

# Terminal Cleaning Multi-Discipline Approach **Obedoza S<sup>1</sup>, Bussiere KM<sup>2\*</sup> and Simpkins R<sup>3</sup>**

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## Preface

Fort Washington Medical Center has developed and implemented a multi-disciplinary approach to Terminal Cleaning of the Operating Room (OR) and all invasive procedural areas; we want to share the benefits and issues that were discovered by this process.

## Background

What is a Terminal Clean? Many people not in healthcare assume that everything in the OR is sterile. This however, is not the case. Terminal Cleaning removes with a high degree of confidence all transmittable pathogens at the end of the day, so that the room starts at zero deficits for the first case of the next day. During the day there will be blood and tissue contamination of equipment and the environment as surgeries occur, along with site contamination from normal use and exposure to patients and staff. Between cases the Peri-operative team will remove any known or suspected contaminations and clean and disinfect high use objects, returning it to a near zero deficit for sequential cases. Terminal Cleaning is usually done after the case load ends allowing the cleaner to eliminate all the known and unknown threats. The Association of peri-Operative Registered Nurses (AORN) has national guidelines for removing all potential pathogenic harm from the ceilings, walls, floors, machines, tools, objects and furniture within the OR. We will not be discussing how to clean, as that is assumed as part of AORN standards. As far as who is doing the cleaning, it could be the Peri-op team, Environmental Services (ES), a contracted outside cleaning agency, or any combination thereof.

## Clash of the Disciplines

Very often due to the disparity of roles between surgeons, anaesthesia, nursing, techs and ES- each coming with their own perspective and agenda- it is safe to say that friction is often generated between the disciplines. There are many ORs that run as smoothly as a Swiss watch in most respects, but may run into difficulties regarding who is responsible for validating a Terminal Cleaning. If ES is cleaning, the ES manager could validate but this could be seen as a lack of cross-auditing validation that regulatory agencies expect. ES could be assigned to the Peri-op

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team, but then no outside agent is observing Terminal Cleaning. Many facilities have put a Terminal Cleaning process in place without ever validating its efficacy.

## Goals and Objectives

Our goals were to ensure that a Terminal Cleaning process occurred, was highly effective, was multi-disciplinary, and instilled a high degree of confidence. To start, Infection Prevention, Peri-op, and ES sat at the table to discuss a recent cleaning miss by EVS. While there we started to discuss how to prevent this in the future. Mostly we relied upon someone to report up the chain of command an infraction and then decide if the infraction was worth making it widespread to several departments. When we thought about that, it seemed like a failed process and that when we decided to create the process for Terminal Cleaning validation.

## Methods and Materials

There are several ways to validate a Terminal Cleaning, the most expensive and time consuming is for ATP (Adenosine triphosphate) which can check for residual bio burden. Another option is to mark the specific objects with a bioluminescence marker, allow for the cleaning, then check to see if the

luminescence was removed using a black light. This is repetitive and may lead to marked areas being targeted by ES workers. The third method is a visual inspection for cleanliness. This method is the least scientific, but the most easily recognizable by the Peri-op team as well as the quickest to perform. Ultraviolet disinfection does not validate terminal cleaning but is in itself a standard for effective disinfection and should be mentioned as an option.

Neither ES nor Peri-op wants to change their duties to include a Terminal Cleaning validation, but at the same time all want the process to change. Some questions for your facility to consider before implementing this process:

1. What does your facility have to work with for staff and products?
2. Can you afford the cost, the products and the time?
3. Can you afford not to validate your processes?
4. What is being missed by not validating Terminal Cleaning?
5. What can you put into practice that can be maintained and sustained?

## Deciding on a Process

The multidisciplinary team created a very specific checklist for ES to use to perform the Terminal Cleaning: one for the day shift while active cases are taking place and a second for the evening/night shift when Terminal Cleaning and other duties occurred. A checklist for the Peri-op team was also created to use prior to setting up for the first case, where they would visually inspect the room for cleanliness. These checklists were forwarded to the Infection Preventionist to enter the information into a spread sheet or database. Creating this process helped identify and address failures, but also allowed the system to keep moving forward and eliminated blame. This allowed the multidisciplinary team to repair Terminal Cleaning failures prior to the first case starting; sometimes a slight delay would occur, but not without inspiring confidence that the room would be starting at zero deficits. The surgeons were on board with this but it threw the Anaesthesiologist schedule off and they had to re-adjust.

Training occurred for all three disciplines. To ensure that we started with a knowledge base sufficient for the task, we brought in an outside firm from an ES product company that also specializes in Peri-op cleaning to instruct ES workers on the Terminal Cleaning process. The Peri-op had to become consistent with their expectations with cleaning. They were marking everything compliant even if it had to be re-cleaned due to favouritism with ES workers. Infection Prevention added management of the checklist data to their workflow. This was taking the daily checklists and compiling them into a monthly and yearly report (Figure 1).

## The Initial Results

It's wonderful to be perfect. The ES checklists and the Peri-op validations were both 100% completed during the first testing cycle. Being sceptical, the Infection Preventionist went to the OR, dressed in scrubs, and inspected the OR rooms against the checklist. There were still missed areas and items that were marked on the checklist as completed.

In discussing with both parties, each was afraid to enter anything but 100% assuming there would be negative consequences. The multidisciplinary team sat down with the frontline staff and discussed transparency, to stress the need to report correctly as a first step to improvement. Staff then complied with being transparent with the checklists and some issues were identified. The team was able to determine the root cause of the deficits and this resulted in changes in practice, notifications, product, and training. Staff was not disciplined for being transparent. This increased the trust across the disciplines and allowed for a tighter control in communications.

## Using the PDCA Cycle

The team used the PDCA cycle to improve the checklists by asking the ES workers & Peri-op team for feedback on the process. The answer was a simple change in the form so that one member of the Peri-op team could check all their rooms on one checklist and mark when the OR was used for storage only (Figure 2).

## Process Improvement

The compiled monthly results from the checklists are presented at the Surgical Executive Committee and a yearly summary is presented at the Infection Prevention & Control Committee. Information from both of these committees is forwarded up to the Medical Executive, QAPI, and Performance Improvement Committees to share with all key stakeholders. For QAPI, there are measurable goals for both Peri-op and Environmental Services to report.

Surgical Executive committee would correlate the delay in starting cases with any of the Terminal Cleaning failures. Infection Prevention would be reporting both the consistency of the cleaning process, correlation to any SSI cases and overall cleanliness issues that persist (Figure 3).

## Validation Training and Competency

After holding the initial training for ES, sequential new hires are trained by preceptor ship of a previously trained ES worker using the checklists. We can call for repeat training from an outside source on Terminal Cleaning if needed. We hold the Peri-op staff accountable for completing the checklists and dealing with outliers such as vacations, staffing, late surgical cases, etc. If there are missed days or delays Infection Prevention escalates it to the Peri-op Director.

Duty List Peri-op (Check if completed)		Terminal Cleaning of OR Rooms (Check if completed)	
		Day	Night
Women's locker room	Clean shower	✓	
	Pull trash	✓	
	Mop floor	✓	
Women's restroom	Clean sinks	✓	
	Clean commode	✓	
	Pull trash	✓	
	Mop floor	✓	
Solied utility room	Pull trash	✓	
	Mop floor	✓	
PACU restroom 1	Clean sinks	✓	
	Clean commode	✓	
	Pull trash	✓	
	Mop floor	✓	
PACU restroom 2	Clean sinks	✓	
	Clean commode	✓	
	Pull trash	✓	
	Mop floor	✓	
PACU	High dust	✓	
	Pull linen	✓	
	Pull trash	✓	
	Mop floor	✓	
OR "L" corridor	Dust mop	✓	
	Mop floor	✓	
Restock paper supplies		✓	
OR lounge	Clean sinks	✓	
	Pull trash	✓	
	Mop floor	✓	
<b>OR Room 1</b>		✓	
Pull trash	Pull linen	Empty RMW bins	✓
Dust mop ceiling - Wipe shell of OR light - Wipe OR light handle			✓
Dust vents - Wipe walls & vertical surfaces with disinfectant			✓
Wipe OR table and all horizontal surfaces with disinfectant			✓
Dust mop floor - Wet mop floor, move rolling items & mop again			✓
Re-supply linen	Cycle clean floor 1st Friday		✓
<b>OR Room 2</b>		✓	
Pull trash	Pull linen	Empty RMW bins	✓
Dust mop ceiling - Wipe shell of OR light - Wipe OR light handle			✓
Dust vents - Wipe walls & vertical surfaces with disinfectant			✓
Wipe OR table and all horizontal surfaces with disinfectant			✓
Dust mop floor - Wet mop floor, move rolling items & mop again			✓
Re-supply linen	Cycle clean floor 2nd Friday		✓
<b>OR Room 3</b>		✓	
Pull trash	Pull linen	Empty RMW bins	✓
Dust mop ceiling - Wipe shell of OR light - Wipe OR light handle			✓
Dust vents - Wipe walls & vertical surfaces with disinfectant			✓
Wipe OR table and all horizontal surfaces with disinfectant			✓
Dust mop floor - Wet mop floor, move rolling items & mop again			✓
Re-supply linen	Cycle clean floor 3rd Friday		✓
<b>OR Room 4</b>		✓	
Pull trash	Pull linen	Empty RMW bins	✓
Dust mop ceiling - Wipe shell of OR light - Wipe OR light handle			✓
Dust vents - Wipe walls & vertical surfaces with disinfectant			✓
Wipe OR table and all horizontal surfaces with disinfectant			✓
Dust mop floor - Wet mop floor, move rolling items & mop again			✓
Re-supply linen	Cycle clean floor 4th Friday		✓

EVS Attendent: \_\_\_\_\_ Date: \_\_\_\_\_

Figure 1 Environmental services evening/night shift terminal cleaning checklist.

### Constructively using the Results

For the Peri-op team, there is an increased confidence in the Terminal Cleaning process and they have ownership within the validation process.

For Environmental Services, there is the ability to hone in on who needs more training. Product changes can be tested in this process with measurable goals.

For Infection Prevention, any SSI investigation can reflect on the checklist to determine if a Terminal Cleaning was done prior to the surgery.

### Conclusion

This process has led to a greater cohesiveness with which ES & Peri-op work together to build higher confidence in Terminal Cleaning. The validation that Terminal Cleaning occurred and occurred properly is working well with the current process. Staff feels secure to be honest and transparent which has led to improvements in the Terminal Cleaning process. Consistent documentation gives strength and support when crossing disciplines with corrective issues. A noted limitation is the need for outside validation to ensure both parties are accurately cleaning and documenting through a spot check process via bioluminescence or ATP.

Terminal Cleaning of OR Rooms						
Use once per day only	1	2	3	4	Comment	Resolution
OR Room	✓					
Trash emptied & new Liners in place	✓					
RMW bins emptied & new liners in place	✓					
Ceiling free from dust & debris	✓					
Shell of OR light dust free no smearing	✓					
OR light handle clean	✓					
Vents dust free	✓					
Walls were wiped down	✓					
Vertical surfaces were wiped down	✓					
OR table cleaned and re-supplied with linen	✓					
All horizontal surfaces were wiped down	✓					
Floor has no loose debris	✓					
Floor has been mopped	✓					
Items moved to mop under them	✓					
Is the OR room acceptable for surgery? (Y/N)	✓					

OR Nurse \_\_\_\_\_ Date: \_\_\_\_\_

**Instructions:**

Before you start setting up the room for the first case, do a visual inspection and validate that a terminal cleaning has occurred. Indicate which OR Room in the check box. One audit form for all OR rooms. Place a check mark or yes if item was done and a circle or no if missing or incomplete. Make an overall assessment if the room is acceptable for Surgery and place a Y/N in the last box. If the room is unacceptable, notify EVS to complete the terminal cleaning prior to surgery. If possible, change rooms if needed. Fill in one sheet/day, leave in wall folder for Infection Prevention to pick up daily for data compiling.

**Figure 2** Peri-op team validation of terminal clean checklist.

**2017 Nursing Checklist for Terminal Clean YTD**

	CYTD		CYTD	
<b>OR Room 1</b>	<b>119</b>	<b>OR Room 3</b>	<b>51</b>	<b>OR Room 1 (items cleaned)</b>
Trash emptied & new liners in place	119	Trash emptied & new liners in place	51	Denominator 1547
RMW bins emptied & new liners in place	119	RMW bins emptied & new liners in place	51	Numerator 1547
Ceiling free from dust & debris	119	Ceiling free from dust & debris	51	Rate 100.00
Shell of OR light dust free no smearing	119	Shell of OR light dust free no smearing	51	
OR light handle clean	119	OR light handle clean	51	<b>OR Room 2 (items cleaned)</b>
Vents dust free	119	Vents dust free	51	Denominator 1482
Walls were wiped down	119	Walls were wiped down	51	Numerator 1474
Vertical surfaces were wiped down	119	Vertical surfaces were wiped down	51	Rate 99.46
OR table cleaned and re-supplied with linen	119	OR table cleaned and re-supplied with linen	51	
All horizontal surfaces were wiped down	119	All horizontal surfaces were wiped down	51	<b>OR Room 3 (items cleaned)</b>
Floor has no loose debris	119	Floor has no loose debris	51	Denominator 663
Floor has been mopped	119	Floor has been mopped	51	Numerator 663
Items moved to mop under them	119	Items moved to mop under them	51	Rate 100.00
Is the OR room acceptable for surgery? (Y/N)	119	Is the OR room acceptable for surgery? (Y/N)	51	
	<b>100</b>		<b>100</b>	<b>OR Room 4 (items cleaned)</b>
<b>OR Room 2</b>	<b>114</b>	<b>OR Room 4</b>	<b>203</b>	Denominator 2639
Trash emptied & new liners in place	113	Trash emptied & new liners in place	202	Numerator 2605
RMW bins emptied & new liners in place	114	RMW bins emptied & new liners in place	203	Rate 98.71
Ceiling free from dust & debris	114	Ceiling free from dust & debris	202	
Shell of OR light dust free no smearing	114	Shell of OR light dust free no smearing	200	<b>Rooms acceptable</b>
OR light handle clean	114	OR light handle clean	201	Denominator 487
Vents dust free	114	Vents dust free	201	Numerator 479
Walls were wiped down	114	Walls were wiped down	201	Rate 98.36
Vertical surfaces were wiped down	114	Vertical surfaces were wiped down	201	
OR table cleaned and re-supplied with linen	114	OR table cleaned and re-supplied with linen	201	
All horizontal surfaces were wiped down	114	All horizontal surfaces were wiped down	201	
Floor has no loose debris	111	Floor has no loose debris	196	
Floor has been mopped	112	Floor has been mopped	198	
Items moved to mop under them	112	Items moved to mop under them	198	
Is the OR room acceptable for surgery? (Y/N)	112	Is the OR room acceptable for surgery? (Y/N)	197	
	<b>99</b>		<b>98.7</b>	

**Figure 3** Terminal cleaning summary.