Moylan J: The importance of gown and drape barriers in the reduction of the incidence of post-operative wound infection. NATNEWS 23:10, 1986.

Struggling to find the full text of this article but it is cited frequently as work showing the clear benefit of using gowns, gloves and drapes.


**Abstract**

Sepsis after total joint replacement is related directly to environmental contamination. Therefore, to control the source of environmental contamination, and ultimately sepsis, it must be realized that the operating room personnel are the major source of the bacteria as evidence by the rise in the colony forming units per square foot per hour from 13 units in an operating room without people to greater than 400 units during actual surgery. The use of inclusive gowns, such as hooded body exhaust, is most helpful. However, all operating room personnel including anesthesia personnel, circulating nurses, visitors, and the operating room team must wear inclusive gowns. Face masks and head covers offer no environmental protection. Some type of an environmental control, such as laminar airflow or ultraviolet light, is the most helpful with greater than 90% reduction of airborne bacteria at the wound and 60% reduction of airborne bacteria in the operating room. Therefore, to reduce environmental bacteria contamination the number of personnel in the operating room and the length of time for the actual surgery should be reduced, because wound contamination occurs first by direct fall out from the environment and second by contaminated equipment and gloved hands that initially were contaminated by the environment.


Full article available here: [http://www.bjj.boneandjoint.org.uk/content/81-B/5/754.full.pdf+html](http://www.bjj.boneandjoint.org.uk/content/81-B/5/754.full.pdf+html)


**Abstract**

Using microspheres of human albumin sprayed on the face and in the nostrils under the facemask, we studied the role of conversation in contaminating the operating-room environment in addition to the microbial contamination of the air in an empty and in an occupied operating room. Conversation consistently increased the number of microspheres found in the simulated wound. The spatial relationship between the mask and the hood was important in reducing contamination. A complete hood overlapping the mask, with no gaps at the sides or bottom of the mask, was most efficient. The air contamination was increased by the presence of operating-room personnel and varied in different parts of the theater according to the density of traffic. We concluded that conversation contributes to airborne contamination in the operating theater but that contamination from this source can be lessened by wearing a face-mask that extends underneath an overlapping hood.


**Abstract**
**INTRODUCTION:**
Operating department staff are usually required to wear dedicated theatre shoes whilst in the theatre area but there is little evidence to support the beneficial use of theatre shoes.

**PATIENTS AND METHODS:**
We performed a study to assess the level of bacterial contamination of theatre shoes at the beginning and end of a working day, and compared the results with outdoor footwear.

**RESULTS:**
We found the presence of pathogenic bacterial species responsible for postoperative wound infection on all shoe groups, with outdoor shoes being the most heavily contaminated. Samples taken from theatre shoes at the end of duty were less contaminated than those taken at the beginning of the day with the greatest reduction being in the number of coagulase-negative staphylococcal species grown. Studies have demonstrated that floor bacteria may contribute up to 15% of airborne bacterial colony forming units in operating rooms. The pathogenic bacteria we isolated have also been demonstrated as contaminants in water droplets spilt onto sterile gloves after surgical scrubbing.

**CONCLUSIONS:**
Theatre shoes and floors present a potential source for postoperative infection. A combination of dedicated theatre shoe use and a good floor washing protocol controls the level of shoe contamination by coagulase-negative staphylococci in particular. This finding is significant given the importance of staphylococcal species in postoperative wound infection


**Abstract**
Operation room clothing manufactured from disposable non-woven fabric (Barrier ‘450’ fabric supplied by Johnson & Johnson Ltd) was assessed in a dispersal chamber and in plenum-ventilated operation rooms. It proved to be very comfortable to wear and was shown to be equally effective bacteriologically as the closely woven and uncomfortably hot Ventile material. As the majority of bacteria are known to be generated from below the waist, and hence not contained by an operation room gown, trousers were used as well as gowns. Dispersal chamber experiments suggested that when all staff wore non-woven trousers and the scrubbed staff wore gowns as well, a 55 per cent reduction would be achieved in the number of bacterial particles in the air of an operation room. In practice, 60 per cent reduction was achieved in one operation room and 43 per cent in another.

The number of bacteria which could easily be removed from the surface of the gowns was surprisingly few. However, use of non-woven, as compared to cotton, clothing reduced these surface bacteria by 50-60 per cent. These bacteria would not be as easily dispersed into the air from the surface of non-woven gowns, as it was demonstrated that non-woven gowns, as well as gowns manufactured from certain artificial fibres, shed substantially fewer fibres.

Abstract

BACKGROUND:
Antiseptic preoperative skin site preparation is used to prepare the operative site before making a surgical incision. The goal of this preparation is a reduction in postoperative wound infection. The most straightforward technique necessary to achieve this goal remains controversial.

STUDY DESIGN:
A prospective randomized trial was designed to prove equivalency for two commonly used techniques of surgical skin site preparation. Two hundred thirty-four patients undergoing nonlaparoscopic abdominal operations were consented for the trial. Exclusion criteria included presence of active infection at the time of operation, neutropenia, history of skin reaction to iodine, or anticipated insertion of prosthetic material at the time of operation. Patients were randomized to receive either a vigorous 5-minute scrub with povidone-iodine soap, followed by absorption with a sterile towel, and a paint with aqueous povidone-iodine or surgical site preparation with a povidone-iodine paint only. The primary end point of the study was wound infection rate at 30 days, defined as presence of clinical signs of infection requiring therapeutic intervention.

RESULTS:
Patients randomized to the scrub-and-paint arm (n = 115) and the paint-only arm (n = 119) matched at baseline with respect to age, comorbidity, wound classification, mean operative time, placement of drains, prophylactic antibiotic use, and surgical procedure (all p > 0.09). Wound infection occurred in 12 (10%) scrub-and-paint patients, and 12 (10%) paint-only patients. Based on our predefined equivalency parameters, we conclude equivalence of infection rates between the two preparations.

CONCLUSIONS:
Preoperative preparation of the abdomen with a scrub with povidone-iodine soap followed by a paint with aqueous povidone-iodine can be abandoned in favor of a paint with aqueous povidone-iodine alone. This change will result in reductions in operative times and costs.


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