

Decontamination—The Best Fit?

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Objectives:

- Define decontamination.
- List appropriate PPE when working in decontamination.
- Discuss proper cleaning methodologies.

Decontamination is defined as “the process by which contaminated items are rendered safe for handling by personnel who are not wearing personnel protective equipment (PPE).

It is absolutely the most important step in the entire process of sterilization. Without adequate cleaning, it is possible for there to be too many germs on an item to prevent it from being sterilized adequately. How does this work? You anxiously ask.

Picture this, the first thing you must do is dress appropriately for the area. The first thing you do is change into scrubs from your street clothes. This is necessary in order to prevent the transfer of germs from your decontam area to your street clothes so you won't take home any unnecessary guests. What kind of shoes do you have on? Are they strong enough to protect your feet if you drop something on them? How slick are they on the bottom? If you've ever worked in a decontam area, you know that the floor is almost always wet, no matter how careful you are. So make sure your shoes have non-skid soles and perhaps even liquid proof to keep your feet from getting wet. Then you start with the next layer. This includes and is not limited to; protective full length gown or

apron, long gloves, a surgical hat, mask, eye shield or goggles, even down to the shoe covers. This is for your protection, not anyone else. Head and facial hair should also be covered with a surgical hood or cap. Not wearing jewelry should definitely be taken into consideration. You really don't want any bacteria or fungi to get under your jewelry and perhaps be taken home to infect your loved ones. Also, for you ladies, if you have acrylic, gel or ceramic nails, you may want to rethink them as they also are true harbinger of germs and other pathogens. Don't forget, if you leave the decontamination area, you must remove all PPE before you leave. You don't want to have germs falling off you as you go to the bathroom and contaminate everyone you come in contact with. One other thing, don't forget that after removing you PPE, **wash your hands!**



What about the room set-up? The decontamination area should be under a negative pressure. What this means is that the airflow is greater coming into the room than it is flowing out. So technically speaking, the air coming into the area is cleaner than it would be going out. However, propping the door

open or having a pass thru window not adequately covered will change the air pressure so then it becomes possible for air to flow from decontamination into cleaner areas. It is also important to have an area that is cool to work in. First off, cooler temperatures prevent germs and fungi from growing as quickly. Also, cooler temperatures help you feel better as higher temperatures and all the additional PPE that you have to wear, sometimes takes a toll on your body. In addition to the temperature being cooler, the humidity should be between 30 and 60%. Again, this is to promote staff comfort levels and to prevent microbial growth. I know a lot of you are using fans because your area is inadequately cooled. That is a no-no. Fans running at high speed, which is where we are going to set them, can carry contaminants from the decontamination area to clean areas.

What about lights? How well do you want to be able to see the bioburden that is found on instruments? Direct task lighting is essential anywhere the need to be able to see clearly is necessary. Looking for skin or blood on small ophthalmic instruments for instance, should have good lighting. This will reduce eye strain as well as provide the necessary brightness to be able to almost see those little bugs on the instrumentation. Also, those lights that are overhead should be sealed and recessed in order to prevent dust accumulation and to make cleaning easy.

Cleanliness is also important. I know, you're laughing, after all, this is not the cleanest place in the world.

But remember this, you have to make sure the counters and all other horizontal surfaces as well as the sinks and the floors are cleaned and disinfected at least once a shift with an environmental disinfectant.

This is for your own health as much as anyone else's. It is extremely possible for you to pick up some unknown infection if your work area is not kept clean. The other caveat to that is the item that you are cleaning may not get clean enough for it to reduce the bioburden sufficiently to make it safe to handle or even to sterilize. Look around you at the walls and other surfaces of the area. Is it easy to clean? Are there any cracks or crevices, any peeling paint, any rusted surfaces? Any of these will harbor dirt, dust or airborne particles that can contain microorganisms.

Now let's talk about the decontamination process. In the OR, the scrub tech has the responsibility of wiping off the instrumentation during the case. Also, any lumens should have fluid pushed thru them in order to keep debris from clogging up and drying before you have a chance to wash them. This should be an ongoing process because dry material is much harder for the decontamination person to remove. Removing this debris will do several functions:

- reduce the number of microbes on the device
- Reduce the amount of nutri-

ents that would support bacterial growth

- Minimize the risk of environmental exposure from aerosolization or from fluid being spilled
- Decrease device damage from blood, saline or iodine to name a few
- No need to scrub the finish off the instrument to get the crud off

To better serve the CS department, if you have a liaison between the OR and CS, now is a good time to involve them. They can help facilitate discussions so the scrub techs know why it is so important to keep the instrumentation wiped off with water and not saline.

Instrumentation that can prove to be more of a challenge includes items like laparoscopic instruments. The pressure in the abdomen from the gas can cause blood and other material to be pushed into the channels of the equipment and be a much larger burden to clean. And how about femoral reamers? They can catch some nasty pieces of bone and need to be manually cleaned.

The initial decontamination process involves the following measures:

- Containment and transportation
- Sorting
- Pre-cleaning
- Cleaning

The sorting process needs to be started in the OR. If they separate the instruments by those used and those unused, the CS tech knows which instrument may need a little extra attention. Now remember, that does not mean that the instrumentation does not have to be examined or handled in the appropri-

ate fashion because there is always the potential for contamination among supposedly clean instrumentation. By continually wiping each instrument as it is used, the OR tech insures that the instrument is kept reasonably clean with a minimum of trash and bioburden. This makes the job of the CS tech working in decontam a lot easier. However we know that is not going to happen as a general rule. All instruments are thrown together in a basin or back in the tray for us to take care of.

The process of getting the instruments from the OR to decontamination can be trickier than you would expect. Most hospitals use a case cart system for transportation of clean and dirty instrumentation. This means at the end of the case, the case cart is filled with the dirty equipment and is sent back to decontamination. Sometimes the carts are held in the OR until they are full. Other times, they may sit in the dirty utility waiting to be sent down and sometimes the dirty elevator is broken so the case carts have to be brought down by hand. All of this causes a loss in time needed to keep the instruments moist so the bioburden doesn't adhere to the instrumentation and makes it much harder to clean.



**Decontamination:
The Best Fit**

1. Decontamination is defined as the process which makes contaminated items safe to handle.
TRUE FALSE
2. Street clothes is the appropriate attire for working in decontamination.
TRUE FALSE
3. PPE includes and is not limited to gowns or aprons, goggles or face shield, long gloves, hair rollers, mask.
TRUE FALSE
4. After removing your PPE, you must wash your hands.
TRUE FALSE
5. Cooler temperatures and lower humidity will prevent germs and fungi from growing quickly.
TRUE FALSE
6. There should be fans in all decontamination areas to help keep the air moving to keep the staff cool.
TRUE FALSE
7. All counters and other horizontal surfaces must be cleaned with an environmental disinfectant once a day.
TRUE FALSE
8. It is OK to wear jewelry while working in the Decontamination area.
TRUE FALSE

9. Removing bioburden from instruments will decrease device damage from blood, saline or iodine to name a few.
TRUE FALSE
10. The initial decontamination process involves the following measures:
 - a. Sorting
 - b. Containment and transportation
 - c. Pre-cleaning
 - d. Sterilization
 TRUE FALSE
11. Most hospitals use a case cart system to transport clean or dirty instruments and equipment.
TRUE FALSE

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