



**Duke Prevention Epicenter Program
Benefits of Enhanced Terminal Room (BETR) Disinfection Study: Frequently Asked
Questions**

What is the overall goal of the study?

The overall goal of this study is to determine if different room cleaning strategies can help prevent acquisition of bad bugs like MRSA, *C. difficile*, VRE, and Acinetobacter.

What is the study intervention?

Each study hospital will randomly rotate through four different strategies for “terminal” room disinfection (i.e., the room cleaning that occurs to prepare the room to receive a new patient).

- a. Standard disinfection with quaternary ammonium
- b. Enhanced disinfection with bleach
- c. Enhanced disinfection with quaternary ammonium and UV light
- d. Enhanced disinfection with bleach and UV light

C. difficile: We consider cleaning with bleach-containing solutions to be standard of care for terminal cleaning of patient rooms with *C. difficile* infection. Thus, each study hospital will always use bleach to perform terminal room disinfection for *C. difficile*. When a hospital is using strategy C or D above, the UV-light machine will also be used to clean the *C. difficile* rooms.

What are the key outcomes of the study?

The key outcomes are as follows:

- Rates of acquisition of MDROs
- Rates of HAIs due to MDROs
- Rates of cleaning compliance

Possible negative outcomes:

- Time for run turnover
- Time for ED to floor
- Missed opportunities
- Time on diversion

How long with the study last?

The study period is April 1, 2012 through July 31, 2014. This includes four 7-month phases. Each hospital will rotate randomly through the 4 cleaning protocols in each of these four phases.

Why are we doing this study?

Environmental contamination with MRSA, VRE, *C. difficile*, and Acinetobacter can result in disease transmission to patients. We know that some areas and selected patient rooms are more likely to harbor pathogens than others. We also know that hospital cleaning can be inadequate, even in the best of situations. Thus, we are exploring new strategies and technologies to augment standard cleaning to better protect patients from environmental transmission of these pathogens.

What is that robot?

The Tru-D machine is a UV-light emitting device. UV light damages nucleic acid and destroys the ability of bacteria/viruses to replicate. The UVC (254nm) bandwidth is highly and predictably germicidal. UV light in this spectrum rapidly removes >99% of microbial contamination from the air and on surfaces.

Where is the study taking place?

There are 9 hospitals in the study, including 6 community hospitals, 2 tertiary care hospitals and 1 VA hospital. Of these 9 hospitals, 1 is in Virginia and 8 are in North Carolina.

Bed Control:**How will this affect bed flow?**

Bed flow will need to work closely with EVS to determine when rooms are ready for patient arrival after completion of the room cleaning. With quaternary ammonium and bleach, the room cleaning time should not increase. With the addition of Tru-D, additional room cleaning time will be from 15 to 50 minutes.

What happens if a patient arrives at room with Tru-D on?

We understand that it will not always be possible to complete the study cleaning protocol, and the first priority is patient care. Our strategy is to start the Tru-D machine even if the room is needed, but it can be shut down within 5 seconds if a patient arrives at a room. We have found that often Tru-D has time to complete its cycle by the time the patient arrives. Even if it doesn't, it should still be partially effective at cleaning the room.

Nursing:**How does this affect nurses?**

Nurses will need to be aware of the study and be able to answer questions from patients about the study.

Safety:**Is there any risk involved with the Tru-D light machine being used in patient rooms?**

UV-light can be harmful in high doses, but it should not be harmful in the context of this study. With significantly prolonged exposures, UV light can lead to cataracts and skin damage. In addition, UV-light does not penetrate glass, so it is safe to look at the machine through glass. The Tru-D case and a chain are used to create a physical barrier to prevent entry into the room while the machine is on. Importantly, though momentary exposures are harmless, each machine is equipped with a safety mechanism by which the machine will shut off if someone ignores the physical barrier and opens the door. Finally, the small amount of ozone produced by the Tru-D machine is 75% less than the level OSHA set as a standard for safe levels of ozone.

Can I get a tan from being exposed to this machine?

No, the UV-light wavelength produced by this machine does not penetrate deeply into skin and, thus, will not lead to a tan.

What is that smell?

The UV-light produced from Tru-D often creates ozone. Ozone has a notable odor but is not harmful. The smell dissipates quickly after the cycle has stopped and the doors have been opened. The small amount of ozone produced by the Tru-D machine is 75% less than the level OSHA set as a standard for safe levels of ozone.