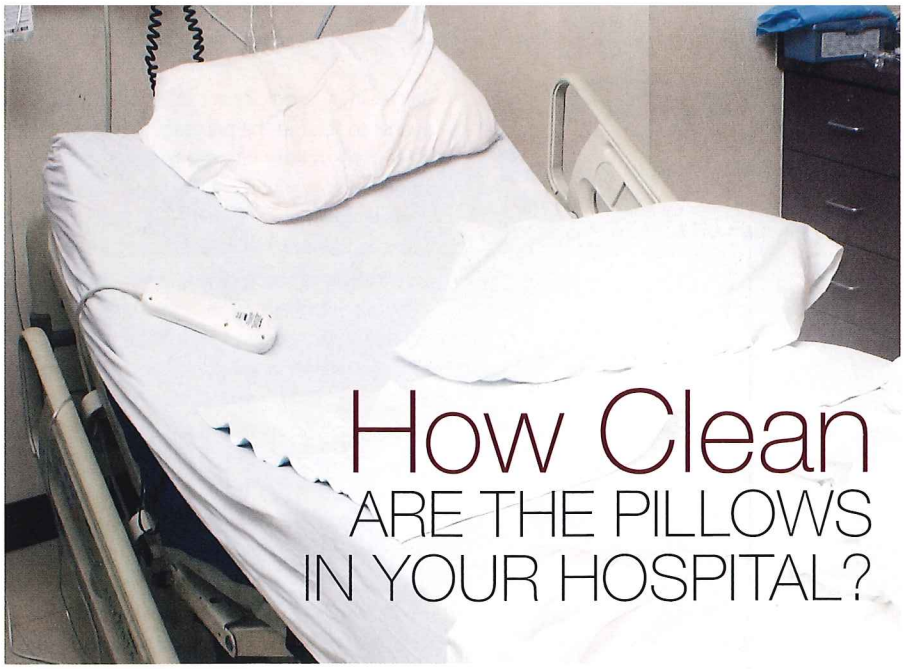


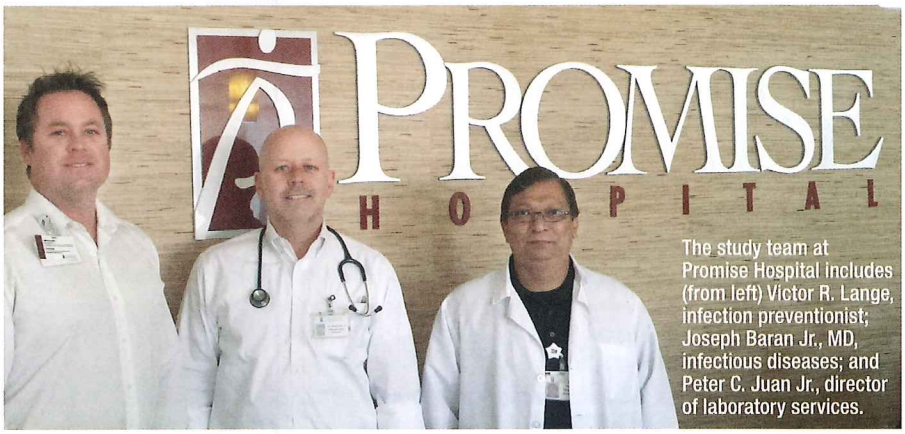
How Clean ARE THE PILLOWS IN YOUR HOSPITAL?

By Victor Lange, MSPH, CRC, ICP, JD(c)

When patients are admitted into a hospital room that has been prepared for a new patient, they anticipate the room has been properly disinfected and is free from harmful pathogens known to cause healthcare-associated infections (HAIs). As practitioners in infection control and prevention, we know that despite the use of strong disinfectants and rigid protocols for cleaning and disinfection; often times, pathogens are left behind on surfaces.

HAIs are a major cause of patient morbidity and mortality. Often the main source of these pathogens is the patient's own endogenous flora. Yet, researchers have projected that approximately 20 percent to 40 percent of HAIs are associated with cross-contamination by way of contact contamination from the hands of healthcare personnel who have touched contaminated patients or contaminated environmental surfaces.[1] Several studies discuss the strong role environmental contamination plays in the transmission of methicillin-resistant Staphylococcus aureus and vancomycin-resistant Enterococcus species.[1]

Nosocomial transmission of norovirus, Clostridium difficile, and Acinetobacter spp can come from environmental contamination.[1] These pathogens can survive on environmental surfaces for long periods of time. The hospital environment is well recognized as an increasingly important source of healthcare-associated infection; yet the environment in which the patient spends the most time, the hospital bed and pillow, are often overlooked when it comes to finding the source. So, at our facility, we decided to investigate patient pillows.



The study team at Promise Hospital includes (from left) Victor R. Lange, infection preventionist; Joseph Baran Jr., MD, infectious diseases; and Peter C. Juan Jr., director of laboratory services.

Over a five-week period, swab cultures (n=100) were obtained from reusable vinyl covered pillows to determine if pathogens remained on the pillow post environmental services disinfection with a commonly used quaternary ammonium solution. The vinyl surface of the pillow was swabbed with a sterile, polyester-tipped applicator and placed in a sterile tube of sodium chloride solution. The tube was vortexed and swab discarded. Soybean-Casein Digest Agar plates were inoculated with 100 microliters of the eluate and incubated at 360 degrees C for 72 hours. Pathogens were identified according to established industry practices. We found that the patient-ready, decontaminated reusable vinyl covered pillows in use at our hospital were in fact contaminated with pathogenic bacteria. Thirty eight (38 percent) of the 100 disinfected patient ready pillows cultured were contaminated with infection causing pathogens including methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant Enterococcus (VRE), Enterococcus faecalis (E faecalis), Escherichia coli (E coli), Providencia stuartii (P stuartii), Yeast, Coagulase-negative Staphylococci (CNS), Klebsiella pneumoniae (K pneumoniae), Bacillus species, Gram-positive Cocci and Diptheroids (95 percent CI, $P < .016$). Three pillows were found to harbor more than three pathogens on each pillow and 15 pillows had more than two pathogens on each pillow.

Reusable patient pillows pose a cross-contamination risk. Variability in disinfection technique, pillow condition, and the effectiveness of disinfectant make it difficult to completely clean and disinfect the pillow. Cross-contamination may occur from the pillow to the patient, from the pillow to the healthcare worker to patient, and from the patient to the pillow. Clear and rigorous guidelines should be established for decontamination of patient beds and pillows. Outbreak investigations should include assessment of pillows and mattresses. At our institution this finding led us to make a temporary switch to disposable pillows. We are currently reviewing other options such as a barrier pillow cover with and without antimicrobial protection. ICT

Victor Lange, MSPH, CRC, ICP, JD(c), is director of infection control at Promise Hospital in San Diego.

Reference:
1. Weber D, Rutala W, Miller M, Huslage K, Sickbert-Bennet E. Role of hospital surfaces in the transmission of emerging healthcare-associated pathogens; norovirus, Clostridium difficile, and Acinetobacter species. American Journal of Infection Control, 2010 Jun; 35 (5 Suppl 1) S25-33.