

# Infection Prevention for Cystic Fibrosis (CF)

## Site Applicability

All PHC Acute Care Sites and Outpatient Departments

## Practice Level

*Basic: Physicians, NPs, Nursing, Clinical Nurse Leader, Clinical Site Coordinator, Bed Placement Coordinator*

## Standards

In addition to Routine Practices, [Contact Precautions](#) will be initiated for all patients with cystic fibrosis (CF) for the duration of their stay in hospital or during outpatient visits to reduce the risk to the patient of acquisition of hospital acquired organisms and to prevent transmission of respiratory pathogens between CF patients. Further Additional Precautions (e.g., Droplet or Airborne) may also be indicated if the patient has an active infection while admitted per specific disease guidelines.

Contact Precautions are ordered automatically in Cerner PowerChart for inpatients and during ambulatory visits for patients who have a documented problem history of Cystic Fibrosis (IMO code 78990)\*.

\*For CF patient transfers from hospitals who do not use Cerner, manually order Contact Precautions in PowerChart.

Admitted patients with CF who are known to carry *Burkholderia cepacia* complex (*B. cepacia*) or another organism of special importance for CF will have a "Disease Alert" appear in the banner bar of the patient's Cerner chart that will indicate that the patient is positive for *B. cepacia*.

## Description of the Disease

Cystic fibrosis (CF) is a genetic disorder characterized by chronic obstructive pulmonary disease and pancreatic exocrine insufficiency. Although multiple organ systems may be involved, chronic lung infections often dominate the clinical picture.

Patient-to-patient transmission of bacteria, which are often multidrug resistant, can occur in healthcare settings and in the community. For this reason, it is recommended that people with CF are separated from one another in all healthcare settings and Contact Precautions should be implemented for all people with CF.

## Assessment and Intervention

### Infection Control Precautions in Acute Care

- **Additional Precautions:** In addition to Routine Practices, [Contact Precautions](#) will be implemented for all patients with CF. Further Additional Precautions (e.g., Droplet or Airborne) may also be indicated if the patient has an active infection while admitted per specific disease guidelines.

The most responsible nurse will ensure the appropriate Additional Precautions are ordered in Cerner and post the appropriate sign(s) on the door.

- **Hand Hygiene:** Adherence to hand hygiene practices by healthcare workers (HCWs), patients, and families is the most important practice to prevent the transmission of infectious agents.

Educate patients and visitors on the importance of good hand hygiene. Ask patients and visitors to perform hand hygiene on entering the outpatient clinic and inpatient ward, as well as on departure from the clinic and ward.

Hands should be cleaned before and after every patient contact, as well as after touching items in the environment. Using an alcohol based hand rub solution is preferred if hands are not visibly soiled, otherwise wash with soap and water.

- **Patient Placement:** Patients with CF should be admitted to single/private rooms and should not be placed in shared rooms or cohorted with any other CF patient.

Avoid CF patients having direct contact with other CF patients in the hospital (keep at least 2 meters apart). Allow CF patients to use shared hospital activity rooms (e.g., exercise room, kitchen) only when no other CF patient is present, and at least 60 minutes should elapse between CF patients using shared hospital activity rooms.

All respiratory interventions (i.e., aerosol therapy, airway clearance, spirometry, and sputum collection) should be performed inside the patient's room whenever possible.

- **Equipment:** Clean and disinfect shared, non-critical equipment routinely and between different patients.

Use sterile water (not tap water) to rinse respiratory equipment, wipe with alcohol swabs, and air dry equipment completely.

#### Care of Nebulizers:

- Nebulizers should be single patient use
- CF Foundation Guidelines recommend that:
  - Disposable nebulizers be rinsed with sterile water and wiped with an alcohol wipe between each use and discarded every 24 hours. At PHC, we have reviewed practices with the physiotherapy group at the CF clinic. This specific recommendation will not be applied because it was based on consensus opinion and there is no data to support this claim.
  - Reusable nebulizers (e.g. patient's own from home) be cleaned, disinfected between each use (according to manufactures' recommendations with either heat or chemical methods), rinsed with sterile water, and air dried between each use.

- See [Appendix A](#) for the Patient Brochure on Cleaning/Disinfection of Patient Nebulizers developed by the CF Clinic.
- **Environment:** All high-touch surfaces in the patient's room must be cleaned and disinfected at least daily. Following discharge of the patient, the room should have a terminal clean carried out prior to the next patient being admitted.
- **Visitors:** Education should be provided regarding hand hygiene and on proper donning/doffing technique for PPE.
- **Patient Transport:** When the patient is required to leave the room for diagnostic or rehabilitative purposes:
  - Notify receiving department prior to transport of the precautions in place.
  - Encourage and/or assist patient to clean their hands.
  - Patient should wear a medical/procedure mask during transport.

### Outpatient Settings Considerations

- Schedule clinics by cohorting all patients with similar multidrug resistant organisms (e.g., MRSA) for appointments on a designated day, or for appointments at the end of the day, based on the number of patients and the estimated risk of transmission.
- Instruct patients and visitors to perform hand hygiene on arrival and when leaving the clinic.
- Place patients immediately into examination rooms on arrival to the clinic whenever possible; if this is not possible, maintain a minimum separation of 2 metres in the waiting area.
- Observe Contact Precautions for all CF patients.
- Ask patients to cough into a tissue and discard tissue into a covered, no-touch receptacle.
- For all patients, completely cover examination table with a sheet.
- Change examination table covers between patients.
- Discourage patient touching of shared, common items in the clinic (e.g., computers, telephones).
- Ensure housekeeping surfaces (e.g., floor, countertops) are cleaned on a daily basis, or when spills occur or when visibly soiled.
- Promptly clean and disinfect horizontal surfaces after room is vacated. Exam rooms should be cleaned and disinfected promptly between each patient.

### Pulmonary Function Testing

- Refer to [Pulmonary Diagnostics: Cystic Fibrosis Clinic procedure](#).
- PFTs should be performed in a laboratory with HEPA filtration or if the PFT laboratory does not have HEPA filtration, 30 minutes should be allowed to elapse before the next patient with CF enters the PFT laboratory.

## Organism-Specific Precautions

- ***B. cepacia* Complex:**
  - Segregate patients who are colonized/infected with *B. cepacia* complex from other CF patients
  - Schedule separate *B. cepacia* complex clinics if warranted by patient numbers
- **Multi-Drug Resistant *P. aeruginosa*:**
  - If possible, consider segregating patients who are colonized/infected with multiple drug resistant *P. aeruginosa* (resistant to two or more first line anti-pseudomonal drugs excluding ciprofloxacin) from other CF patients
- **MRSA:**
  - Segregate CF patients who are colonized/infected with MRSA from other CF patients
  - In addition to Contact Precautions, Droplet Precautions will be initiated for all patients actively coughing who are confirmed positive or are known to be positive for MRSA in the sputum.
  - Screen patients requiring hospital admission if not previously alerted for MRSA.
- **VRE:**
  - Screen patients requiring hospital admission if not previously alerted for VRE.
- **Acid-Fast Bacilli:**
  - Place patients under Airborne Precautions if *M. tuberculosis* disease is on the differential diagnosis while work-up is performed (i.e. AFB sputum smears and cultures)
  - Segregate patients who are colonized with *M. abscessus* from other CF patients
- **Emerging Pathogens (e.g., *S. maltophilia*, *A. xylosoxidans*, *P. apista*):**
  - Make decisions for implementing Droplet Precautions on a case-by-case basis following an estimation of risk for transmission and consultation with IPAC
  - With the spread of Carbapenemase Producing Organisms (CPOs) these may become an emerging infectious concern in CF patients. In addition to Contact Precautions, Droplet Precautions will be initiated for all patients who are confirmed positive or known to be positive for CPO in the sputum. Refer to the CPO Standard for screening and management of colonized or infected patients.

## Related Documents

- [B-00-07-13029](#) - Contact Precautions - Infection Control
- [B-00-12-12124](#) - Pulmonary Diagnostics: Cystic Fibrosis Clinic (Respiratory Therapy)

## References

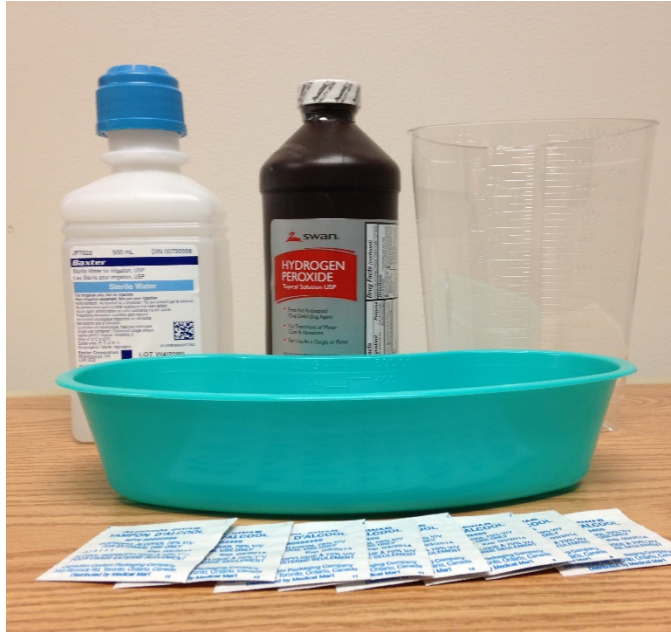
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## Appendix A: Patient Brochure on Cleaning/Disinfection of Patient Nebulizers

### Cold Disinfection 101: Cleaning your nebulizers and airway clearance devices in the hospital

This procedure must be performed DAILY for your health and safety

#### You will need:



- Sterile water
- Hydrogen peroxide
- Graduated beaker
- Kidney basin
- Alcohol swabs



**What gets cleaned:**

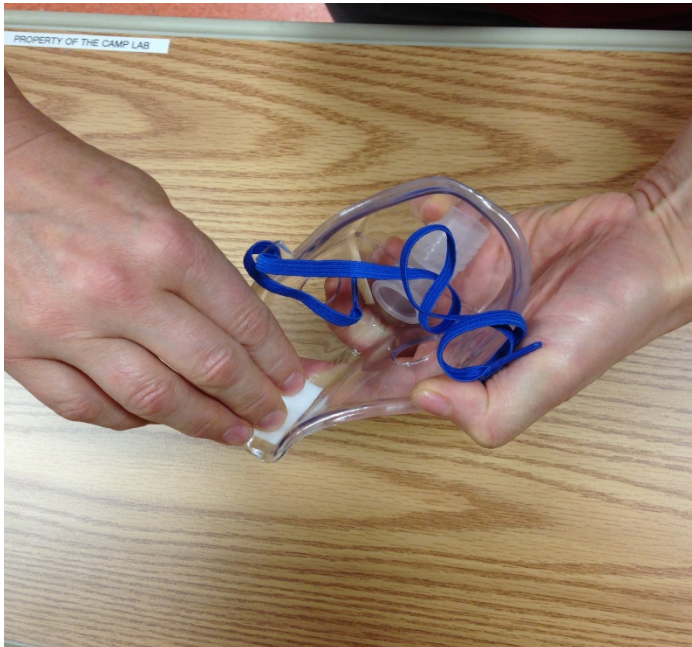


Nebulizers (hospital ones or your own from home)

Airway clearance devices (PEPs, Flutters etc)

If the device is visibly soiled, wash it in warm soapy water before disinfecting!

**Cleaning the mask:**



Use alcohol swabs to wipe the mask inside and out

**Disinfecting the nebulizer or airway clearance device:**



Take the device apart, place in beaker and pour hydrogen peroxide over it to cover (device may float).

SOAK IN PEROXIDE FOR 30 MINUTES

**Finishing the disinfection process:**



Rinse parts with sterile water.

Discard cleaning solution in sink, do not re-use!



**Set aside to dry (preferably not in the bathroom) in kidney basin:**



**Don't forget to wash these items in soapy water, wipe masks with alcohol swab, rinse in sterile water and air dry after each use, too!**

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