

The Pillow is a Vector for Infection

Arthur Tucker^{1,2}, Marie Dewhurst³

¹ Barts Health NHS Trust, ² Queen Mary, University of London,

³ Royal Liverpool and Broadgreen University Hospitals



1. Intro

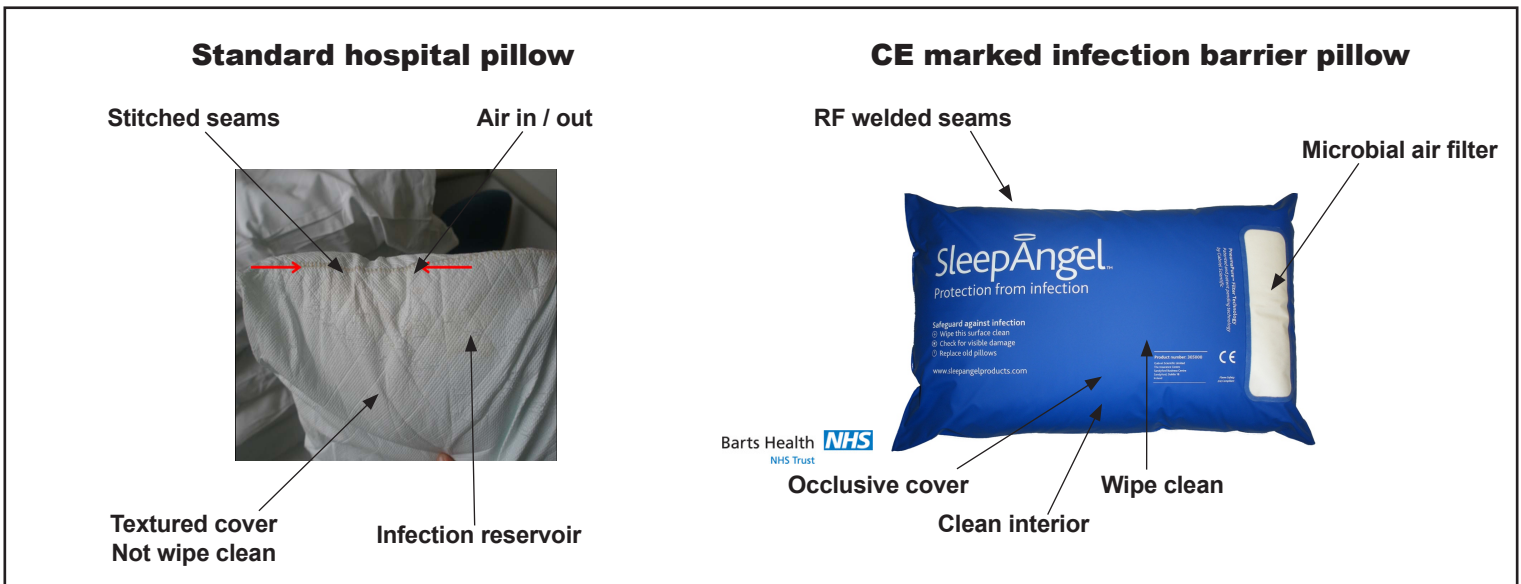
In the war against infection, one of the most insidious pockets of resistance is the hospital bedding. Live organisms harvested from a typical hospital pillow include MRSA, C. Diff, Pseudomonas Aeruginosa, and many more [1, 2].

Coming into intimate contact with the nose and mouth of a succession of patients, the pillow plays a major role in the transmission of disease [3].

This paper examines the implementation of an improved hospital pillow protocol, employing a Class 1 CE medical device infection control pillow, alongside systematic improvements to pillow audit and disinfection.

2. Methods

The SleepAngel™ pillow, manufactured by Gabriel Scientific Ltd, consists of an occlusive coated fabric, with welded seams as opposed to stitched seams, which have been found in the past to allow ingress, harbour, and aerosolisation of pathogens as the pillow is deformed [4]. To ventilate the pillow, and allow conformation, the pillow is provided with a nanofilter membrane (Pneumapure™) which allows free passage of air, is proven to block water, bacteria, virus, fungus, and dust mite allergens [5]. 100 new SleepAngel™ pillows were placed on hospital wards, alongside 100 standard pillows with occlusive covers and stitched seams. After 3 months service, pillows were withdrawn from the wards and sent for microbiological analysis.



3. Results

After 3 months use, the majority of standard pillow interiors were found to be contaminated with a variety of potentially dangerous organisms, whereas the interiors of the SleepAngel™ pillows were all contamination-free. However, pathogens were isolated from the exteriors of some of both types of pillow, demonstrating that there were systematic failures in both cleaning and auditing pillows.

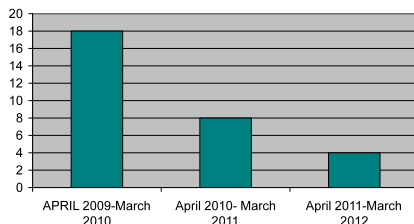
An additional finding was that, whereas 60% of the standard pillows had failed mechanically by 3 months, none of the SleepAngel™ pillows had failed, indicating potential cost savings associated with the adoption of SleepAngel™.

4. Discussion

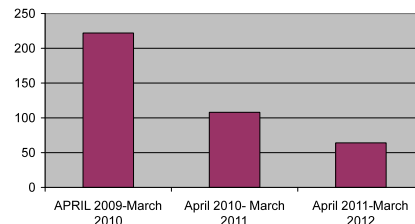
A large hospital has since undergone a trust-wide conversion to the SleepAngel™ pillow, as part of a raft of measures, including the adoption of a pillow audit tool. Subsequently, hospital-acquired infection rates have fallen substantially [6].

Recommendations arising from this evidence are clear: good practice in infection control in hospital should include the deployment of CE medical device infection control pillows such as SleepAngel™, as well as diligence in cleaning and disinfection, together with the implementation of a pillow audit protocol.

Cases: MRSA Royal Liverpool and Broadgreen University Hospitals



Cases: C difficile Royal Liverpool and Broadgreen University Hospitals



References

- [1] Communicable Disease Report, 13th October 1997 Public Health Laboratory Service
- [2] Report of the PHLS Clostridium difficile Working Group. PHLS Microbiol Dig 1994; 11(1): 22-4
- [3] Perry W, Siegal A, Rammelkamp C, Wannamaker L, Marple E. Transmission of group A streptococci. I - The role of contaminated bedding, II. Am J Hygiene 1957; 66: 85-101.
- [4] Tucker et al 2010 Healthcare Acquired Hospital Infections, Gov Today 2010
- [5] Ambient pressure strike through test V00677 Centexbel Verviers 2010
- [6] Audit, Royal Liverpool and Broadgreen University Hospitals

SleepAngel™

Sleep where the air is pure

www.sleepangelworld.com