Travancore Medical College Hospital
A Unit of Quilon Medical Trust

JULY 2023
HIPC NEWSLETTER

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Important Dates

| World Hand Hygiene Day- may 5th

Guideline Updates Quick Links

https://www.cdc.gov/hai/vap/vap.html

https://www.cdc.gov/nhsn/pdfs/pscmanual/6pscvapcurrent.pdf

·https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9163435/#:~:text=Batra%20P.%2C%20Soni,Google%20Scholar%5D

VENTILATOR-ASSOCIATED PNEUMONIA.

Most bacterial healthcare associated pneumonia occurs by aspiration of bacteria colonizing the oropharynx or upper gastrointestinal tract of the patient. Intubation and mechanical ventilation greatly increase the risk of bacterial pneumonia because they alter first-line patient defences. Pneumonia due to infective causes occurring in a patient on mechanical ventilation is termed ventilator-associated pneumonia or VAP Criteria for diagnosing VAP- CDC-NHSN Criteria

Objective: To reduce the incidence of ventilator associated pneumonia.
Risk factors

- Age: very young or very old
- Coronary bypass surgery
- Abdominal surgery
- Existing pulmonary, neurological disease
- Decreased clearance of respiratory secretions due to coma, sedation, etc.
- Invasive devices bypassing natural defenses as in mechanical ventilation, intubation, tracheostomy, enteral feeding
- Medications such as antibiotics, antacids, immunosuppressive agents and chemotherapy

ENDOTRACHEAL INTUBATION

Precautions before endotracheal intubation:

I. Standard Precautions

Hand wash-

- Decontaminate hands by washing them with either antimicrobial soap and water or with non-antimicrobial soap and water (if hands are visibly dirty or contaminated with proteinaceous material or are soiled with blood or body fluids) or by using an alcohol-based waterless antiseptic agent (e.g., hand rub) if hands are not visibly soiled after contact with mucous membranes, respiratory secretions, or objects contaminated with respiratory secretions, whether or not gloves are worn.
- Decontaminate hands before and after contact with a patient who has an endotracheal or tracheostomy tube in place, and before and after contact with any respiratory device that is used on the patient, whether or not gloves are worn

Gloving –

- Wear gloves for handling respiratory secretions or objects contaminated with respiratory secretions of any patient
- Change gloves and decontaminate hands as described previously between contacts with different patients; after handling respiratory secretions or objects contaminated with secretions from one patient and before contact with another patient, object, or environmental surface; and between contacts with a contaminated body site and the respiratory tract of, or respiratory device on, the same patient
- When soiling with respiratory secretions from a patient is anticipated, wear a gown and change it after soiling occurs and before providing care to another patient

II. **Take Barrier Precautions**

During aerosol-generating procedures wear one of the following: a face shield that fully covers the front and sides of the face, a mask with attached shield, or a mask and goggles, respirators such as N 95 mask.

III. Keep sterile endotracheal tube and clean and disinfect laryngoscope.

IV. Unless contraindicated by the patient's condition, perform orotracheal rather than nasotracheal intubation on patients

V. During Laryngoscopy and endo-tracheal intubation care should be taken to ensure that the sterile tube does not touch external surfaces.

VI. In case stylet is required, all care should be taken not to contaminate the sterile tube while inserting the sty let and tip of the sty let should not project beyond the Endo-tracheal tube tip.

VII. The tube should be secured properly.

VIII. The Endo-tracheal tube should be connected with sterile accessories and breathing circuit.

Precautions in Situ:

- Aseptic technique should be adhered to during suctioning.
- Use single use sterile suction catheters separately for oral endo-tracheal suction.
- While disconnecting the endo-tracheal tube from circuit, keep the open end of angle connection on a sterile pad. Do not keep over the patient's chest or bed.
- Change angle connection and corrugated tubing when visibly soiled.
- Change the breathing circuit when visibly soiled or mechanically malfunctioning.
- Distilled water should be used for humidifier chamber
- Wash hands each time before and after suction and physiotherapy.

Precautions during and after extubation:

As soon as the clinical indications for their use are resolved, remove devices such as endotracheal,tracheostomy,and/or enteral (i.e.,oro- or nasogastric or jejunal) tubes from patients

- Extubate when all criteria fulfilled.
- Protective attire and standard precautions should be strictly followed.
- Separate suction catheter for oral and endo-tracheal suction should be used.
- Before deflating the cuff of an endotracheal tube in preparation for tube removal, or before moving the tube, ensure that secretions are cleared from above the tube cuff. After a thorough suction and oxygenation the cuff is deflated if present and tube is removed.
- Ask the patient to clear the throat and bring out the secretion at the lips and take them out if feasible, clean the mouth and apply oxygen mask.
- As much as possible, avoid repeat endotracheal intubation in patients who have received mechanically assisted ventilation

Infection and Microbiologic Surveillance

- Conduct surveillance for bacterial pneumonia in intensive care unit (ICU) patients who are at high risk for health-care--related bacterial pneumonia (e.g., patients with mechanically assisted ventilation or selected postoperative patients) to determine trends and help identify outbreaks and other potential infection-control problems
- In the absence of specific clinical, epidemiologic, or infection-control objectives, do not routinely perform surveillance cultures of patients or of equipment or devices used for respiratory therapy, pulmonary-function testing, or delivery of inhalation anesthesia

PREVENTION OF VAP

Preventive measures for VAP include decreasing aspiration by the patient, preventing cross-contamination or colonization via hands of personnel, the correct use and appropriate disinfection or sterilization of respiratory therapy devices and staff education.

Strategies to prevent VAP are:

1. Maintenance of in-use respiratory therapy equipment

- Fluids, nebulized or used in a humidifier should be sterile and dispensed aseptically.
- Fluid reservoirs should be filled immediately before use. Fluid should not be added to replenish partially filed reservoirs. Residual fluid should be discarded and the reservoir filled with fresh fluid.
- Water that has condensed in tubing should be discarded and not allowed to drain back into the reservoir.
- Disposable supplies such as nasal prongs, tubing, masks, ventilator and breathing circuits are for single patient use only.
- Change the humidifier-tubing (including any nasal prongs or mask) that is in use on one patient when it malfunctions or becomes visibly contaminated
- When a respiratory therapy machine is used to treat multiple patients, the breathing circuit must be changed between patients.
- Do not routinely sterilize or disinfect the internal machinery of mechanical ventilators
- Maintain ventilator circuits

o Change the ventilator circuit only if visibly soiled or malfunctioning.

o Changing the ventilator circuit as needed rather than on a fixed schedule has no impact on VAP rates or patient outcomes but decreases costs.Do not change routinely, on the basis of duration of use, the breathing circuit (i.e., ventilator tubing and exhalation valve and the attached humidifier) that is in use on an individual patient. Change the circuit when it is visibly soiled or mechanically malfunctioning

o Breathing-circuit--tubing condensate
  - Periodically drain and discard any condensate that collects in the tubing of a mechanical ventilator, taking precautions not to allow condensate to drain toward the patient
  - Wear gloves to perform the previous procedure and/or when handling the fluid

- Decontaminate hands with soap and water (if hands are visibly soiled) or with an alcohol-based hand rub after performing the procedure or handling the fluid

o Ventilator breathing circuits with HMEs

- Change an HME that is in use on a patient when it malfunctions mechanically or becomes visibly soiled
- Do not routinely change more frequently than every 48 hours an HME that is in use on a patient
- Do not change routinely (in the absence of gross contamination or malfunction) the breathing circuit attached to an HME while it is in use on a patient

o Anesthesia machines and breathing systems or patient circuits

- Between uses on different patients, clean reusable components of the breathing system or patient circuit (e.g., tracheal tube or face mask) inspiratory and expiratory breathing tubing, y-piece, reservoir bag, humidifier, and tubing, and then sterilize or subject them to high-level liquid chemical disinfection or pasteurization in accordance with the device manufacturers' instructions for their reprocessing

2. Processing reusable equipment.

- All equipment to be sterilized or disinfected should be thoroughly cleaned first to remove organic material such as blood, secretions or other residue/ soil.
- Respiratory therapy equipment that touches mucous membranes or is a non-disposable part of a breathing circuit should receive high-level dis infection or be sterilized.
- Hand-powered resuscitation bags that have been used for a patient should receive high-level disinfection or be sterilized (unless disposable).

3. Suctioning of the respiratory tract

- Perform tracheostomy under aseptic conditions
- When changing a tracheostomy tube, wear a gown, use aseptic technique, and replace the tube with one that has undergone sterilization or high-level disinfection
- Use only sterile fluid to remove secretions from the suction catheter if the catheter is to be used for re-entry into the patient's lower respiratory tract
- Frequent suctioning causes excessive trauma and risk of cross-contamination. Suctioning should be done only when needed to reduce excessive secretions.
- Suctioning should be performed using gloves on both hands and protective eyewear and mask.
- A sterile catheter should be used for each series of suctioning (defined as a single suctioning or repeated suctioning done with only brief periods intervening to clear or flush the catheter).
- Catheter should be flushed with sterile fluid in case flushing is required. Fluid that has been used for one series of suctioning should be discarded.
- Suction connecting tubing and suction canisters should be changed between patients, and daily for ongoing patients.

- Unless disposable, suction canisters should be thoroughly cleaned to remove organic material, then receive high-level disinfection or be sterilized.

Prevention of Postoperative Pneumonia

- Instruct preoperative patients, especially those at high risk for contracting pneumonia, about taking deep breaths and ambulating as soon as medically indicated in the postoperative period. Patients at high risk include those who will have abdominal aortic aneurysm repair, thoracic surgery, or emergency surgery; those who will receive general anesthesia; those who are aged >60 years; those with totally dependent functional status; those who have had a weight loss >10%; those using steroids for chronic conditions; those with recent history of alcohol use, history of COPD, or smoking during the preceding year; those with impaired sensorium, a history of cerebrovascular accident with residual neurologic deficit, or low (<8mg/dL) or high (>22 mg/dL) blood urea nitrogen level; and those who will have received >4 units of blood before surgery
- Encourage all postoperative patients to take deep breaths, move about the bed, and ambulate unless medically contraindicated
- Use incentive spirometry on postoperative patients at high risk for pneumonia

Criteria for preventing VAP

- **Avoid unnecessary invasive ventilation.**
- **Head should be elevated 30° -** In the absence of medical contraindication(s), elevate at an angle of 30--45 degrees of the head of the bed of a patient at high risk for aspiration (e.g., a person receiving mechanically assisted ventilation and/or who has an enteral tube in place) and routinely verify appropriate placement of the feeding tube
- **Prevention or modulation of oropharyngeal colonization-**Use an oral Chlorhexidine gluconate rinse
- **Sedation vacation**
- **Stress ulcer management.**
- **Maintain good asepsis and strict hand hygiene practices**
- **Chest physiotherapy**

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PREVENTION AND CONTROL OF HEALTH-CARE-ASSOCIATED INFLUENZA

Droplet Precautions

- Place a patient who is diagnosed with influenza in a private room or in a room with other patients with confirmed influenza, unless medical contraindications exist.
- Place a patient who is suspected to have influenza in a private room, and promptly perform rapid diagnostic laboratory tests to facilitate early downgrading of infection-control precautions to the minimum required for the patient's infection.
- Wear a surgical mask upon entering the patient's room or when working within 3 feet of the patient.
- Limit the movement and transport of the patient from the room to those for essential purposes only. If patient movement or transport is necessary, have the patient wear a surgical mask, if possible, to minimize droplet dispersal by the patient

Standard Precautions

- Decontaminate hands before and after giving care to or touching a patient or after touching a patient's respiratory secretions, whether or not gloves are worn. If hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or body fluids, wash them with either a non antimicrobial soap and water or an antimicrobial soap and water. If hands are not visibly soiled, use an alcohol-based hand rub for their decontamination.
- Wear gloves if hand contact with patient's respiratory secretions is expected.
- Wear a gown if soiling of clothes with patient's respiratory secretions is expected

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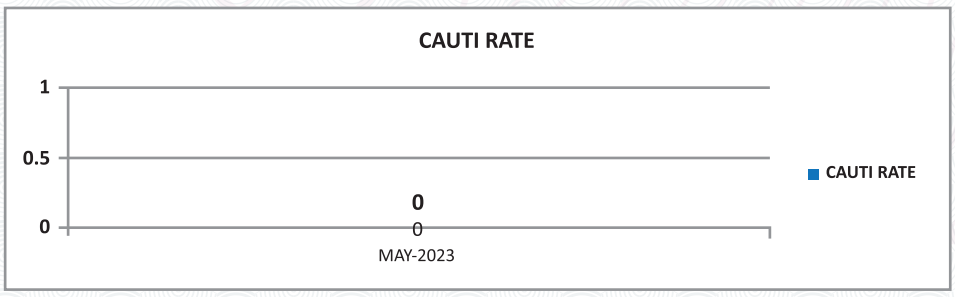

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