Tackling C. diff

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In America's hospitals, an estimated one in 20 patients will contract a hospital-acquired infection (HAI). Last year at Western Massachusetts Cooley Dickinson Hospital (CDH), one in 129 patients caught an HAI.

Despite CDH's better-than-average infection rates, Clostridium difficile (C. diff) remained a challenge for the facility, according to Joanne Levin, MD, CDH's Medical Director of Infection Prevention. The hospital already had sound practices in place to reduce the risk of C. diff transmission, including:

1. Isolating infected patients.
2. Hand hygiene. Staff members must wash hands after exiting all patient rooms. If the room contains a patient infected with C. diff, staff must wash hands with soap and water, then use alcohol gel because C. diff is resistant to alcohol gel.
3. Using the recommended high-level disinfectants and bleach-based products for environmental cleaning.

Despite having all these systems in place, C. diff disease transmission still occurred at CDH. So, Dr. Levin says, the facility turned to technology.

In January 2011, CDH adopted room cleaning with a portable UV light, the Xenex PX-UV Disinfection System. In just 11 weeks, the facility's C. diff incidence dropped an astounding 82 percent, showing the tremendous impact the technology had in preventing C. diff transmission in the environment.

"That was the only change we made during that time," Dr. Levin says. "We purposely did not make any other changes. Infection prevention is a fluid thing and there is always work being done around infection prevention, but that was the only major intervention that we made during that period. The results are remarkable. My thinking is that the role of the environment is probably a stronger factor than I had anticipated."

According to Xenex, its UV disinfection kills microorganisms on surfaces and in the air without contact or additional chemicals. The UV light penetrates the cell walls of

the germ – fusing their DNA together – leading to instant damage, the inability to reproduce or mutate, and killing the organism.

This is especially useful in fighting a highly-virulant organism like C. diff, which makes spores that are impenetrable by even the strongest hospital cleaning products, allowing the C. diff to live in an environment for months at a time. CDH is currently using the machine in patient rooms and bathrooms, in the OR in the evenings, and the ER in the mornings. The unit is placed in a room free of staff members or patients, due to the risk UV light poses to eyes. It adds about 10 minutes to the cleaning process. However, Dr. Levin says, staff education and a new communication system has allowed environmental services staff to use the device efficiently, and the transition has not dramatically affected the workflow.

For other facilities looking to institute technology like the UV disinfection system, Dr. Levin offers this advice:

1. Make sure your facility is following all recommended guidelines for C. diff prevention, such as isolating patients and practicing proper hand hygiene. “All the standard things should be maximized before expecting the UV light to really make an impact,” she says.
2. Ensure the environmental services department is educated and prepared to handle the addition of the UV system. At CDH, for example, the department implemented a new communication system to promote efficiency.
3. Administrative support is important. “They need to understand how important this is for patient safety,” Dr. Levin says.

Overall, Dr. Levin reiterates how groundbreaking the findings at CDH are for infection prevention.

“An 80 percent drop in C. diff for us meant many patients didn’t get C. diff and maybe a patient or two who didn’t die,” Dr. Levin says. “There is nothing we have done recently in infection prevention or for C. diff that has had this degree of impact. In the future, I see this becoming the standard of practice.”

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