

Surgical Scrubs or Personal Scrubs

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**Identification of problem or opportunity**

Working as a healthcare professional in a hospital can result in a higher risk of accumulating or spreading bacteria. The spread of bacteria could be due to the fact that scrubs are more susceptible to contamination and bacteria accumulation (Budryk, 2016). Bacteria naturally occur everywhere, but imagine how many germs are on a nurse's scrubs after working a long 12-hour shift? Healthcare staff that works on surgical units, labor/delivery, and maternal wards are required to wear specific sterilized scrubs that do not leave the hospital. Since the scrubs do not leave the hospital, there is less risk for cross-contamination. These units state that implementing scrubs that stay on the unit is an infection control measure. The real question to ask is, why don't all healthcare staff and departments follow this method? With COVID-19 being such a significant infection risk to the public, having specific sterilized scrubs for all employees in each unit could present a safer option for patients, healthcare staff, and their families.

**Literature review on the change topic**

This study was completed by researchers to investigate the amount of potentially harmful pathogens that are found on a nurse's scrubs during a full twelve-hour shift. This study was completed by providing ten nurses at a local hospital with sterilized scrubs. This study showed that the average bacteria colony growth per square inch was 1,246 and 5,795 for day and night shift, respectively. After 48 hours, MRSA positives were present on 4 of the day shift and 3 of the night shift uniforms. Additional bacteria identified include *Bacillus* sp., *Micrococcus luteus*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, and *Micrococcus roseus* (Sanon & Watkins, 2012). When analyzing the data, it can be seen that a large amount of bacteria is present on the

scrubs at the end of each shift (Refer to Table 2 below). The results further support that the implementation of sterilized scrubs in units would aid in reducing infection overall.

## Appendices A

Table 2: Identification of 3 most predominant organisms and presence/absence of MRSA and VRE.

Sample ID	Organism identification	MRSA Presence/absence (Primary isolation)	VRE Presence/absence (Primary isolation)
Day Shift Scrubs-1 (D-1)	<i>Bacillus</i> sp. (45%); <i>Micrococcus luteus</i> (35%)	Absent	Absent
Day Shift Scrubs-2 (D-2)	<i>Bacillus</i> sp. (50%); <i>Micrococcus luteus</i> (40%)	Present	Absent
Day Shift Scrubs-3 (D-3)	<i>Bacillus</i> sp. (25%); <i>Micrococcus luteus</i> (70%)	Present	Absent
Day Shift Scrubs-4 (D-4)	<i>Micrococcus luteus</i> (65%); <i>Staphylococcus aureus</i> (MRSA negative) (35%)	Present	Absent
Day Shift Scrubs-5 (D-5)	<i>Micrococcus luteus</i> (35%); <i>Staphylococcus aureus</i> (MRSA negative) (20%); <i>Staphylococcus epidermidis</i> (25%)	Present	Absent
Night Shift Scrubs-1 (N-1)	<i>Bacillus</i> sp. (75%); <i>Micrococcus luteus</i> (10); <i>Staphylococcus aureus</i> (MRSA negative) (10%)	Present	Absent
Night Shift Scrubs-2 (N-2)	<i>Bacillus</i> sp. (60%); <i>Micrococcus luteus</i> (15%) <i>Micrococcus</i> sp. (10%); <i>Staphylococcus epidermidis</i> (10%)	Present	Absent
Night Shift Scrubs-3 (N-3)	<i>Bacillus</i> sp. (35%); <i>Micrococcus luteus</i> (25%); <i>Staphylococcus aureus</i> (MRSA negative) (25%)	Present	Absent
Night Shift Scrubs-4 (N-4)	<i>Bacillus</i> sp. (20%); <i>Micrococcus luteus</i> (70%)	Absent	Absent
Night Shift Scrubs-5 (N-5)	<i>Bacillus</i> sp. (75%); <i>Micrococcus roseus</i> (15%)	Absent	Absent

This table was retrieved from (Sanon & Watkins, 2012).

### **Selection and application of change theory**

The change theory selected is Havelock's model. Havelock's is a six-phase model that includes building a relationship, diagnosing the problem, requiring resources for change, choosing a pathway for the solution, establishing and accepting change, and maintaining and separating (Udod & Wagner, 2018). The problem will be identified during the building of the relationship phase. The issue identified in this change project is, wearing personal scrubs can cause healthcare staff to spread bacteria to family and other patients. The study showed multiple types of bacteria on the nurse's scrubs after working one shift; it would be a safer option to wear surgical scrubs at work for all healthcare staff in each unit. After identifying and diagnosing the problem, it is determined whether the problem should be fixed.

Requiring resources for change could include the hospital supply surgical scrubs for all staff. Surgical scrubs could be paid for by a small fee to all staff. Selecting a pathway for the problem includes coming up with a plan that works best for the hospital and staff. The plan may include a central scrub center for healthcare staff to change into and out of their scrubs before and after each shift. After establishing and accepting the change, the team may take some time to adjust to the new policy. Allowing the recent change to settle in for the staff and inquiring about their feeding back is essential for the team accepting the change. The hospital is responsible for maintaining the maintenance of the change project. The hospital ensures that the scrub central is still the best option for the hospital and staff.

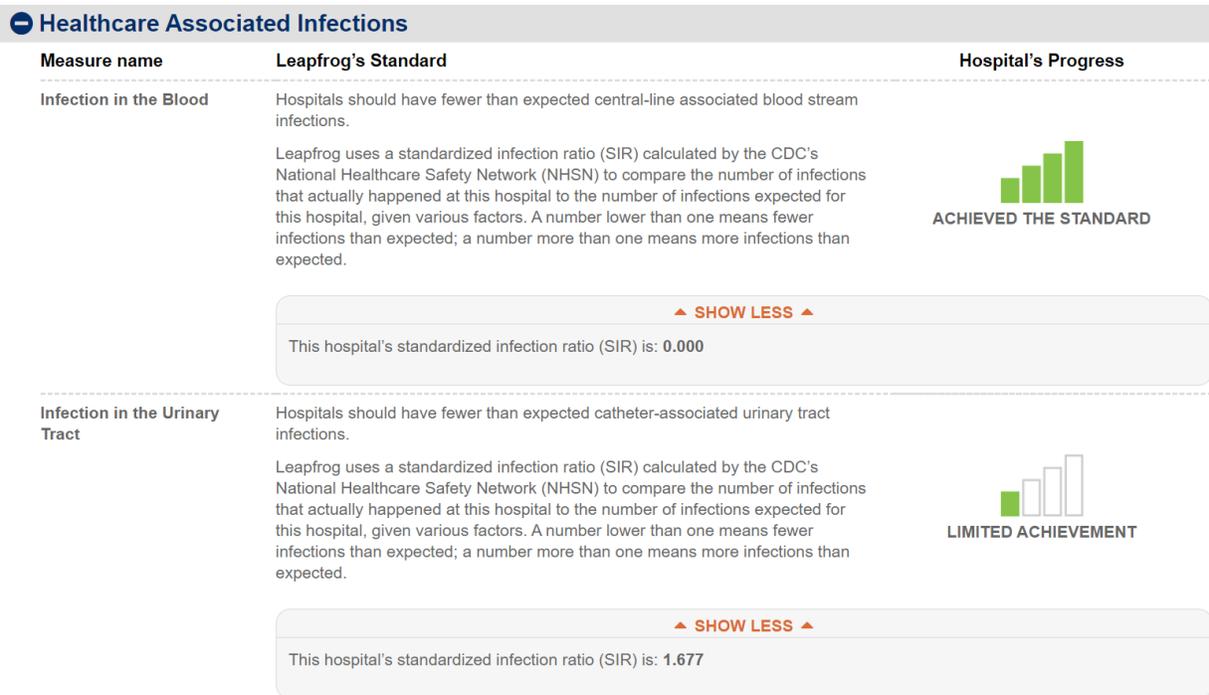
### **Data collection and analysis**

According to Leapfrog (2019), our local hospital, Sarah Bush Lincoln, achieved the standard on several healthcare-associated infections such as infection in the blood, *C. difficile*

infection, and surgical site infections after colon surgery. However, they scored a limited achievement with conditions in the urinary tract. Our hypothesis as to why these infection rates are so minimal is because Sarah Bush uses hospital provided scrubs for the maternal newborn unit, the operating rooms, sterile supply, and specific special procedures such as the cardiac catheterization lab.

## Appendices B

Chart 1: Healthcare Associated Infections



The chart was retrieved from (Sarah Bush Lincoln Health Center, 2019).

The hospital could have received better results on UTI occurrences if they utilized sterilized scrubs on every unit (Refer to Chart 1 above). The nurses working on regular medical-surgical floors are more likely to contract different bacteria onto their scrubs, spreading the bacteria from person to person. Hospital gowns also limit contact from nurses to the patient, but a study that followed sterile procedures in the OR uncovered that 96 percent of the surgical team wore clean

scrubs, but only 23 percent wore shoe covers. The study states that only 56 percent of the team wore gowns to create that barrier between the scrubs they had been wearing prior to the surgery (Lo Giudice et al., 2019). To avoid cross-contamination of microorganisms, we recommend hospitals provide clean scrubs that staff can change before their shifts (Ojo, 2019).

## Appendices C

Table 1: Use/correct use of personal protective equipment by healthcare workers

**Table 1.** Use/correct use of personal protective equipment by healthcare workers (N=308)

	Surgeons n=127 (41%)	Anaesthetists n=39 (13%)	Nurses n=62 (20%)	Trainees/students n=80 (26%)	Total n=308 (100%)	p-value
Mask	123 (97%)	32 (82%)	56 (90%)	74 (92%)	285 (93%)	0.045
Correctly worn	107 (87%)	19 (59%)	37 (66%)	59 (80%)	222 (78%)	0.001
Cap	127 (100%)	37 (95%)	61 (98%)	79 (99%)	304 (99%)	0.103
Correctly worn	56 (44%)	14 (38%)	40 (66%)	35 (44%)	145 (48%)	0.02
Gloves	127 (100%)	5 (13%)	19 (31%)	4 (5%)	155 (50%)	0.001
Clogs	127 (100%)	39 (100%)	62 (100%)	66 (82%)	294 (95%)	–
Shoe covers	17 (13%)	6 (15%)	2 (3%)	46 (58%)	71 (23%)	0.001
Scrubs	127 (100%)	39 (100%)	62 (100%)	67 (84%)	295 (96%)	–
Gown	127 (100%)	10 (26%)	12 (19%)	24 (30%)	173 (56%)	0.001
Eye protection	34 (27%)	9 (23%)	11 (18%)	15 (19%)	69 (22%)	0.42

This table was retrieved from (Lo Giudice et al., 2019)

## Planning the change strategy

The article Surgical Group Calls for No Scrubs Beyond the Hospital explains the "bare below the elbows" is a trend implemented to reduce the number of *Clostridium difficile* infections. They demonstrate that clothing pieces, such as lab coats and neckties, harbor more bacteria because they are often less laundered (2016). We know that hospital provided scrubs decrease HCAs from evidence found on leapfrog.org and evidence-based articles. However, if hospitals had protocols prohibiting outside scrubs on all units, it would reduce the spread of infections like *C.difficile*, UTIs, and others like hospital-acquired pneumonia.

There are protocols in place to help limit contact already with gowns. However, making the hospital itself responsible for providing scrubs will stress the importance of cleanliness and decrease the number of bacteria transferred onto scrubs, resulting in fewer infections that people get from being in the hospital.

### **Implementation**

When implementing the change project, it is essential that scrubs are changed at least daily (Surgical Group Calls for No Scrubs Beyond the Hospital, 2016). Implementing this change will reduce the rate of infections, which is crucial because these illnesses are easily spread by contact between healthcare professionals and patients. This change must be made in order to decrease HCAs due to the significant cause of morbidity and mortality rates (Ojo, 2019). In this change project, we are implementing that hospitals have a policy in place, providing scrubs for all units. This change protects the public from hospital infections and the hospital's patients from outside bacteria and viruses.

With the COVID-19 pandemic that we are currently living in today, if a nurse coming off her shift goes to a store to get groceries before heading home, she may expose those around her to the bacteria attached to her scrubs from her long shift. This exposure would not happen if she did not wear her scrubs outside of the hospital. We recommend that more research is performed regarding hospital-acquired infections. We also suggested education is required to increase awareness for the staff on preventing such conditions. We recommend audits and re-audits be performed to make the improvements needed overtime with our hospitals' implementation of providing sterile scrubs to all floors and all hospitals (Lo Giudice et al., 2019).

### **Stabilizing the change**

Following our group's resignation as researchers, the change project will be delegated to the surgical services director. The director is responsible for maintaining and implementing any changes made during the change project.

### **Evaluation of the change experience**

Our group has researched for multiple hours to find evidence that correlates to this topic. At the beginning of the change project, we delegated sections for each person to complete. The group worked well together and had effective communication. We could complete the change project efficiently because we all agreed that the topic of change, if incorporated, could reduce the amount of infection seen in hospitals, the general public, and the family life of the health care workers.

References (5 current articles required)

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