg/m³
Fatigue class: Very Severe



HIGH RISK

Size: Three standard sizes, foam height 15 cm. Custom sizes are available upon request
Top: Castle-ated soft memory foam.
Gel insert
Density: 60 kg/m³
Middle part: Soft polyurethane foam.
Density: 40 kg/m³
Side walls & base: Hard polyurethane foam.
Density: 40 kg/m³
Fatigue class: Very Severe



POSITIONERS - different shapes and fillings available upon request



Fabric specifications

Fabric: 180 g/m²
 Face: 100% Polyurethane
 Backing: 100% Polyamide
 Label: Screen print or heat seal



White fabric/ Grey print



Royal blue / White print

Filling specifications

Carded fibre: HC FR 7D 64 mm
 Wadding: 100% Polyester
 thermobonded wadding
 Memory foam: Density 45 kg/m³



Carded fibre

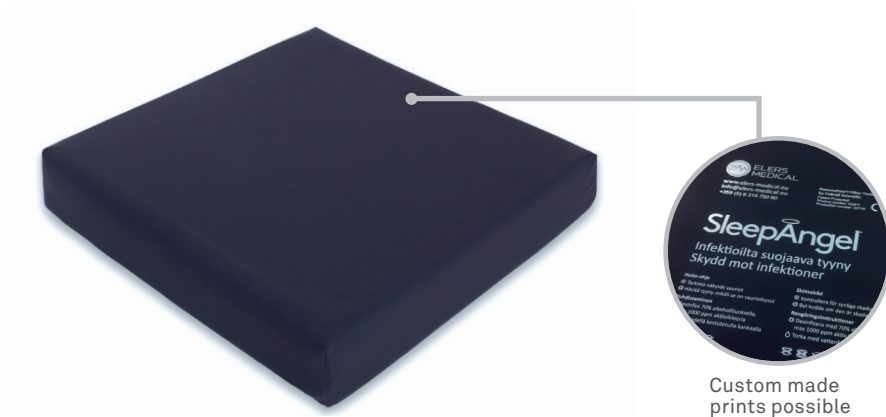


Memory foam



Thermobonded wadding

WHEELCHAIR CUSHIONS – different sizes and fillings available upon request



Fabric specifications

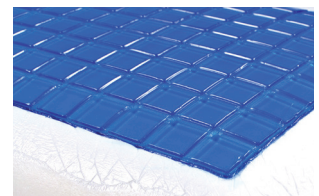
Fabric: 230 g/m²
 Face: 100% Polyurethane
 Backing: 100% Polyamide
 Label: Screen print

Filling specifications

Castle-ated foam: polyurethane foam density 40 kg/m³; memory foam density 60 kg/m³
 Soft/hard polyurethane foam: density 40 kg/m³
 Gel inserted memory foam: density 60 kg/m³



Castle-ated foam



Gel inserted foam



Polyurethane foam



Memory foam

A case study from Finland

A case study was implemented in 2016. Seven hospital districts in Finland participated to this study. The aim was to collect nursing staffs and maintenances experiences of suitability of SleepAngel pillows to hospital environment.

The results indicate that the Sleep Angel pillow is well suited for hospital use (Table 1). Cleaning of SleepAngel pillow is easy, and does not generate substantial additional work to maintenance or other personnel (Figure 1 and Table 2). 100% of respondents would like the hospital to use a pillow that prevents the spread of healthcare associated infections.

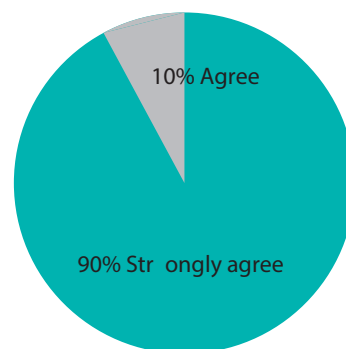


Figure 1. Cleaning of SleepAngel pillow do not cause substantial extra work

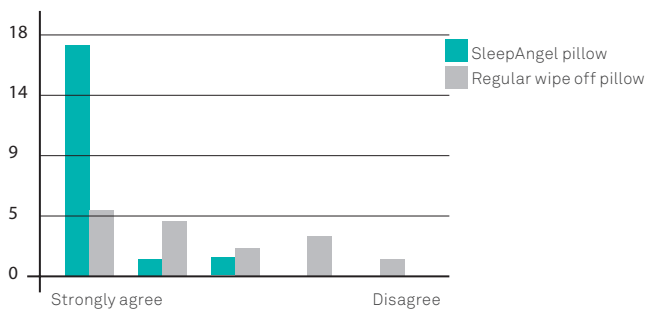


Table 1. The distribution of answers to claim "The pillow is well suited for hospital use"

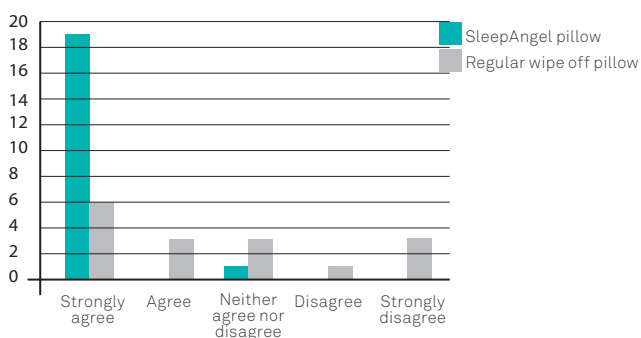


Table 2. The distribution of answers to claim "Cleaning of the pillow is easy"

CONCLUSIONS

Based on the results of the survey SleepAngel pillows are better suited to the hospital needs compared to conventional pillows used with plastic pillow protector. Use of SleepAngel pillows facilitate the work of maintenance.

During the test period open feedback was received. According to hospital staff it is particularly pleasing that the pillow is bed-specific and the pillows do not leave the room for the laundry, and therefore pillows are always available. In addition, cleaning of SleepAngel pillow is easier than separately washing the regular pillow and cleaning/replacing the pillow protector. In addition, the respondents reported patients has given mostly positive feedback on the comfort of SleepAngel pillows.

User Experience and Expert Reference

“Prior to intervention with SleepAngel equipment respiratory ward reported 0.52 CDI per month. Post intervention reported .12 CDI per month. No other differences (while over the period – virtually all other wards increased CDI).”

Southport & Ormskirk NHS Hospital Trusts.
Kiernan M; Beds of Roses; Maintenance of safe patient environments by nurses*;
Reducing HCAI's Conference, London June 2014
Martin Kiernan, Infection Control Nurse Consultant, Chair Education Committee HIS, Former President IPS

“After implementation of our HCAI reduction strategy over a number of years, we reduced MRSA from 34 cases to 4 cases per annum and C.Diff cases from 363 to 64 cases per annum. Our recommendation is to deploy CE marked infection control pillows such as SleepAngel and clean and audit stocks regularly”

Liverpool and Broadgreen University Hospital NHS Trust
Wake D; Reducing HCAI's Conference, London June 2013
Diane Wake , Chief Executive Officer , Barnsley NHS (previously Director of Nursing, Liverpool & Broadgreen Universities Hospitals Trust NHS Trust)

“Pillows are one of the major remaining vectors for infection because your head is one of the best ways for infection to get into your body or out of the body. Any pathogens that you are carrying, you will colonise the pillow (with these pathogens)”

Reducing HCAI Conference, 2014
Dr. Duncan Bain. Pre-eminent biomedical engineer specializing in the field of support surface technology - Senior Lecturer at the William Harvey Institute, Queen Mary College London

“The difference with SleepAngel is that it comprises an absolute barrier with a breathable component, it has a comfort layer, it actually becomes comfortable for you. The breathing of the pillow is integral to the SleepAngel product.”

Airmid Health Group, 2013.
Dr. Bruce Mitchell. Dr Mitchell is a fellow of the Royal College of Physicians in Ireland, the Royal College of Physicians in Canada and is a diplomat of the American Board of Allergy and Immunology. He is a director of the Immunology Laboratory, Blackrock Clinic and a past President of the Allergy Foundation of Ireland

SleepAngel Reference Hospitals

SleepAngel is adopted as standard in multiple teaching hospitals, general hospitals, Trusts and specialist units across the world. Reference facilities and contacts available upon request.

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