



**LOS ANGELES COUNTY DEPARTMENT OF HEALTH SERVICES
HARBOR-UCLA MEDICAL CENTER**

SUBJECT: PERIOPERATIVE TEMPERATURE AND RELATIVE HUMIDITY

POLICY NO. 416A

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| CATEGORY: Safety | EFFECTIVE DATE: 11/18 |
| POLICY CONTACT: David Chambers | UPDATE/REVISION DATE: 3/22 |
| REVIEWED BY COMMITTEE(S): | |

PURPOSE:

To ensure a systematic process for implementing evidenced-based performance parameters for relative humidity and temperature in all perioperative areas, with respect to promoting patient safety and the care and handling of sterile supplies and equipment.

Design guidelines from the Facility Guidelines Institute (FGI), operational guidelines from the Association of perioperative Registered Nurses (AORN), the Association for the Advancement of Medical Instrumentation (AAMI), and the Association for Professionals in Infection Control and Epidemiology (APIC) and manufacturer guidelines are not equal and will not be used interchangeably by Harbor-UCLA Medical Center (Harbor-UCLA) to manage temperature and relative humidity risks. Each set of guidelines has its purpose and have been consulted for an appropriate evidenced-based process.

DEFINITION:

Perioperative Areas: Are those located within the Operating Room, Labor & Delivery, Pre-Operative Care Unit, Post Anesthesia Care Unit (PACU) and Outpatient Procedural Area (OPA), Cardiac Catheterization Laboratory, Endoscopy, Interventional Radiology, and Central Sterile Processing.

POLICY:

A. Preventive Maintenance

Facilities Management will implement appropriate preventative maintenance, including regular inspections, changing of filters and monitoring practices to assure the heating/ventilation/air conditioning (HVAC) system is working as designed according to its relevant building code design and as-built age.


B. Temperature

1. Except for isolated and specific patient diagnosis and equipment, ambient air temperatures present relatively fewer risks in healthcare.

REVISED: 3/22

REVIEWED: 11/18, 3/22

APPROVED BY:


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- a. Reliable evidence suggests that environmental temperatures below 68 degrees F may present a challenge to patients' target temperature management during perioperative care.
 - i. The clinical team will take an active and collaborative role in assessing a patient's individual needs and/or elevated risk of unintentional hypothermia and take appropriate protective actions.
 - ii. Accommodations for individual patient temperature can be addressed pre-, intra-, or post-procedure utilizing patient warming measures such as forced-air, mat, blanket, fluid warming systems, and by limiting exposure of patient to the minimum required for effecting surgical intervention.
 - iii. Literature search determined the association between room temperature and patient core temperature as weak.
 - b. Reliable evidence supports there is no direct increased risk of surgical site infections related to temperatures below 68 degrees F.
 - c. Increasing environmental perioperative temperature greater than 68 degrees F has been shown to have a potentially deleterious effect on the patient by amplifying the risk of infection, reducing surgical efficiency, and increasing surgical error.
 - i. Perspiration and occasional "sweat through" increase the risk for contamination of the surgical field, impact cognitive performance, and reaction time.
 - ii. Variable risks involving more physically demanding procedures, and those procedures necessitating lead-gowns for protection against radiation exposure will be addressed through open dialogue amongst the surgical/procedural team about the expected duration of the case in conjunction with maintaining appropriate patient temperature.
2. Temperature has an inverse relationship to relative humidity; lower temperatures create higher relative humidity.

C. Relative Humidity (RH)

1. Reliable evidence suggests that very high RH – greater than 75% - for an extended time, may present a challenge to maintaining environmental cleanliness.
 - a. Cleanliness oversight will be continually addressed through the reinforcement of preventative maintenance, operational practices, and policies and procedures such as traffic control, aseptic technique, and cleaning procedures.
 - b. An interdisciplinary risk assessment will be conducted and appropriate clinical interventions will be enacted and documented when needed.
2. There is no reliable evidence that low RH is a risk to patient or staff safety with respect to infectious agents or static-discharge-related fire risk.

D. Free-standing fans, humidifiers, air conditioners, and dehumidifiers will not be used in perioperative areas.

1. These items create risk by disrupting airflow patterns, which can result in contamination of the sterile field.



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2. Only when no airborne infection isolation room is available will a portable, industrial-grade HEPA filter be used to supplement air cleaning.
- E. Doors in restricted, semi-restricted, and unrestricted areas will remain closed, except during the entry and exit of patients, staff, equipment, and supplies. When doors are left open, there are greater challenges for the HVAC system to maintain environmental control parameters.

PROCEDURE:

I. TEMPERATURE

- A. Perioperative areas will be observed each day by area staff when in use. Initial observation will be made prior to creating a sterile field so that corrective actions may be taken if needed.
- B. Clinical team members may request temperature adjustments as needed above 68 degrees F based on maintaining patient target temperature and below 68 degrees F based on staff comfort levels.
 1. Increasing the room temperature should be considered when active skin warming is not feasible, or when active skin warming alone is insufficient. The clinical team will collaborate in assessing patients for elevated risk of unintentional hypothermia and take appropriate protective actions.
 2. If unwarranted temperatures remain, clinical team members are responsible for contacting the Charge Nurse. The Charge Nurse is responsible to:
 - a. Create a Facilities Management work order for temperature adjustments in the affected room.
 - b. Assist with supplying additional warming devices if needed.
 - c. Communicate actions to the clinical staff responsible for patient care in the affected room.
 - d. Consult with Trauma Attending to adjust surgical scheduling to protect patients who may be exceptionally vulnerable to unintentional perioperative hypothermia.
 3. Sensitive equipment and supplies will be assessed for unique temperature requirements that are outside normal indoor climate control settings, to ensure the appropriate safety measures and controls are in place.

II. RELATIVE HUMIDITY (RH)

- A. Relative humidity will be observed each day by clinical staff when areas are in use. Initial observation is made prior to the creation of a sterile field so that corrective actions may be taken if needed.
 1. Facilities Management will be responsible for: Maintaining RH documentation for all perioperative areas, initiating work orders to investigate and pursue corrections to HVAC equipment, and communicating with the Charge Nurse of the area.
 2. Charge Nurse of the area will be responsible for: Notifying the appropriate EVS, Nursing staff and Medical Leadership, including Infection Prevention and Control.
 3. Harbor-UCLA is located in a coastal region where high marine-related humidity is common. HVAC equipment is maintained according to its relevant design and as-built construction. It is normal for RH to fluctuate based on environmental conditions. Incidental occurrences of RH



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above 60% do not create immediate risks or conditions of non-compliance. Sustained RH will initiate the steps outlined in B - E below to assess risks and promote patient safety.

- B. RH above 60%:**
1. Perioperative staff will be responsible for notifying Facilities Management upon occurrence and creating a work order.
 2. Facilities Management will monitor perioperative areas and create a work order.
 3. Facilities Management will notify Charge Nurse.
 4. Charge Nurse will assess environmental surfaces for visible dampness on walls, furniture, equipment, surfaces or supplies, and arrange for terminal cleaning after the last procedure of the day.
- C. RH above 75%:**
1. Perioperative staff will be responsible for notifying Facilities Management upon occurrence and creating a work order.
 2. Facilities Management will monitor perioperative areas and create work orders.
 3. Facilities Management will notify Charge Nurse.
 4. Charge Nurse will assess environmental surfaces for visible dampness on walls, furniture, equipment, surfaces or supplies, and arrange for terminal cleaning after the last procedure of the day.
- D. RH uncorrected and sustained for 72 hours above 75%:**
1. Facilities Management will notify Charge Nurse.
 2. Charge Nurse will:
 - Notify Infection Prevention & Control to begin assessment and consultative form documentation for inspection and mitigation.
 - Notify Trauma Attending and Nurse Manager.
- E. If visible dampness is found on walls, furniture, equipment, surfaces or supplies:**
1. Surgeries/Procedures will be rescheduled to another room unless this would cause a delay that would potentially harm the patient as determined by the appropriate attending physician.
 2. Charge Nurse will:
 - a. Notify Infection Prevention & Control to begin assessment and consultative form documentation for inspection and mitigation.
 - b. Notify Trauma Attending and Nurse Manager.
 3. Investigation and mitigation:



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- a. Each sterile package will be inspected for evidence of dampness or water exposure. If signs of dampness or water exposure are found, the package or container will be immediately opened and the contents cleaned and re-sterilized or, if single-use, discarded.
 - b. As soon as safely possible, the area will be assessed by Facilities Management and Biomedical Engineering for further repairs and equipment safety checks.
 - c. Infection Prevention and Control will provide notification to appropriate medical and nursing leadership including recommendation for returning the room to service.
 - d. Terminal cleaning will occur prior to returning the room to service.
4. All occurrences are to be documented with corrective actions described and reported out via Infection Prevention & Control Committee, Environment of Care Committee, and Patient Safety Committee.

III. REFERENCES

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