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KEY WORDS: Cystic Fibrosis, infection control, *Burkholderia cepacia*, multiple drug resistant organisms, *Pseudomonas aeruginosa*

PATIENT CARE OBJECTIVES

Patients who are diagnosed with cystic fibrosis (CF) are often colonized or infected with organisms that are resistant to many antimicrobials, which can lead to, increased morbidity and mortality. Examples include gram-negative organisms such as *Stenotrophomonas maltophilia* and *Burkholderia cepacia*. These organisms 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.

The following JHH policies must be closely followed to prevent spread of infections:

- IFC-001 Hand Hygiene and Skin Antisepsis
- IFC-009 VRE
- IFC-014 Cleaning and Disinfection
- IFC-015 Standard Precautions
- IFC-018 VISA/VRSA
- IFC-022 RSV
- IFC-023 Isolation Precautions
- IFC-024 Respiratory Equipment
- IFC-028 Toy Cleaning

In addition to the above policies, **the following guidelines have been developed to decrease the nosocomial spread of these organisms among cystic fibrosis patients and to other patients in the hospital.**

RESPONSIBILITIES

- | | |
|--|--|
| JHMI/JHH/JHU physicians, nurses, and clinical support staff | Follow the requirements of the policy. |
| Supervisor/Department Manager | Communicate policy contents to personnel; ensure personnel competency and compliance with the policy. |
| Department of Hospital Epidemiology and Infection Control (HEIC) | Provide education, carry out surveillance for organisms of interest and act as a resource for questions. |
| Clinical Scheduling Staff | Schedule patients so that their time in the common waiting area is minimized. |

PROCEDURES:

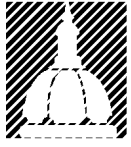
In addition to standard measures the following should occur when HCWs care for CF patients:

1. Hand Hygiene

Assure ready availability of waterless antiseptic in patient rooms, pulmonary function testing rooms, patient care and testing areas, and in areas accessible to patients and families.

2. Barrier Precautions/Isolation

Wear fluid resistant gowns when soiling with respiratory secretions from a patient is anticipated, e.g. during chest physiotherapy, suctioning or examining a patient known to have paroxysmal coughing.

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3. General Measures for Sterilization/Disinfection and Care of Equipment

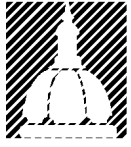
- Use sterile (not distilled or tap) water for rinsing reusable semi-critical equipment and devices (e.g. nebulizers and humidifiers) used on the respiratory tract after they have been chemically disinfected. Air-dry this equipment after rinsing.
- Dedicate non-critical patient care equipment to patients on Isolation Precautions and disinfect equipment before use by another patient.
- Disinfect environmental surfaces when they become contaminated with respiratory tract secretions, e.g. during pulmonary function testing, body plethsmography, airway clearance, etc.
- In outpatient areas clean all horizontal surfaces (e.g., floors, tabletops, etc.), sinks in exam rooms, and waiting rooms every evening.

4. 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

5. Inpatient Settings

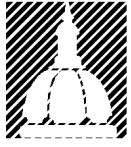
- Place all CF patients who are colonized or infected with MRSA, VRE, or *P. aeruginosa* with *multiple antimicrobial resistance* [resistance to two (2) or more antibiotic classes] in a private room that does not share common facilities (e.g. bathroom or shower) with other patients.
- Place all CF patients, who are colonized or infected with *B. cepacia* complex, in a private room on a separate nursing unit from any other CF patients including those who have *B. cepacia* complex. The private room shall not share common facilities (e.g. bathroom or shower) with other patients.
- Place CF patients **without** *B. cepacia* complex, *P. aeruginosa* with *multiple antimicrobial resistance*, MRSA or VRE in a private room whenever possible. If not possible, place the CF patient in a room with a patient who does not have CF and who is at low risk for infection.
- CF patients who sleep in the same room at home may share a hospital room.
- Place all CF patients who are lung or heart-lung transplant recipients in a private room. Positive pressure and HEPA filtration are not required.
- 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.
- The following should be considered when deciding whether or not a CF patient may be allowed to participate in activities outside of their assigned room:
 - Follow JHH isolation policy for CF patients on isolation precautions.
 - Evaluate patients not on isolation precautions 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 their ability to adhere to the following practices:
 - Perform proper hand hygiene immediately prior to leaving the room
 - Avoid direct contact with other CF patients in the hospital unless they are co-habitants, (e.g. sleep in the same room at home).
 - Use the hospital activity rooms (e.g., playroom, exercise room, schoolroom) only when no other CF patient is present.
 - Go to public places in the hospital (e.g., cafeteria, lobby) but avoid contact with other CF patients in such places.
- Patients need not routinely wear masks when leaving their rooms.
- When assisting with airway clearance activities:

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- Assume that ALL CF patients have transmissible pathogens in respiratory secretions even if not yet identified by culture or culture results are unknown.
- Perform all respiratory interventions, including aerosol therapy, airway clearance and sputum collection, in the patient's room.
- Observe standard precautions (hand hygiene, gloves, gown, mask, eye protection) when performing cough-inducing procedures.
- Dedicate airway clearance devices (e.g., flutter, acapella, pep device, therapy vest) to a single patient during inpatient hospitalization.
- In addition to manual chest physiotherapy carried out by hospital staff, encourage patients to use their own home airway clearance devices.
- Dispose of sputum/soiled tissues into covered no-touch receptacles whenever possible.

6. Ambulatory Settings

- Clinic logistics
 - The Health Care Team will:
 - Be aware of each patient's most recent respiratory secretion culture and antimicrobial susceptibility results.
 - Alert other diagnostic areas (e.g. radiology, pulmonary function lab) of patient's Isolation precautions, if applicable.
 - 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.
- Waiting area behaviors
 - Health Care Team will instruct patients and family members to:
 - Practice proper hand hygiene upon arrival in clinic and when leaving clinic.
 - Cough into a tissue and immediately discard tissue into a covered, no-touch receptacle or toilet.
 - Refrain from handshakes and physical contact between CF patients to prevent direct and indirect contact with secretions.
 - Maintain a minimal distance of 3 feet between patients in the waiting area to prevent droplet spread respiratory pathogens.
 - Avoid using common items, e.g. the clinic's computer and toys in the waiting room that cannot be cleaned between patients.
 - Clean toys between patients (e.g. after use by each patient).
 - Patients need not routinely wear masks while in the waiting room in a CF clinic.
 - Assure ready availability of multi-use, waterless antiseptic in clinic area for patients and families.
- Organism specific circumstances
 - Observe the following for patients colonized or infected with *B. cepacia* complex:
 - 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.
 - Schedule at the end of the clinic session or on a separate day.
 - Place in exam room immediately.
 - Make every effort to place patients with multi-drug resistant *P. aeruginosa* in exam room immediately.
- Adjunctive measures to prevent respiratory infections
 - Administer pneumococcal vaccines according to American Academy of Pediatrics recommendations.
 - Administer annual influenza immunization to decrease acquisition and transmission according to American Academy of Pediatrics recommendations.

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- Routine administration of palivizumab to CF patients to prevent RSV infections is not recommended.

7. Managing the Psychosocial Impact of Infection Control Guidelines

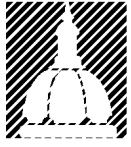
- The health care team will:
 - Ensure that a clinical social worker is available to address the psychosocial impact of the microbiologic status and the infection control guidelines.
 - Inform and educate the patient, their identified parent/guardian, family members and others (may include teachers, colleagues, employers, friends) about the patient's microbiologic status and the psychosocial implications of following the infection control guidelines necessitated by their microbiologic status.
 - Collaborate with the Child Life Specialist to develop individualized programs that address the psychosocial impact of the microbiologic status and infection control guidelines.
 - Utilize multi-media educational tools (print, audio, video) specific to infection control education for patients, families and the general public that are age-specific, read level appropriate and culturally relevant.
 - 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.

8. Healthcare Worker with CF

- Will 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 patient.
- 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).
- When it is known that a HCW with CF is infected/colonized with *B. cepacia complex*, the HCW should be segregated from other patients with CF.
- When it is known that a HCW with CF is infected/colonized with MRSA, work assignments should be made according to recommendations from Occupational Health and Hospital Infection Control and Epidemiology.
- Make assignments for the care of patients who do not have CF on a case by case basis, considering the following factors:
 - Frequency and severity of coughing episodes, quantity of sputum production during these episodes and ability to contain respiratory tract secretions.
 - Known colonization/infection with epidemiologically important pathogens.
- HCW's with CF should seek advice concerning patient care assignments from their CF physician and/or occupational health service if health status changes.

REFERENCE

Cystic Fibrosis Foundation. (2001). Infection Control Recommendations for Patients with Cystic Fibrosis: Microbiology Important Pathogens, and Infection Control Practices to Prevent Patient-to-Patient Transmission. *Consensus Conferences*, Vol. X, Section II, May 30-31.

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SPONSOR

- Medical Care Evaluation Committee

DEVELOPER

- Hospital Epidemiology and Infection Control Committee

COMMUNICATION & EDUCATION

1. Pediatricians will discuss with Cystic Fibrosis Family Group Meeting.
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/icpm>. 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.Hopkins-HEIC.org.

REVIEW CYCLE	▪ Three (3) years	MEDICAL BOARD	Approval Date: 5/27/03 Effective Date: 9/27/03
VICE PRESIDENT FOR MEDICAL AFFAIRS			

Date:			