1. **Policy Statement:**
   1.1. This policy shows evidence based guidelines for prevention of healthcare-associated pneumonia through prevention of transmission of microorganisms by sterilization or disinfection and maintenance of equipment and devices and modifying host risk factors for infection.
   1.2. The policy also includes the ventilator care bundle to prevent ventilator-associated pneumonia.
   1.3. The policy guides how to prevent and control healthcare-associated Legionnaires Disease, Pertussis, pulmonary aspergillosis and healthcare-associated influenza.
   1.4. Performance Indicators are presented to assist infection control personnel in assessing personnel adherence to this policy.

2. **Related JCI Standard(s):**
   2.1. **Standard PCL.6** The organization uses a risk-based approach in establishing the focus of the health care–associated infection prevention and reduction program.
   2.2. **Standard IPSG.5** The organization develops an approach to reduce the risk of healthcare–associated infections.

3. **Sponsor(s):**
   3.1. CEO
   3.2. Medical Director
   3.3. ICUs Manager
   3.4. OPD Manager
   3.5. ER Manager
   3.6. Specialist physicians Manager
   3.7. DON

4. **Applicability / Target audience:**
   4.1. All patients who are exposed to risk of pneumonia, admitted to QQMD.
   4.2. Ventilated patients in ICU and the other healthcare settings of QQMD
   4.3. All clinical staff of QQMD including staff of ICU and other staff providing ventilator care

5. **Purpose(s):**
   5.1. To prevent Healthcare-Associated Pneumonia.

6. **Background:**
   6.1. N/A
7. Definition(s):

7.1. **Healthcare-Associated Pneumonia:** Specific definitions are based upon the CDC/NHSN criteria as clinically defined pneumonia, pneumonia with specific laboratory findings and pneumonia in immune-compromised patient. Healthcare-associated pneumonia can be characterized by its onset: early or late. Early onset pneumonia occurs during the first 4 days of hospitalization and is often caused by *Moraxella catarrhalis, H. influenzae,* and *S. pneumoniae.* Causative agents of late onset pneumonia are frequently gram-negative bacilli or *Staphylococcus aureus,* including methicillin-resistant *S. aureus.* Viruses (e.g., influenza A and B or respiratory syncytial virus) can cause early and late onset healthcare-associated pneumonia, whereas yeasts, fungi, legionellae, and *Pneumocystis carinii* are usually pathogens of late onset pneumonia.

7.2. **Ventilator-associated pneumonia (VAP)** is a healthcare-associated pneumonia in a patient on mechanical ventilatory support (by endotracheal tube or tracheostomy) for greater than or equal to 48 hours.

8. Procedure details:

8.1. **Mechanical ventilators:** Damp dust daily with detergent and dry with paper towels between patients.

8.1.1. **Ventilator internal machinery**

8.1.1.1. Do not routinely sterilize or disinfect the internal machinery of mechanical ventilators.

8.1.1.2. Disinfect internal parts in autoclave after, for example: pulmonary tuberculosis, resistant Gram-negative organisms in sputum or respiratory tracts, MRSA in the respiratory tract including nose swab, definitive fungal infection, *Pneumocystis carinii,* lobar and community-acquired pneumonia. Formalin Aseptor autoclave available in the QQMD could be used for this purpose.

8.1.1.3. Removable parts can be autoclaved.

8.1.2. **Ventilator breathing circuits with humidifiers**

8.1.2.1. **It is not recommended to 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.

8.1.2.2. However, the circuit is changed every 72 hours on an individual patient as a routine in ICU of QQMD.

8.1.3. **Ventilator Tubing:** Change in between patients. For long-term patients, tubing dated & changed every 72 hrs.

8.1.4. **Ventilator breathing circuit-tubing condensate**

8.1.4.1. Wear gloves & periodically drain and discard any condensate that collects in the tubing.
8.7. **Respirometer and ventilator thermometer** between their uses on different patients, sterilize or subject to high-level disinfection portable respirometers and ventilator thermometers

8.8. **Ambu bag & mask**

8.8.1. Send to the CSSD to clean with detergent, dry and sterilize in a type of autoclave according to manufacturer

8.8.2. Change mask after each patient

8.9. **Anesthesia equipment**

8.9.1. **Anesthesia machines & breathing systems or patient circuits**

8.9.1.1. Do not routinely sterilize or disinfect the internal machinery

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

8.9.1.3. Follow published guidelines or manufacturers' instructions about in-use maintenance, cleaning, and disinfection or sterilization of other components or attachments of the breathing system or patient circuit of anesthesia equipment

8.9.1.4. Anesthesia tube (patient's circuit): Single use. May be used throughout an operating list provided that appropriate filters are in place.

8.9.2. **Anaesthetic equipment in general**

8.9.2.1. Keep external surfaces clean by wiping with detergent

8.9.2.2. Wipe with 70% alcohol, allow a contact time of at least 30 seconds.

8.10. **Artificial Airways**

8.10.1. Single use

8.11. **Faucet aerators**

8.11.1. No recommendation can be made about the removal of faucet aerators from areas for immune-competent patients.

8.11.2. If *Legionella* spp. is detected in the water of a critical care unit and until *Legionella* spp. are no longer detected by culture, remove faucet aerators in the unit.

8.12. **Suction equipment**

8.12.1. **Reservoir; Suction bottles**: Empty and clean daily and in between patients: Washing in detergent and dried, or disinfected with 1% Clorox solution, rinsed and dried. Preferably send to CSSD after completion of patient use to be disinfected in washing machine and autoclaved.

8.12.2. **Patient Tubing (patients to reservoir)**: Changed daily and in between patients

8.12.3. **Tubing (wall to reservoir)**: Wiped daily with detergent. Date and change monthly

8.12.4. **Catheters plastic, pvc**: Single use.

8.12.5. **Disposable wall/mobile units**: Change when necessary, and between patients

8.12.6. **Suctioning of respiratory tract secretions**

8.12.6.1. Wear sterile gloves when performing endotracheal suctioning

8.12.6.2. If the open-system suction is employed, use a sterile, single-use catheter
or cardiovascular system, including asthma; adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, or hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or HIV); children and adolescents (aged 6 months -18 years) who are receiving long term aspirin therapy; and women who will be in the second or third trimester of pregnancy during the influenza season. In addition, offer annual influenza vaccination to all persons aged 50 - 64 years, close contacts of children aged <24 months, and healthy children aged 6 - 23 months.

8.36. **Vaccination of staff:** Beginning in October each year, provide inactivated influenza vaccine for all personnel including night and weekend staff. Throughout the influenza season, continue to make the vaccine available to newly hired personnel and to those who initially refuse vaccination. If vaccine supply is limited, give highest priority to staff caring for patients at greatest risk for severe complications from influenza infection, as mentioned in 6.35 mentioned above. Educate healthcare personnel about the benefits of vaccination and the potential health consequences of influenza illness for themselves and their patients. Take measures to provide all healthcare personnel convenient access to inactivated influenza vaccine at the work site, free of charge, as part of employee health program.

8.37. **Prevention of Person-to-Person Transmission:** apply the appropriate transmission-based precautions as mentioned in the Droplet Precautions Policy.

8.38. **Use of Antiviral Agents** when a hospital outbreak of influenza is suspected or recognized:

8.38.1. Administer amantadine, rimantadine, or oseltamivir as prophylaxis to all patients without influenza illness in the involved unit for whom the antiviral agent is not contraindicated (regardless of whether they received influenza vaccinations during the previous fall) for a minimum of 2 weeks or until approximately 1 week after the end of the outbreak. Do not delay administration of the antiviral agent(s) for prophylaxis unless the results of diagnostic tests to identify the infecting strain(s) can be obtained within 12-24 hours after specimen collection.

8.38.2. Administer amantadine, rimantadine, oseltamivir, or zanamivir to patients acutely ill with influenza within 48 hours of illness onset. Choose the agent appropriate for the type of influenza virus circulating in the community.

8.38.3. Offer antiviral agent(s) (amantadine, rimantadine, or oseltamivir) for prophylaxis to unvaccinated personnel for whom the antiviral agent is not contraindicated and who are in the involved unit or taking care of patients at high risk.

8.38.4. Consider prophylaxis for all healthcare personnel, regardless of their vaccination status, if the outbreak is caused by a variant of influenza that is not well matched by the vaccine.

8.38.5. No recommendation can be made about the prophylactic administration of zanamivir to patients or personnel.
8.38.6. Discontinue the administration of influenza antiviral agents to patients or personnel if laboratory tests confirm or strongly suggest that influenza is not the cause of the hospital outbreak.

8.38.7. If the cause of the outbreak is confirmed or believed to be influenza and vaccine has been administered only recently to susceptible patients and personnel, continue prophylaxis with an antiviral agent until 2 weeks after the vaccination.

8.38.8. To reduce the potential for transmission of drug-resistant virus, do not allow contact between persons at high risk for complications from influenza and patients or personnel who are taking an antiviral agent for treatment of confirmed or suspected influenza during and for 2 days after the latter discontinue treatment.

8.39. Other measures in acute care hospitals: When influenza outbreaks, especially those characterized by high attack rates and severe illness, occur in the community and/or hospital:

8.39.1. Curtail or eliminate elective medical and surgical admissions.

8.39.2. Restrict cardiovascular and pulmonary surgery to emergency cases only.

8.39.3. Restrict persons with influenza or influenza-like illness from visiting patients.

8.39.4. Restrict personnel with influenza or influenza-like illness from patient care.

8.40. Performance Indicators to assist infection control personnel in assessing personnel adherence to the policy, the following performance measures are suggested:

8.40.1. Monitor rates of VAP; can use established benchmarks and definitions of pneumonia (e.g., NNIS definitions and rates) and in the policy ICH-PR-62. Provide feedback to the staff about the hospital VAP rates and reminders about the need for personnel to adhere to infection control practices that reduce the incidence of VAP.

8.40.2. Establish a program for influenza vaccination and monitor the percentage of eligible patients who receive the vaccine.

8.40.3. Before and during the influenza season, monitor and record the number of eligible healthcare personnel who receive the influenza vaccine and determine the desired unit- and facility-specific vaccination rates.

8.40.4. During construction or renovation activities in the facility, monitor personnel adherence to infection-control measures (e.g., use of barriers, maintenance of negative room pressure) that are aimed at minimizing dust dispersion in patient care areas. Review all cases of healthcare-associated aspergillosis to determine the presence of remediable environmental risks.

9. Reference(s):


10. Cognizant office(s)/ Getting Help:
   10.1. xxxxxxx (IC Consultant)
         Telephone Ext.: 0000
         E-mail: xxxxxxx@QQMD.com
         Mobile #: 010000000

11. Related Form(s):
    11.1. Infection Notification Sheet. Code QQMD-MED/IC-FRM-000

12. Related Policy(is) and Procedure(s):
    12.1. Hand hygiene policy
    12.2. CDC/NHSN Surveillance Definition of Healthcare-associated Infection
    12.3. Infection Prevention and Control Surveillance

13. Attachment(s):
    13.1. N/A