	The Johns Hopkins Hospital <b>Interdisciplinary Clinical Practice Manual</b> <b>Infection Control</b>	<i>Policy Number</i>	IFC036
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**Keywords:** Cystic fibrosis, infection control, Burkholderia cepacia, multiple drug resistant organisms, Pseudomonas aeruginosa

Table of Contents	Page Number
<b>I. <a href="#">OBJECTIVES</a></b>	<b>1</b>
<b>II. <a href="#">INDICATIONS FOR USE</a></b>	<b>1</b>
<b>III. <a href="#">DEFINITIONS</a></b>	<b>1</b>
<b>IV. <a href="#">RESPONSIBILITY</a></b>	<b>1</b>
<b>V. <a href="#">PROCEDURE</a></b>	<b>2</b>
<b>VI. <a href="#">REPORTABLE CONDITIONS</a></b>	<b>6</b>
<b>VII. <a href="#">EDUCATION AND COMMUNICATION</a></b>	<b>6</b>
<b>VIII. <a href="#">SUPPORTIVE INFORMATION</a></b>	<b>6</b>
<b><a href="#">Appendix A: Physician Information Sheet: Cystic Fibrosis Patients, Infection Control Guidelines</a></b>	<b><a href="#">Click Here</a></b>

## **I. OBJECTIVES**

This policy is intended to minimize the spread of pathogens to and from patients with cystic fibrosis (CF). These patients are often colonized or infected with antibiotic resistant organisms (e.g. Pseudomonas aeruginosa and Burkholderia cepacia) that may be spread from patient to patient by direct contact with contaminated hands or, less frequently, by contact with contaminated fomites or aerosolized medications/solutions. Infection with these organisms can lead to increased morbidity and mortality.

## **II. INDICATIONS FOR USE**


Cystic fibrosis patients in the hospital.

## **III. DEFINITIONS**

Semi-critical items	Items that contact mucous membranes or non-intact skin (e.g., respiratory therapy equipment, bronchoscopes and endoscopes).
Non-critical items	Items that come in contact with intact skin (e.g., commode chairs, blood pressure cuffs and shared play equipment).

## **IV. RESPONSIBILITY**

- A. JHMI/JHH/JHU physicians, nurses, and other healthcare workers will comply with the policy, including:
1. Isolation and bed placement requirements
  2. Use and cleaning of patient equipment and environment
  3. Performance of airway cleaning activities

	The Johns Hopkins Hospital <b>Interdisciplinary Clinical Practice Manual</b> <b>Infection Control</b>	<i>Policy Number</i>	IFC036	
		<i>Effective Date</i>	11/22/2011	
		<i>Approval Date</i>	10/25/2011	
	<i>Subject</i>	<b>Cystic Fibrosis Patients, Infection Control Guidelines</b>	<i>Page</i>	2of 7
			<i>Supercedes</i>	11/01/2008

4. recommendations for patient vaccination.
- B. Supervisors/department managers will communicate policy contents to personnel; ensure personnel competency and compliance with the policy.
- C. Epidemiology and Infection Control Department of Hospital Infection Control (HEIC) will provide education, carry out surveillance for organisms of interest, act as resource for questions, evaluate and discontinue isolation precautions when appropriate.
- D. Clinical Scheduling Staff will schedule cystic fibrosis patients so that their time in a common waiting area is minimized.


## V. PROCEDURE

### B. ISOLATION PRECAUTIONS


1. At a minimum, standard precautions shall be followed for all CF patients.
2. CF patients are often colonized or infected with multi-drug resistant organisms ((MDROs) (e.g., *P. aeruginosa*, MRSA, or *B. cepacia*) that require contact isolation. Organism-specific precautions outlined in [IFC023 Isolation Precautions Policy](#) shall be followed when applicable. CF patients with a known history of infection or colonization with *B. cepacia* will have an IC08 code on their addressograph card.
  - a. Patients will be considered cleared from *B. cepacia* if it has been at least 2 years since the last *B. cepacia* positive, if 2 lower airway specimens (e.g., BAL, expectorated sputum, induced sputum) do not grow *B. cepacia* and the patient was not on effective IV antimicrobial therapy in the week prior to each culture. Patient post lung transplant shall be subject to these same criteria. HEIC shall be consulted before discontinuing the IC08 code.
  - b. Patients who have respiratory secretions that are positive for acid fast bacilli (AFB) require assessment by Hospital Epidemiology and Infection Control (HEIC) to determine the possibility of TB. The need for airborne precautions will be evaluated and communicated promptly by HEIC to the nursing unit.

### C. STERILIZATION/DISINFECTION AND CARE OF EQUIPMENT AND ENVIRONMENT


1. Semi-critical equipment and devices require specific cleaning and disinfection as outlined in the [IFC014 Cleaning and Disinfection Policy](#).
  - a. Nebulizers and humidifiers shall be disposed of after each treatment.
  - b. Bronchoscopes and other non-disposable semi-critical equipment shall be cleaned and disinfected as per the [IFC014 Cleaning and Disinfection Policy](#).
2. Non-critical patient care equipment
  - a. Dedicate non-critical care equipment to patients on Isolation Precautions.
  - b. Disinfect equipment with appropriate cleaning products (see [IFC-014 Cleaning and Disinfection Policy](#)) before use by another patient.
3. Environmental surfaces
  - a. Disinfect environmental surfaces with appropriate cleaning products (see [IFC-014 Cleaning and Disinfection Policy](#)) when they become contaminated with respiratory tract secretions (e.g., during pulmonary function testing, body plethysmography, airway clearance, etc.).

	The Johns Hopkins Hospital <b>Interdisciplinary Clinical Practice Manual</b> <b>Infection Control</b>	<i>Policy Number</i>	IFC036	
		<i>Effective Date</i>	11/22/2011	
		<i>Approval Date</i>	10/25/2011	
	<i>Subject</i>	<b>Cystic Fibrosis Patients, Infection Control Guidelines</b>	<i>Page</i>	3of 7
			<i>Supercedes</i>	11/01/2008


- b. Clean all inpatient rooms as specified in the Cleaning and Disinfection policy (IFC-014). If the patient is on isolation precautions follow the cleaning guidelines outlined in the [IFC 023 Isolation Precautions \(Inpatient\) Policy](#).
  - c. In outpatient areas, clean all horizontal surfaces, (e.g., tabletops, counters, etc.), chairs and sinks in exam rooms between patients and clean the exam room floors and the waiting rooms every evening.
- D. MICROBIOLOGY, MOLECULAR TYPING AND SURVEILLANCE: Perform culture and sensitivity testing of specimens from CF patients in the Microbiology Laboratory using the established, special cystic fibrosis microbiology protocol.
- E. INPATIENT SETTINGS
1. Bed Placement
    - a. Place all CF patients who are colonized or infected with MRSA, multi-drug resistant *P. aeruginosa* or other MDROs in a private room that does not share common facilities (e.g. bathroom or shower) with other patients.
    - b. Place any patient colonized or infected with *B. cepacia* complex in a private room on a separate nursing unit from any CF patient, including those who have *B. cepacia* complex. The private room shall not share common facilities (e.g., bathroom or shower) with other patients.
    - c. When a CF patient and a patient with *B. cepacia* complex require intensive care, both patients shall remain on the ICU best suited to manage their care, but they shall be geographically separated.  
In addition, these patients shall be cared for by different medical teams (excluding physician consult teams), and staff providing direct patient care (e.g., nurses, clinical technicians, clinical associates, respiratory therapists, occupational/physical therapists, and cleaning staff [EVS and SAs]). Exceptions may be granted only after consultation with HEIC.
    - d. When possible, place CF patients who are not colonized or infected with *B. cepacia* complex, multi-drug resistant *P. aeruginosa*, MRSA, or other MDROs in a private room. If not possible, place the CF patient in a room with a patient who does not have CF, who is not infected or colonized with *P. aeruginosa* and who is at low risk for infection.
    - e. Exception: CF patients who in the same household may share a hospital room.
    - f. Place all CF patients who are lung transplant recipients in a private room. Positive pressure and HEPA filtration are not required.
  2. Assure that proper dust containment and water leak policies are followed in areas where CF patients are hospitalized, especially those patients who have received lung or heart-lung transplants.
  3. Participation in activities outside the patient room
    - a. CF patients on isolation precautions: follow the Isolation Precautions policy.
    - b. CF patients not on isolation precautions: evaluate on a case by case basis, considering capability of a patient for containing his/her respiratory tract secretions, age, ability to use proper hygiene, endemic levels of pathogens at JHH, and the patient's ability to adhere to the following practices:
      - i. Performing proper hand hygiene immediately prior to leaving the room.
      - ii. Avoiding direct contact with other CF patients in the hospital unless they are co-habitants, (e.g., live in the same household).

	The Johns Hopkins Hospital <b>Interdisciplinary Clinical Practice Manual</b> <b>Infection Control</b>	<i>Policy Number</i>	IFC036	
		<i>Effective Date</i>	11/22/2011	
		<i>Approval Date</i>	10/25/2011	
	<i>Subject</i>	<b>Cystic Fibrosis Patients, Infection Control Guidelines</b>	<i>Page</i>	4 of 7
			<i>Supercedes</i>	11/01/2008

- iii. Using the hospital activity rooms (e.g., playroom, exercise room, schoolroom) only when no other CF patient is present.
  - c. CF patients need not routinely wear masks when leaving their rooms.
- 4. Airway clearance activities
  - a. Assume all CF patients have transmissible pathogens in respiratory secretions, even if not yet identified by culture or culture results are unknown.
  - b. Perform all respiratory interventions, including aerosol therapy, airway clearance and sputum collection, in the patient's room.
  - c. Observe standard precautions (hand hygiene, gloves, gown, mask, eye protection) when performing cough-inducing procedures, chest physiotherapy, suctioning or when examining a patient with current paroxysmal coughing.
  - d. Dedicate airway clearance devices (e.g., flutter, acapella, pep device, therapy vest) to a single patient during inpatient hospitalization. After discharge, devices shall be disposed of or disinfected in accordance with the [IFC 014 Cleaning and Disinfection Policy](#).
  - e. In addition to manual chest physiotherapy carried out by hospital staff, encourage patients to use their own home airway clearance devices
- F. AMBULATORY SETTINGS
  - 1. Clinic logistics
    - a. Be aware of each patient's most recent respiratory secretion culture and antimicrobial susceptibility results.
    - b. Alert other diagnostic areas (e.g. radiology, pulmonary function lab) of patient's isolation precautions, if applicable.
    - c. Schedule and manage patients to minimize time in common waiting area. Strategies include a staggered clinic schedule, placement of patients in an exam room immediately upon arrival to the clinic, and keeping the patient in one exam room while the CF team rotates through the room.
  - 2. Waiting area behaviors
    - a. Health Care Team will instruct patients and family members to:
      - i. Practice proper hand hygiene upon arrival in clinic and when leaving clinic.
      - ii. Cough into a tissue and immediately discard tissue into a covered, no-touch receptacle or toilet.
      - iii. Refrain from handshakes and physical contact between CF patients to prevent direct and indirect contact with secretions.
      - iv. Maintain a minimal distance of 6 feet between patients in the waiting area to prevent droplet spread respiratory pathogens.
      - v. Avoid using common items (e.g. the clinic's computer that are not cleaned between patients).
    - b. Clean toys between patients (e.g. after use by each patient).
    - c. Patients need not routinely wear masks while in the waiting room in a CF clinic.
    - d. Assure ready availability of multi-use, waterless hand sanitizer in clinic areas for patients and families.
  - 3. Organism specific circumstances
    - a. *B. cepacia* complex colonization or infection
      - i. Segregate from other CF patients, including those CF patients infected with *B. cepacia* complex to prevent replacement of one strain with another potentially more virulent strain.

	The Johns Hopkins Hospital <b>Interdisciplinary Clinical Practice Manual</b> <b>Infection Control</b>	<i>Policy Number</i>	IFC036
		<i>Effective Date</i>	11/22/2011
		<i>Approval Date</i>	10/25/2011
	<i>Subject</i>	<i>Page</i>	5 of 7
	<b>Cystic Fibrosis Patients, Infection Control Guidelines</b>	<i>Supercedes</i>	11/01/2008

- ii. Schedule at the end of the clinic session or on a separate day.
      - iii. Place in exam room immediately.
    - b. Colonization or infection with multi-drug resistant *P. aeruginosa* or other MDROs: Make every effort to place patients in exam room immediately.
  4. Adjunctive measures to prevent respiratory infections
    - a. Administer pneumococcal vaccine according to American Academy of Pediatrics recommendations.
    - b. Administer annual influenza immunization according to American Academy of Pediatrics recommendations.
    - c. Routine administration of palivizumab to CF patients to prevent RSV infections is not recommended.
- G. MANAGING THE PSYCHOSOCIAL IMPACT OF INFECTION CONTROL GUIDELINES
1. Ensure that a clinical social worker is available to address the psychosocial impact of the patient's microbiologic status and the infection control guidelines.
  2. Inform and educate the patient, their identified parent/guardian, and, if consent is given, other family members and others (may include teachers, colleagues, employers, and friends) about the patient's microbiologic status and the psychosocial implications of following the infection control guidelines necessitated by their microbiologic status.
  3. Collaborate with the Child Life Specialist to develop individualized programs that address the psychosocial impact of the microbiologic status and infection control guidelines.
  4. Utilize multi-media educational tools (print, audio, video) specific to infection control education for patients, families and the general public that are age-specific, reading level appropriate and culturally relevant.
  5. Ensure that the patient is able to maintain communication with family and those outside of the hospital setting via phone, videophones, or other methods that will not jeopardize the risk of transmission or acquisition of pathogens.
- H. HEALTHCARE WORKERS WHO HAVE CF
1. The HCW shall be knowledgeable about the modes of transmission of infectious agents and the importance of observing standard precautions at all times for the protection of both the HCW and the patients.
  2. The HCW shall avoid direct or indirect contact with patients who have CF or those at increased risk of acquiring *B. cepacia* complex (e.g. chronic granulomatous disease).
  3. When it is known that a HCW with CF is infected/colonized with *B. cepacia* complex, the HCW should be segregated from patients with CF.
  4. When it is known that a HCW with CF is infected/colonized with MRSA or other MDROs, work assignments shall be made according to recommendations from Occupational Health and Hospital Epidemiology and Infection Control.
  5. Decisions regarding work assignments for the care of patients who do not have CF shall be made on a case by case basis considering the following HCW factors:
    - a. Frequency and severity of coughing episodes, quantity of sputum production during these episodes, ability to contain respiratory tract secretions, and compliance with hand hygiene.
    - b. Known colonization/infection with epidemiologically important pathogens.
  6. HCW's with CF should seek advice concerning patient care assignments from their CF physician and occupational health service if health status changes.

	The Johns Hopkins Hospital <b>Interdisciplinary Clinical Practice Manual</b> <b>Infection Control</b>	<i>Policy Number</i>	IFC036	
		<i>Effective Date</i>	11/22/2011	
		<i>Approval Date</i>	10/25/2011	
	<i>Subject</i>	<b>Cystic Fibrosis Patients, Infection Control Guidelines</b>	<i>Page</i>	6 of 7
			<i>Supersedes</i>	11/01/2008

## **VI. REPORTABLE CONDITIONS**

In accordance with Maryland law, the physician responsible for the patient must report “Reportable Diseases and Conditions” to the Baltimore City Health Department. Some diseases require notification by mail, others by phone. (See [IFC003 Reportable Diseases and Conditions policy](#)).

## **VII. EDUCATION AND COMMUNICATION**

1. Physicians shall discuss with cystic fibrosis patients and families in clinic and at the annual family education day.
2. Nurse educators to review with staff involved in care of Cystic Fibrosis patients.
3. Admitting Physicians.
4. This policy will be placed in the Interdisciplinary Clinical Practice Manual on the JHH Intranet site <http://www.insidehopkinsmedicine.org/hpo> . Paper distributions will be made to the Functional Unit Nursing offices in the event of web access difficulty.
5. Placement of policy on-line at [www.hopkinsmedicine.org/heic](http://www.hopkinsmedicine.org/heic).

## **VIII. SUPPORTIVE INFORMATION**

### **See Also:**

The Johns Hopkins Hospital, Interdisciplinary Clinical Practice Manual

- [IFC001 Hand Hygiene](#)
- [IFC003 Reportable Diseases and Conditions](#)
- [IFC014 Cleaning and Disinfection](#)
- [PAS 015 Patient Care Equipment](#)
- [IFC022 Respiratory Viruses, Prevention and Control](#)
- [IFC023 Standard and Isolation Precautions](#)
- [IFC024 Respiratory Equipment](#)

### **References:**


1. Cystic Fibrosis Foundation. (2003). Infection Control Recommendations for Patients with Cystic Fibrosis: Microbiology Important Pathogens, and Infection Control Practices to Prevent Patient-to-Patient Transmission. Infection Control and Hospital Epidemiology, Vol. 24, No. 5, Supplement.

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	The Johns Hopkins Hospital <b>Interdisciplinary Clinical Practice Manual          Infection Control</b>	<i>Policy Number</i>	IFC036	
		<i>Effective Date</i>	11/22/2011	
		<i>Approval Date</i>	10/25/2011	
	<i>Subject</i>	<b>Cystic Fibrosis Patients, Infection Control Guidelines</b>	<i>Page</i>	7 of 7
			<i>Supercedes</i>	11/01/2008

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