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| [Facility Name/Logo]    | **Prevention of Surgical Site Infection (SSI) in the Operating Room** |
| **Policy Number**  |

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| **Section:**  |   | **Origin date:**  |   |
| **Owner:**  |   | **Effective Date:**  |   |
| **Approved by:**  |   | **Last Revised Date:**  |   |
| **Prepared by:**  |   | **Next Review Date:**  |   |

1. **Policy Description**

This policy describes the indications, use, methods, and program requirements for infection prevention practices in the Operating Room.

1. **Rationale**

Surgical Site Infections (SSIs) are one of the most common and most costly Healthcare Acquired Infections (HAI), contributing to patient morbidity, cost, and length of stay. An estimated 60% of SSIs are preventable using evidence-based guidelines.14

1. **Policy**
	1. Definitions (*consider adding specific information relative to your hospital setting)*
		1. **Healthcare accredited laundry facility** – an organization that processes health care linens and has successfully passed an inspection of its facility, policies and procedures, training programs, and relationships with customers.
		2. **Clean Core** –The clean core is used for sterile supply and instrument storage. This is the cleanest area of the entire surgery suite. Only staff wearing appropriate surgical attire should be allowed in the clean core.
		3. **Non-restricted/Unrestricted areas** – the areas outside the restricted area.
		4. **Operating Room** – a room in the operating suite where operations are performed.
		5. **Operating Suite** – a physically separate area that comprises operating room(s) and interconnecting hallways and ancillary work areas such as scrub sinks.
		6. **Personal Protective Equipment (PPE)** – specialized clothing or equipment used by healthcare providers to protect from direct exposure to blood or OPIM.
		7. **Restricted areas** – include the OR/Procedure room and Clean Core.
		8. **Scrub suits** – low-linting, tightly woven material that allows for breathability, provides comfort, promotes a professional appearance, and contains shed skin squams.
		9. **Semi-Restricted areas** – the peripheral support areas of the surgical suite, usually includes storage areas for sterile and clean supplies, work areas for storage and processing of instruments, and corridors leading to the restricted areas of the surgical suite.
		10. **Surgical attire** – non-sterile scrub apparel owned and laundered by the hospital and designed for the OR practice setting, including tops, pants, cover jackets and gowns, head coverings, shoes, masks, protective eyewear, and other protective barriers.
		11. **Surgical personnel** – any healthcare provider who provides care to surgical patients during the pre-, intra-, or post-operative periods.
		12. **Surgical Team member** – any healthcare provider in an operating room during the operation, including personnel that are scrubbed in and those who are not.
		13. **Transition Zone** – an area where one can enter while wearing street clothes and exit into the semi-restricted or restricted area in surgical attire.
	2. Scope

(*Describe the scope of this policy for your facility)*

* 1. Policy Body
		1. **Traffic Flow**
			1. Authorized persons
				1. Traffic in the semi-restricted and restricted areas is limited to authorized personnel who are in proper attire. (See below)
				2. All personnel entering the surgical suite follow the well-delineated traffic pattern and are properly attired.
				*(Consider adding information about the layout in your facility, including the presence of a “red line” area.)*
				3. Movement of personnel from unrestricted areas to semi-restricted or restricted areas should be through a transition zone.
				4. Only authorized persons are allowed in the Operating Room during a surgical procedure.
				5. The number of persons present in the OR during a procedure should be minimized.
				6. Movement of personnel in and out of the OR during is minimized while surgery is in progress.
				7. Doors to the OR are closed, except during movement of the patient, personnel, supplies, and equipment.
			2. Supplies and Equipment
				1. Supplies and equipment are stored as close to the point of use as possible, but only necessary supplies are in the Operating Room.
				2. Equipment from outside the surgical suite, e.g., imaging equipment, compressed gas cylinders, are damp dusted with an appropriate agent in the unrestricted zone prior to being brought into the OR.

Equipment in the Operating Room that is not to be used during the case is covered in a drape that is easily cleaned between cases.

* + - * 1. Traffic patterns for clean and sterile supplies and equipment are separated from patterns for soiled equipment and waste, either by space, time, or traffic patterns.
				2. Clean supplies are delivered to the unrestricted area in containers or vehicles which protect the integrity of the sterile package.
				3. Soiled supplies, equipment, and instruments should not re-enter the clean core area and should be contained in closed or covered containers for transport to the decontamination area.
				4. External packaging containers used for shipping and corrugated containers are removed before materials arrive in the semi-restricted or restricted area.
		1. **Healthcare Personnel Attire in the OR** *(edit the following to reflect your facility’s policy, e.g., some facilities do not require all hair to be covered with a cap)*
			1. All individuals who enter semi-restricted and restricted areas where surgery or other invasive procedures are performed are attired in clean surgical attire that has been provided by the facility or disposable scrub attire intended for use within the perioperative setting.
				1. Note: Includes visitors and ancillary support staff
				2. Necklaces/chains must be contained inside the scrub top.
			2. Surgical attire should be donned in a designated dressing area and not worn outside the facility. Any surgical attire worn outside the facility must be changed before entering the restricted or semi-restricted area(s).
			3. Soiled, contaminated, or wet surgical attire must be changed as soon as reasonably possible.
			4. The scalp, hair, facial hair, and facial piercings must be covered while in a semi-restricted or restricted area or when handling items to be sterilized. Reusable coverings are to be removed at the end of the shift or when contaminated and laundered by the facility.
			5. Eye protection, including goggles, glasses with solid side shields, or surgical masks with wrapping shields are worn whenever splashes, spray, spatter or droplets of blood or OPIM may be generated, and eye contamination can be reasonably anticipated for the purpose of protecting the healthcare provider from splashes, spray, spatter, or droplets of blood and other potentially infectious materials (OPIM).
				1. Eye protection devices should be disposable or cleaned according to the manufacturer’s instructions for use (MIFU).
			6. A clean surgical mask should be worn according to the Manufacturer’s Instructions for use (MIFU) when open sterile supplies or instruments are present or when a surgical procedure is beginning or in process.
				1. Personnel should select the type of mask needed for the procedure according to the barrier level per manufacturer’s instructions for use.
				2. The mask selected should provide the best facial fit, fully cover the mouth, nose, and chin, and fit snugly to prevent gaps at the side of the mask.
				3. Masks should be discarded whenever they become wet or soiled and after the procedure. Masks should not be worn hanging around the neck or chin. If a mask is removed from the face and allowed to hang around the neck, it should be discarded.
			7. Clean shoes are worn when entering semi-restricted and restricted areas.
1. Shoes must provide closed toes and backs, low heels, and non-skid soles and meet the Occupational Safety and Health Administration (OSHA) safety requirements.

Disposable shoe covers are considered PPE and are selected for wear appropriately and removed prior to leaving the surgical area.

* + - * 1. Other

Identification badges are cleaned with a low-level disinfectant when the badge becomes soiled. Lanyards are not used.

Outside bags (i.e., backpacks, fanny packs, briefcases) are prohibited in the semi restricted and restricted areas unless made of a material that can be wiped down with an approved germicide and are cleaned before entering the area and remain off of the floor.

Other personal items such as tablets, cell phones and other personal communication or hand-held electronic equipment must be wiped down with an approved germicide and cleaned before entering and upon leaving the area.

* + 1. **Hand hygiene and Surgical Preparation of the Healthcare Personnel**
			1. All jewelry from hands and areas must be removed prior to scrubbing.
			2. Hand sanitizer should be used before and after each patient’s contact, and gloves should be changed before and after each patient. Gloves are not a substitute for hand hygiene.
			3. Use of an antimicrobial hand scrub agent intended for surgical hand antisepsis or, after the first scrub of the day, an alcohol-based antiseptic surgical hand rub with documented fast-acting, persistent and broad-spectrum activity that has met U.S. Food and Drug (FDA) regulatory requirements for surgical hand antisepsis is acceptable.
				1. Either an antimicrobial soap or an alcohol-based surgical hand rub with persistent activity may be used. The following are approved agents:

**Primary**

Chlorhexidine gluconate (CHG) 0.5% to 4%

* + - * 1. Iodophors 1%
				2. Ethyl Alcohol 80% to 85%
				3. CHG 1% + Alcohol 61%

**Alternatives (in order of preference)**

E.g., Chloroxylenol (PCMX) 0.6%

Triclosan 0.3%

* + 1. **Preparation of the patient**
			1. The skin of the operative site is prepared using an alcohol-containing preoperative skin preparatory agents in combination with an antiseptic.

(*Consider listing approved preps in your facility.)*

* + - 1. Hair at the operative site is removed only when the hair will interfere with the surgical procedure. When hair removal at the operative site is required, hair is removed outside the operative suite. (*Consider adding details of your facility’s approved practice.)*
			2. *If decolonization with an anti-staphylococcal agent, maintenance of normothermia and glycemic levels or administration of antibiotics are standardized practices in your facility, consider adding those practices here.*
		1. **Air handling in the Operating room**
			1. Surgical areas must have sufficient air changes per hour and must be in positive pressure to adjoining areas. They must have heating and cooling systems that can produce room temperatures at a range,
				1. between *specify for your facility based on applicable standards.* (TJC says 72 to 78 F or 22 to 26 C. and relative humidity at a range between 20% and 60% relative humidity.
				2. Temperature, ventilation rates, humidity range variations are allowed in order to meet the clinical needs of the patient. (For example: intentional maintenance of hypothermia conditions for selected cardiac surgery patients, warming of the room for trauma surgery patients.)
			2. Positive airflow and increased air exchanges are verified by an independent contractor annually and as needed.
				1. When verification demonstrates a problem, corrective action is taken immediately, **and** Department leadership, Maintenance, and Infection Prevention are notified.
			3. Rooms requiring special ventilation are monitored with devices which will alert staff if any parameter fails.
				1. For sustained deviations, Facilities and Clinical staff collaborate on the formation of an action plan.
			4. Preventative maintenance inspections verify the operation of these engineering systems, including at least:
				1. Final filters are monitored and changed as needed.
				2. Pre-filters are inspected regularly and changed as needed.
				3. Records of inspections and maintenance are maintained.
		2. **OR Ventilation Downtime Procedures**
			1. In the event of a failure of the HVAC system in the OR or Procedure Rooms:
				1. Surgeries already in progress are completed.
				2. ORs supplies that are open at the time of failure are considered contaminated and should be torn down.
				3. Procedures not already underway will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  *Specify the internal channels for discussion and deision-making, e.g., Anesthesia and OR director may be involved, it may be possible to move to another facility; you may be able to continue with ENT and OBGYN cases with the surgeon’s agreement.*
				4. Appropriate notification occurs when air-handling parameters are not met in the OR. (*Note those who are included in this notification in your facility.)*
				5. Upon restoration of airflow, proper function is verified before starting cases. After Maintenance has determined the air-handling system is operational,

the ventilation system shall run for \_*\_\_\_ minutes (or \_\_\_\_ACH cycles) to restore air quality. (May be combined with ii. below per institutional policy).*

the OR will have 30 minutes of complete air exchanges prior to inspection for condensation.

* + - * 1. In the absence of visible condensation, all flat surfaces of the OR are wiped down and procedures are allowed to resume.
				2. Any sustained deviation from the established parameter requires an action plan for resolution. This action plan is a collaborative effort between the affected department and Maintenance.
			1. When a prolonged downtime is anticipated, the Infection Preventionist and committee are included.

1. **Competency based training program upon hire, yearly and as needed**
	1. *Who receives training?*
	2. *What is included in the training program?*
	3. *Documentation of education?*
2. **Audit and feedback** (optional to include in policy)
	1. Monitoring for adherence. (*for example)*
		1. *Describe how are audits performed*
		2. *Delineate who can perform audits, required training*
		3. *Describe what process the audits monitor (indwelling urinary catheter insertion practices, peri care, etc.)*
	2. Provide feedback to healthcare personnel (*for example)*
		1. *Real time feedback, culture of safety*
		2. *Procedure-specific infection rates*
		3. *Rates of compliance with process measures*
3. **Responsibilities**
	1. *Unit, department responsible for administering, enforcing or answering questions related to this policy*
	2. *Describe accountabilities for improving Surgical Site Infection measures.*
4. **Responsible for content/Approval authority**
5. *Specify your responsibilities here, e.g., Infection Prevention in collaboration with Operating Room leadership*
6. **References**
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	2. APIC Implementation Guide for the Prevention of Surgical Site Infections, 2018.
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	4. SHEA/IDSA/APIC Practice Recommendation, Michael S. Calderwood, MD, MPH, Deverick J. Anderson, MD, MPH, et al. Strategies to prevent surgical site infections in acute-care hospitals: 2022 Update Infect Control Hosp Epidemiol. 2023 May ; 44(5): 695–720 DOI: <https://doi.org/10.1017/ice.2023.67>
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	7. Elmously, A., K.D. Gray, et al., (January 2019), Operating Room Attire Policy and Healthcare Cost: Favoring Evidence over Action for Prevention of Surgical Site Infections, (Presented at the Surgical Forum of the American College of Surgeons 104th Annual Clinical Congress, Scientific Forum, Boston, October 2018), J American College of Surgeons, 228(1), pp. 98-106.
	8. Farach, S.M., K.N. Kelly, R.L. Farkas, et al., (2018), Have recent modifications of operating room attire policies decreased surgical site infections? An American College of Surgeons NSQIP review of 6,517 patients, J Am Coll Surg, 226(5), pp. 804-813.
	9. Spruce, L. and A. Wood, (2019), Guideline for Surgical Attire, AORN Guidelines for Perioperative Practice, 20(6), pp. 435-436.
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	12. Centers for Disease Control, National Healthcare Safety Network (NHSN) Manual, Surgical Site Infection Event, http://www.cdc.gov/nhsn/PDFs/pscManual/9pscSSIcurrent.pdf.
	13. APIC Implementation Guide, 2018 <https://apic.org/Resource_/TinyMceFileManager/Implementation_Guides/APIC_ImplementationPreventionGuide_Web_FIN03.pdf>
	14. APIC Implementation Guide: Guide to the Elimination of Orthopedic Surgical Site Infections, 2019, <https://apic.org/wp-content/uploads/2019/10/APIC-Ortho-Guide.pdf>
	15. APIC Text Chapter 38 "Surgical site infection"
	16. Calderwood MS, Anderson DJ, Bratzler DW, Dellinger EP, Garcia-Houchins S, Maragakis LL, Nyquist AC, Perkins KM, Preas MA, Saiman L, Schaffzin JK, Schweizer M, Yokoe DS, Kaye KS. Strategies to prevent surgical site infections in acute-care hospitals: 2022 Update. Infect Control Hosp Epidemiol. 2023 May;44(5):695-720. doi: 10.1017/ice.2023.67. Epub 2023 May 4. PMID: 37137483; PMCID: PMC10867741. https://pubmed.ncbi.nlm.nih.gov/37137483/

1. **Related policies**
2. **Approval Signatures**

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| **Department Approval**  **Dr. XXXXXX** **Title: Medical Director/Department Chair** **Department:**  | **Administrative Approval**  **XXXXXXXXX** **Title: Director/Manager etc.** **Department:**  |