

# Effects of an Environmental Services Professional Training Course and Cleaning Products on the Rates of Infection Seen at Suburban Hospital

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## ABSTRACT

In 2000, National Institutes of Health (NIH) and U.S. Food & Drug Administration (FDA) personnel conducted a survey at a number of the District of Columbia (DC) hospitals. The investigators found that hospital housekeeping practices varied widely between institutions and there was no standardized training program for environmental services (ES) personnel. For example, cleaning practices did not allow for the appropriate contact time when disinfectants were applied to surfaces. This study evolved from the results of that survey and utilized a relatively new yet proven technology called Accelerated Hydrogen Peroxide<sup>®</sup>(AHP<sup>®</sup>).

## BACKGROUND

The purpose of this study was to evaluate the effectiveness of a formal, eight-hour training course for hospital environmental services personnel on the overall rate of infections seen in a mid-sized suburban hospital. The study also incorporated the use of an EPA Registered Accelerated Hydrogen Peroxide disinfectant-cleaner commercially available from Sealed Air Diversey under the names Oxivir TB (sold in Canada & US) and Accel Intervention (sold in Canada). The study was designed so that one hospital serves as its own control, by measuring the data points both before and after implementation of the training. Data was collected retrospectively for the twelvemonth period prior to implementation of the training course. The primary

efficacy endpoint is the percentage change in overall infection rate in the hospital, as measured by antimicrobial use for twelve months before implementation of a formal eight-hour training course for environmental services personnel and antibiotic use for twelve months after implementation of the course.

## STUDY

### Description of the Training Course

The Environmental Services Professional (ESP) training course provides a solid overview of the environmental and occupational health concerns of housekeeping staff working within health care institutions. The course of study provides the ESP with all the information they need to perform their jobs safely and effectively. Participants will become familiar with the requirements of the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogens and Hazard Communication Standards, as well as the Department of Transportation shipping regulations for infectious waste. Successful completion of the post-test will certify knowledge in the following areas:

- Occupational hazards associated with handling infectious waste, disinfecting contaminated surfaces, and responding to infectious materials incidents
- Infection control on the job and in the hospital environment with special emphases on the importance of an employee hand-washing program (e.g. laminated hand hygiene signs will be affixed to all employee restroom doors)
- Material Safety Data Sheets (MSDS) and hazards

associated with the use of chemical disinfectants with an overview of the importance of choosing the safest products available from both an occupational health and environmental management perspective

- Selection of proper personal protective equipment
- Housekeeping and spill response procedures with special emphases on proper disinfection for high touch surface areas and employee restrooms
- Requirements for packaging and transporting infectious or regulated medical waste.

## RESULTS

Following the 8-hour training course, Environmental Services Staff continued using their current daily disinfectant (a Quaternary Ammonium Compound based product). The collected data showed an average decrease of antibiotic usage by 6.0%. After the implementation of the 0.5% AHP product, there was an average decrease of 18.4% giving an overall average decrease in antimicrobial usage of 10.1% during the 12-month study after implementation of the training program and introduction of AHP. Training of Environmental Service personnel increased confidence levels, and along with the new disinfectant product, enhanced over-all performance in cleaning and the proper use of disinfection products.

## STUDY CONCLUSION

This study clearly highlights that infection prevention requires a multifaceted approach. The facility as a whole and all parties involved in patient care must be included in the management of hospital acquired infections. AHP has gained a reputation for being the most effective and safest disinfection product on the market. The use of AHP at Suburban Hospital in combination with a comprehensive Environmental Services training program significantly reduced the rates of Hospital Associated Infections (HAIs). The evidence from this study suggests that the use of a structured, comprehensive occupational safety and health and

environmental management training program for Environmental Service personnel with the addition of a cleaning product that requires less contact time can have a statistically significant impact on the healthcare acquired infection rate in hospitals. The overall average decrease in antimicrobial usage of 10.1% during the 12-month study while statistically significant could have been improved even further if the 0.5% AHP product had been used for longer than 4 months.