

BACKGROUND

In 2000, National Institutes of Health (NIH) and U.S. Food & Drug Administration (FDA) personnel conducted a survey at 10 percent 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.

OBJECTIVES

The purpose of this study was to determine whether a formal eight-hour training course for Environmental Services (ES) personnel, and the addition of a new disinfection product would effect a change in the overall healthcare associated infection rate.

METHODS

ES personnel received eight hours of occupational safety and health, infection control and prevention and environmental management training prior to the introduction of a new disinfection product.

Monthly antimicrobial use rates twelve months before the training were compared to the monthly antimicrobial use rates eight months after the training and four months after introducing the new disinfection product.

RESULTS

The average rate of decrease in antimicrobial use was 10.1% after implementation of the training program and the introduction of the new disinfection product (p=0.0065).

Training of ES personnel increased confidence levels and, along with the new product, enhanced over-all performance in cleaning and the proper use of disinfection products.

TRAINING

All ES staff at Suburban Hospital, Bethesda, MD, participated in the formal training program at the initiation of the study. Experience in performing healthcare environmental services work among the staff ranged from a few weeks to 26 years. Eight months after the initial training, ES staff received in-service training on the use of the product, Oxivir Tb/Carpe Diem Tb AHP.

COURSE CONTENT

- Occupational Hazards
- Types of Infectious Agents and Infection Waste
- Infection Control and Prevention
- Cleaning for Health
- Hazardous Material Safety
- Needle-stick and Injury Prevention
- Spill Response
- Regulated Medical Waste Transportation Requirements

NEW DISINFECTANT

Oxivir Tb/Carpe Diem Tb - Accelerated Hydrogen Peroxide (AHP) product approved by USEPA for use as a one-step cleaner disinfectant.

Contact Time – the product carries a 30 sec. broad-spectrum sanitizing claim, a 1-min. bactericidal claim against vegetative bacteria, a 1-min. virucidal claim against both enveloped and non-enveloped viruses, a 5-min. Tuberculocidal claim, and a 10-min. fungicidal claim.

Safety Profile – most favorable category allow by USEPA

OTHER INTERVENTIONS

1. Infection control personnel introduced new measures to encourage staff and visitor hand washing.
2. Durable hand washing signs were posted in restrooms and at staff and public hand washing areas.
3. "It's OK to ASK" hand washing brochure was distributed to patients in admissions packets.
4. Alcohol foam dispensers were installed throughout the hospital.

CONCLUSION

The evidence suggests that the use of a structured, comprehensive occupational safety and health and environmental management training program for ES 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.

Table 1. Antibiotic use rates before and after training course.

Month	pre-course	post-course	% change
August	1.905	1.796	-0.0572
September	1.820	1.917	0.0533
October	1.811	1.853	0.0232
November	1.867	1.754	-0.0605
December	1.523	1.534	0.0072
January	1.758	1.563	-0.1109
February	1.856	1.516	-0.1832
March	1.807	1.532	-0.1522
Average			-0.0600

The rates show an average decrease of 6.0%, which was a borderline statistically significant difference (p = 0.0839).

Table 2. Antibiotic use rates before and after training course plus Oxivir Tb/Carpe Diem AHP.

Month	pre-course	post-course + Oxivir Tb	% change
April	1.869	1.533	-0.1798
May	1.985	1.370	-0.3100
June	1.872	1.578	-0.1571
July	1.925	1.752	-0.0899
Average			-0.1842

There was an average decrease of 10.1%, and a statistically significant reduction in antibiotic use rate for the post-training and Oxivir Tb/Carpe Diem AHP period (p = 0.0065).

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