

**UNIVERSITY OF CONNECTICUT HEALTH CENTER POLICY
FOR CONTROL OF HEALTH CARE WORKER EXPOSURE TO
AIRBORNE PATHOLOGICAL CONTAMINANTS
SUCH AS TUBERCULOSIS BACILLUS AND PANDEMIC FLU VIRUS**
(May, 2012)

EXECUTIVE SUMMARY

The Occupational Safety and Health Administration withdrew the TB standard on Occupational Exposure to Tuberculosis (29CFR1910.139) on December 31, 2003. As a result of this action, medical facilities wishing to issue respirators to staff for control of potential exposure to TB had to comply with the more stringent General Industry Respiratory Protection Standard (29 CFR 1910.134). Ramifications of this action were significant, including the addition of requirements for annual fit testing, training and medical clearances. Congressional action followed and on December 22, 2004, Congress passed the Consolidated Appropriations Act (FY 2005 Budget Bill) that forbid OSHA from utilizing any of its funding to enforce the annual fit testing requirement. On July 19, 2007, through subsequent Congressional action, the OSHA restriction on enforcement of the respirator standard for TB control was removed. OSHA will enforce the Respiratory Standard for exposure to any airborne hazard. Therefore, this policy was revised to ensure compliance with the OSHA respiratory standard and CDC recommendations for controlling exposure to Health Care Workers (HCW) from airborne pathogens. ***This policy does not apply to hazardous materials or terrorists incidents that would require a hazmat response.*** It has been determined that relying on the use of N-95 respirators, with the corresponding annual fit testing requirement and medical clearance, is not an option to guarantee compliance at the UCHC. In order to supplement the existing respirator program the use of powered air purifying respirators (PAPR) is now part of the compliance program. ***The policy for respiratory isolation has been changed from requiring an N-95 respirator to **REQUIRING RESPIRATORY PROTECTION** prior to entering a respiratory isolation area.*** A HCW requiring access to a respiratory isolation room now has two options for entering 1) if current with the annual fit testing requirement entry may be made using an N-95 respirator, or 2) if an individual is not current with the refitting requirement, or has not been fit at all, a positive pressure, Powered Air Purifying Respirator (PAPR) is required to enter. Any individual entering a respiratory isolation area without the use of approved respiratory protection will be considered to be in violation of Health Center Policy. This policy also includes outpatient clinics and, although rare, potential exposures in research related activities. The primary means for personnel to access this policy is via the [ORS](#) website. Other relevant documents are also linked to this policy.

The risk of exposure of Health Center staff to TB is low based on the Centers for Disease Control guidelines dated 2005 and data obtained by those writing this policy. Target groups within the UCHC Health System have been identified who could be exposed to a suspected TB (or other airborne pathogen) patient and would require respiratory protection. For a suspected TB patient, staff will be required to use a PAPR unit or be fit tested with approved negative pressure respirator, receive training, when required by the Employee Health Service to obtain a tuberculosis skin test (TST, formally known as PPD testing) testing and monitoring with follow up medical evaluation. The TB Exposure Control plan has been expanded to include outpatient clinics associated with the John Dempsey Hospital. Individuals in non-target areas may enter the program on a voluntary basis by contacting the Department of Epidemiology and/or the Office of Research Safety. Duties have been assigned to various UCHC functional areas for implementation of this policy. Primary responsibility for compliance rests with immediate supervisors, who are assigned the task of ensuring the safety of their staff. Staff is instructed not to enter a respiratory isolation area without appropriate respiratory protection. This plan will be reviewed and updated as needed by the Office of Research Safety, the Department of Epidemiology and the Infection Control Committee.

I. INTRODUCTION

The University of Connecticut Health Center continues to assign the highest priorities to occupational safety and health practices for staff while working in research and health care environments. The potential exposure and subsequent transmission of tuberculosis and other airborne pathogens is a recognized risk to health care workers, and to a much lesser extent, to staff working in a research setting. This policy has been developed by representatives of the University Employee Health Service, the John Dempsey Infection Control Committee, the Office of Research Safety and the John Dempsey Department of Epidemiology. The goal of this policy is to minimize the risk of the transmission of airborne pathogens from potentially infectious patients to others and to prevent infection of research staff potentially exposed while conducting research activities. This policy also includes measures to verify the effectiveness of the program. The program is risk based, and the Centers for Disease Control publication entitled "Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health-Care Settings, 2005" and the publication "Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings During an Influenza Pandemic" were used as reference in developing this policy. Certain components of the earlier CDC guidance published in 1994 were retained. Central to an effective policy is the early identification of potential risk sources. Such sources would be potentially infected patients entering the Hospital, an outpatient facility, or research protocols involving potential airborne pathogen exposures. The hospital staff have the main responsibility for recognizing high-risk potentially active TB patients at the John Dempsey Hospital. Nurses and Medical Assistants have the responsibility for recognizing potentially active TB patients visiting the outpatient clinics, and the Institutional Biological Safety Committee and/or the Animal Care Committee would determine potential research risk through protocol reviews. For control of TB transmission and other infectious agents in the Health Care areas, the University of Connecticut's "Infection Control Manual" is incorporated by reference. This policy will be printed in a hard copy version and is available in the ORS office or online at <http://ors.uch.edu> with reference to hard copies of the John Dempsey Hospital's Infection Control Manual and the [UChC's Written Respirator Program for the Selection and Use of Respirators](#). But it may best be accessed by computer. Use of the <http://ors.uch.edu> is preferred where sections of all policies are immediately available. The Infection Control Manual may be accessed at http://nursing.uchc.edu/infection_control/index.html.

The CDC recommends that a policy be developed that reflects the potential for exposure and then implementing appropriate procedures. In addition, the policy should be reviewed and revised as necessary to reflect changes in the risk as determined by a case surveillance program and local demographics.

II UNIVERSITY OF CONNECTICUT HEALTH CENTER JOHN DEMPSEY HOSPITAL RISK ASSESSMENT

The CDC has reported that the case rate of TB in the State of Connecticut from 1992 through 2003 has decreased from 4.8 cases/100,000 in 1992 to 3.0 cases/100,000 in 2002. This represents a 37.5% reduction from 1992 to 2003. In 1992, 156 cases were reported and in 2003 111 cases were reported. The number of reported cases for 2004 was 101 and 95 for 2005. Observation of reported cases from 1998 through 2007 in the State of Connecticut indicate the following:

REPORTED TB CASES CONNECTICUT

Year	Cases
1998	128
1999	121
2000	105
2001	121
2002	104
2003	111
2004	101
2005	95
2006	89
2007	108
2008	98
2009	95
2010	85
2011	83

Data for 2006 indicate that there was 1 reported case in Farmington. There were 2 cases in Farmington for 2007, no cases for 2010 and 2 cases for 2011. In addition to State data, the following table provides the number of confirmed respiratory TB cases identified for the Health Center.

CONFIRMED TB CASES UCHC

Year	Confirmed TB Cases
1998	1
1999	0
2000	0
2001	2
2002	1
2003	1
2004	0
2005	1
2006	0
2007	1
2008	1
2009	0
2010	0
2011	2

It is concluded that there are TB patients in the State and local communities, and it is likely that one of these patients could enter the John Dempsey Hospital. However, the Health Center does receive patients from populations at greater risk for acquiring TB such as the Department of Corrections. The John Dempsey Hospital would be notified prior to the admission of an active TB patient from the Department of Corrections. There has been no evidence of person-to-person transmission and the Health Center has had no more than 2 active TB patients admitted during ANY year. The Health Center is therefore classified as a **Low Risk** facility based upon the CDC criteria (2005) of fewer than 6 or more patients per year entering a facility of 200 beds or more.

III. ELEMENTS OF UCHC JOHN DEMPSEY HOSPITAL TB INFECTION CONTROL PROGRAM – LOW RISK FACILITY

The CDC recommended in the 1994 guidance document the following components of a TB infection control program based on a “low Risk” classification. A pandemic flu outbreak would place the Hospital in a high risk classification as infected patients would likely be admitted. However, this policy would suffice for such a condition if designated staff and patients are cohorted into respiratory isolation areas, Infection Control Contact Precautions and the Blood Borne Pathogen Exposure Control Plan are implemented. The components of the CDC’s recommended TB policy have been included in this document and include:

Assigning Responsibilities	Infection Control (IC) Employee Health Research Safety	Recommended
Conducting Risk Assessment	Baseline risk Community Profile UCHC Case Surveillance *HCW TST Tests/ Risks Review TB Patients Records Review IC Practices Engineering Maintenance	Recommended Yearly Continuous Yearly Yearly Yearly Yearly
TB Infection Control Plan	Written TB Plan	Recommended
Treating Potential TB Patients	Protocol Identification Protocol for Diagnosis Reporting Protocol Protocol Treatment	Recommended Recommended Recommended Recommended
Managing Potential TB Patients	ED Triage System Protocol ED Treatment	Recommended Recommended
Hospitalized Potential TB Patients	Enough Isolation Rooms Protocol TB Isolation Protocol TB Practices Protocol Discharging	Recommended Recommended Recommended Recommended
Engineering Controls	Protocols for Maintenance	Recommended
Respiratory Protection Policy	OSHA Requirement	Required
Cough/Aerosol Procedures	Protocol for Procedures Engineering Controls	Recommended Recommended
Education of HCW’s	TB Education Program	Recommended
Counseling/Screening HCW’s	HCW’s & TB Baseline TST’s Routine TST’s HCW’s Protocol HCW +TST	Recommended Recommended Yearly Recommended

Problem Evaluation	Investigate +TST/TB	Recommended
	Investigate Patient-Patient	Recommended
	Protocol Undiag. Exposures	Recommended
Coordination with DPH	Reporting System	Recommended

*HCW, Health Care Worker

In addition to this policy, two UCHC publications are incorporated into this document by reference. These documents are the “[Infection Control Manual](#)” and the “[University of Connecticut Health Center Written Program for the Selection and Use of Respirators, 2012](#)”. Sections of these documents will be incorporated as needed, and the reader is referred to the document links provided

IV. JOHN DEMPSEY HOSPITAL RISK AREAS

The Infection Control Committee, the Employee Health Service and the Department of Epidemiology have designated the following areas as having a potential risk of exposure to TB within the UCONN Health System and research areas:

Anatomic Pathology (Autopsy only)
 Cardio/Pulmonary Service
 Center for Laboratory Animal Care (At risk Staff)
 Correctional Managed Health Care Diagnostic
 Radiology
 Emergency Department
 Facilities Management (EOC)
 Geriatric Psych 3
 Housekeeping (Supervisors only)
 Intensive Care Unit
 Infectious Disease Clinic Laboratory
 Medicine (Phlebotomists) Med 4
 Oncology 6
 Permanent Float Pool
 Psych 1
 Surg 5
 Surg 7
 Respiratory
 Transportation Aides

Department heads, administrative and managerial staff in these designated areas must identify those individuals and procedures which could potentially expose staff to TB or other airborne pathogens. Procedures specifically identified include, but may not be limited to, diagnostic sputum induction, administration of aerosolized pentamidine, bronchoscopy, endotracheal intubation/suctioning or receiving patients that could potentially be infectious. Individuals in designated areas must be specifically trained in TB and contact precautions control measures. The primary method chosen at the UCHC for respiratory protection is the use of Powered Air

Purifying Respirator (PAPR) with HEPA filtration. If staff choose to utilize disposable N-95 respirators they must participate in the OSHA mandated UCHC Respirator Program for the Selection and Use of Respirators. These OSHA requirements include initial and annual medical clearances, initial and annual fit testing and training. Individuals using N95 respirators are **directly responsible** for contacting the Office of Research Safety for medical clearance and refitting annually. PAPR units will be available outside of a declared respiratory isolation area with abbreviated medical clearance forms and instructions for PAPR use. Individuals not specifically participating in the respirator program and choosing not to wear a PAPR are not permitted entry into respiratory isolation areas. Entry without approved respiratory protection is a violation of this Health Center Policy.

V. **OUTPATIENT CLINICS-EAST HARTFORD, WEST HARTFORD, SIMSBURY, PRIMARY CARE PRACTICE, INTERNAL MEDICINE AND GENERAL MEDICINE**

The outpatient clinics located at the Medical Arts and Research Building (MARB), East Hartford, West Hartford and Simsbury and other above mentioned areas do not admit active or suspected tuberculosis patients or patients with infections that can lead to the generation of airborne pathogens. The CDC guidance document, "Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health-Care Settings, 2005", recommends that procedures be in place to respond to a potential patient presenting at outpatient clinics. The CDC classifies an outpatient clinic as *low risk* if 3 or less active TB patients are seen in a year. Based on site data, these clinics are classified as low risk facilities. Target groups have been identified that may need to participate in TB training, PAPR use and TST tests on an annual basis. The outpatient clinic target groups are

Nurses
Medical Assistants

The primary responsibility of these individuals is to immediately identify a potential TB patient and issue them a surgical mask to minimize the risk to other patients and staff until the patient can be transferred to the John Dempsey Hospital or other suitable facility. ***A POTENTIALLY ACTIVE TB PATIENT OR PATIENT POSING AN AIRBORNE PATHOGEN RISK SHALL NOT BE ADMITTED FOR MEDICAL EVALUATION*** at these clinics or outpatient service centers.

VI. **ASSIGNMENT OF RESPONSIBILITIES**

Department Heads:

Department Heads, Deans, administrative and managerial staff are responsible for compliance with this Airborne Exposure Control Plan. Their primary responsibilities include identification of possible TB/airborne pathogen exposure mechanisms in their areas of responsibility, ensuring that staff are familiar with this policy, ensuring that their staff comply with this policy and providing updated information to the Department of Epidemiology and/or the office of Research Safety on newly identified risk factors in their respective areas. Department heads, administrative and managerial staff must ensure that all staff (including residents, fellows, students, volunteers) working in a designated area (see Item IV) with potential exposure comply with all aspects of this plan.

Health Care Workers, Employees, Fellows, Residents, Students, Volunteers:

Individuals in this category shall avoid exposure to TB or other airborne pathogens unless prior approval is obtained by their supervisory staff. Health Care workers will have PAPR units readily available and must use them. Entry into a respiratory isolation area is forbidden without proper respiratory protection *Minors and volunteers shall not be exposed.*

Infection Control Committee:

The Infection Control Committee is responsible for periodic TB risk assessment, evaluation of potential airborne pathogen risk for all UCHC staff and review of this plan. As recommended by the CDC, review of this plan should be done at least yearly or more frequently as deemed necessary by the Committee.

UCHS Safety and Emergency Preparedness Committee:

The Safety and Emergency Preparedness Committee shall ensure that all medical staff are aware of this exposure control policy and provide recommendations for improvements and compliance with the JCAHO.

Institutional Biological Safety Committee:

The Institutional Biological Safety Committee shall review experimental protocols involving potentially infectious pathogens or derivative thereof. Protocols shall be developed to ensure that the research staff are not exposed to airborne pathogenic organisms such as the TB bacillus. This Committee also reviews all protocols involving biological agents used in humans, and works in conjunction with the IRB to approve such protocols.

Office of Research Safety:

The Office of Research Safety shall be responsible for administering the respiratory protection program, training of HCW's, PAPR availability and maintenance. The "[Written Program for the Selection and Use of Respirators](#)" can found on the [Research Safety](#) website. The Office of Research Safety shall maintain a database of all those individuals fit tested for respirator use and shall determine the appropriate respirator to be used in each exposure condition. If necessary, emergency fit testing may be done by the Office of Research Safety if requested during normal working hours and if medical clearance has been obtained. The Office of Research Safety may designate individuals to perform fit testing if they have been trained to do so.

The Office of Research Safety is responsible for ensuring PAPR carts are properly stocked and inspected weekly or immediately after use. A written log will be maintained of these inspections. The Office of Research Safety shall retrieve a PAPR cart immediately upon notification that the respiratory isolation has been discontinued. The Office of Research Safety shall sanitize and restock the cart and place it into the permanent storage location located in the Office of Research Safety. In addition, if any PAPR hoods will be reused they will be sanitized by the Office of Research Safety.

Department of Epidemiology:

The responsibility for Infection Control in the Health Care system is with the Department of Epidemiology, and rests with the Hospital Epidemiologist and the Nurse Epidemiologist (x4376). Day to day inquiries should be directed to the Nurse Epidemiologist for TB and other infection control issues. The Office of Research Safety (x2723) must be contacted if exposure to TB or other airborne pathogens is possible in research activities. Exposures in the research area are rare. All protocols involving animals and biological safety level II or greater agents are reviewed by the Biological Safety Officer and approved by the Institutional Biological Safety Committee, and if appropriate, the Animal Care Committee.

The Department of Epidemiology (x4376) is responsible for maintaining and updating the Infection Control Manual as needed. Members of this Department work with the Office of Research Safety in providing TB training and PAPR availability. The Department of Epidemiology shall determine, with the assistance of the Employee Health Services Medical Director and the Infection Control Committee, the TB risk level at the UHC and determine if a change in policy is warranted. This should be done as needed.

The Office of Research Safety will be informed when a respiratory isolation area is established. The Department of Epidemiology will be notified by the Office of Research Safety as soon as practical after learning that a respiratory isolation area has been established.

The Department of Epidemiology is responsible for reporting confirmed TB cases (or other reportable cases) to the Connecticut Department of Public Health. Procedures for reporting communicable diseases to the DPH may be found in the Infection Control Manual.

UHC Division of Occupational and Environmental Medicine, Employee Health Service:

The Employee Health Service (EHS) is responsible for all respirator medical examinations and tuberculosis skin tests (TST tests). Use of a PAPR unit requires that an abbreviated medical clearance form be completed prior to donning a unit. For PAPR use, a form will be available on the PAPR cart positioned outside of a respiratory isolation room. Medical approval is given for PAPR use if all questions on the form are answered "NO". Prior to issuing and fit testing an individual for an N-95 respirator, the OSHA "Respirator Medical Evaluation Questionnaire" must be completed by the HCW. The information on this questionnaire is confidential and must only be reviewed by the Medical Director, EHS, or an individual delegated by the Medical Director. For routine, non-emergency respirator assignments, the questionnaire must be returned directly to Dr. Oluremi Aliyu, Medical Director, Occupational/Environmental Medicine, MC6210. Respirators, with the exception of PAPR units, will not be fit tested nor issued without a signed medical clearance from the Employee Health Service.

The EHS will maintain required medical records and recall employees at prescribed frequencies for reevaluation. Based on the "Low Risk" classification at the time of this writing, Health Care Workers identified as potentially exposed must obtain a TST test at a *minimum* of once per year. The Medical Director shall determine how annual medical reevaluations will be accomplished, and may designate qualified UHC staff to assist in such evaluations. The Medical Director shall monitor the number and locations of TB cases and number of positive TST conversions, and in conjunction with the Infection Control Committee and the Department of Epidemiology, determine if a reassessment of the "risk level" is in order. This should be done as needed. All health care workers with a TST conversion will receive a medical evaluation at the Employee Health Service, which will include a chest radiograph to exclude

active disease. Newly converted workers will be offered treatment for latent TB infection (LTBI) according to Employee Health Service policy and procedures for the management of LTBI.

Facilities Management:

Facilities Management shall ensure that all respiratory (i.e., TB) isolation rooms are maintained at a negative pressure relative to the entryways. Medical staff will call the Environmental Control Center (x2338) once it has been determined a patient must be placed in a respiratory isolation room. ECC will verify that the designated room is negative or may need to deliver a portable HEPA air purifying unit to a room that is not under negative pressure. All ECC staff entering a respiratory isolation room shall wear PAPR unit. All negative pressure rooms are smoke tested daily until a patient is removed from isolation. Once an active TB patient is removed from a respiratory isolation room, access must be restricted for period of time based on the exchange rate of the room.

Department of Nursing, Transportation

The Department of Nursing, Transportation is responsible for delivery of the PAPR cart when needed. Upon receiving a call to deliver a PAPR cart, a trained staff member shall retrieve the cart from the storage area located in Building 20 and deliver it to the entry doorway to the respiratory isolation room. The DNT staff member should not enter the room, and therefore no respiratory protection is required. The DNT shall notify the Office of Research Safety (x2723) that a PAPR cart was delivered. When transporting a suspect TB patient, the DNT must ensure a surgical mask is placed on the patient and hospital department is notified. The DNT staff do not need to wear respiratory protection.

VII. REQUIREMENTS FOR HEALTH CARE WORKERS (HCW's)

The Occupational Safety and Health Administration (OSHA) has withdrawn its standard on Occupational Exposure to Tuberculosis, 29 CFR 1910.139. Individuals wearing respirators for TB protection must comply with the OSHA standard on Respiratory Protection, 29 CFR 1910.134. This standard requires annual fit testing, training and medical clearances for all those issued respirators. Obtaining a respirator with corresponding initial/annual fit testing requirements and medical clearance is available but *is not* a requirement at the UCHC. The HCW *is required to use a PAPR prior to entering a designated respiratory isolation area*. A designated respiratory isolation area is considered an area that could receive patients that may have symptoms suggestive of TB or other airborne pathogens. Individuals required to enter these areas must comply with the UCHC's "Written Respirator Program for the Selection and Use of Respirators". Supervisory staff ensure that potentially exposed individuals:

Receive TB Specific Training and Refreshers as Needed

Receive Training in the Policy for Control of TB and Other Airborne Pathogens

Complete and Pass the Medical Self Evaluation for PAPR Use

Obtain a TST at Least Annually

Have Training on the Proper Use of a PAPR unit

HCW's who are not current in the requirements for wearing a PAPR *shall not enter a TB or other respiratory isolation room, handle or treat a patient that poses a risk of an airborne infection.*

VIII. RESPIRATORY ISOLATION EXPOSURE CONTROL PLAN REQUIREMENTS- JOHN DEMPSEY HOSPITAL AND RESEARCH ACTIVITIES

A. Early Identification of Potentially Infectious Patients or Research Related Exposures

The HCW is the first point of contact for a potentially infectious patient and the staff in the designated areas needs to be trained and act quickly for effective infection control. The John Dempsey Hospital Infection Control Manual, *Tuberculosis Protocol: Assessment for Initiating Respiratory Isolation for Tuberculosis*, is incorporated by reference into this procedure. *No individual may enter an isolation room posted with an “Airborne Precaution Sign” without training, wearing PAPR and medical clearance.* A companion procedure from the Infection Control Manual, “Admission Screening for Communicable Airborne Disease” is also applicable.

Potential exposure in a Research setting will be determined well in advance through the protocol review process. The Medical Director, Employee Health Service, the Institutional Biological Safety Committee, the Animal Care Committee and the Office of Research Safety will establish proper protocols to ensure minimal risk of infection of research staff.

B. Isolating Suspected TB and Other Infectious Patients

A potentially infectious TB patient, or other patient with the potential for airborne transmission of a human pathogen, must be placed in respiratory isolation as soon as is practical. Prior to placement of a patient into a negative pressure isolation room measures should be taken to prevent airborne contamination, such as placing a surgical mask on the patient if this does not pose a risk to the patient’s medical condition. The UCHC Infection Control Manual, “Placing and Maintaining a Patient on Respiratory Isolation”, describes the policy in detail. The entry door to the room must be labeled with an “Airborne Precaution” sign as follows:



Airborne Precautions



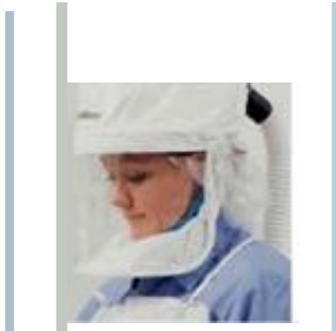
Standard precautions also in effect

Visitors Must See Nurse Before Entering Room

las visitas tienen que vera la enfermera antes do entrar alcuarto



**Clean Hands Upon
Entering and Leaving
Room or Area**



**PAPR Required *or*
N95 Required**



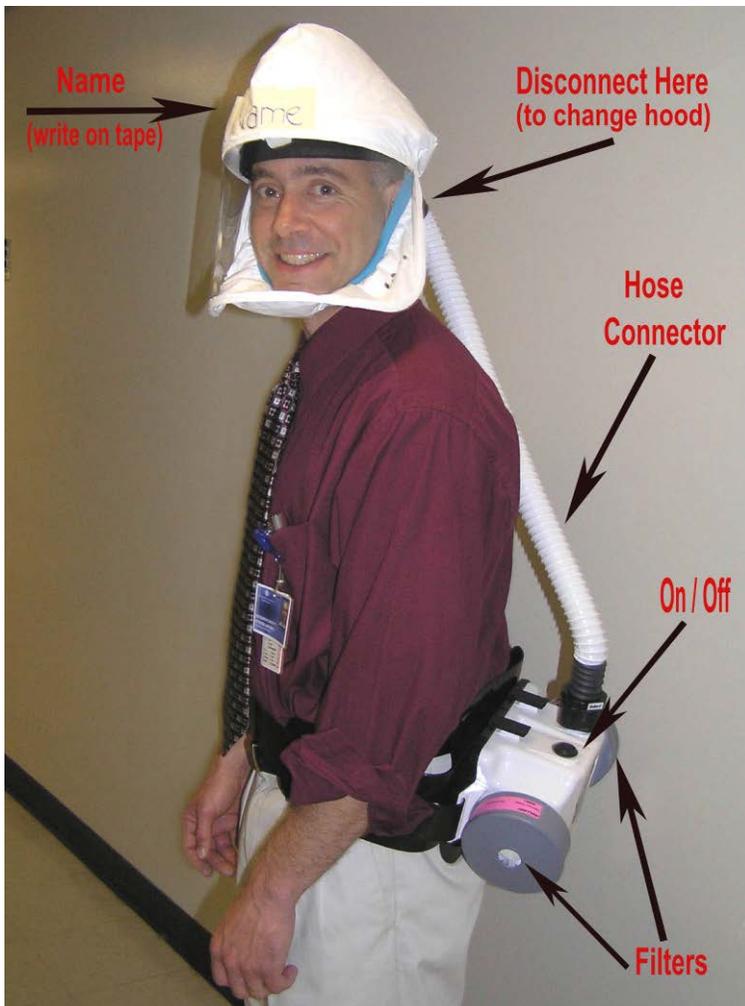
Keep Door Closed

Developed by Connecticut Infection Preventionists, November 2008

The following sign is posted on the PAPR cart when it is delivered.

PAPR INSTRUCTIONS

1. If you have not been fit for a respirator within a year from this date, you must be refit **or** use a PAPR.
2. During normal work hours, call Office of Research Safety at x2723 for refit of respirator. After hours, you must use PAPR.
3. **To Use PAPR:** Complete a "Positive Air Purifying Respirator (PAPR) Medical Evaluation Questionnaire" located on the PAPR cart.
4. If any answer on the questionnaire is "Yes", you are forbidden to use a PAPR or to enter the respiratory isolation room. Contact Employee Health x-2893 for follow-up.
5. If answers to all questions are "No", place form in envelope. If any answer is "Yes", keep or destroy the form. **DO NOT ENTER** the room.
6. If you have answered every question on the Medical Evaluation Questionnaire form "No", select a hood (SM, MED, LG), **PRINT NAME ON TAPE** so you can reuse it. **DO NOT DISCARD AFTER USE.**
7. Remove red tabs from filters, attach hose to your hood, fasten unit around your waist, and turn on the blower. Unit will alarm if air flow is not adequate.
8. Leave room immediately if unit malfunctions or alarms.
9. After leaving room, detach hose from your hood and place on a hook located on cart with your name clearly visible. Reuse your hood if re-entry is required.
10. **DO NOT DISCARD HOOD.**
11. Call the Research Safety Office (x2723) when respirator isolation is discontinued or if additional supplies are needed. Research Safety will remove PAPR cart.



Insert the tabs on the hose into the slots on the hood and twist to lock in place.

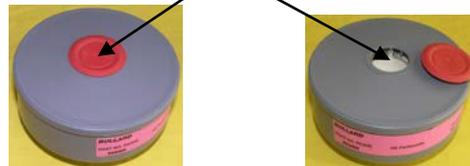
"Push" On/Off button



Hang hoods on hooks



Remove Tabs



Warning!! If alarm sounds, verify proper assembly. DO NOT WEAR PAPR!

Any questions, call x2723, Office of Research Safety

C. Contact Precautions and Respiratory Isolation

There may be developments, depending on the pathogen and mode of transmission of a pathogen that would require both Contact Precautions and Respiratory Isolation. Such an example would be patients potentially infected with pandemic flu. These situations would require special attention as PAPR air handling units would require decontamination prior to leaving the isolation area. A procedure for using a PAPR in this situation is attached as an [addendum](#) to this policy. In such cases, contact the Department of Epidemiology (x4376) and the Office of Research Safety (x2723) for guidance and procedure development.

D. Establishing and Maintaining Isolation

A potentially infectious TB (or other airborne pathogen) patient may be placed into a designated ***negative pressure room*** or a room equipped with a portable ***HEPA air filtering unit***. The policy for maintaining isolation for designated negative pressure rooms is provided in the Infection Control Manual, “Tuberculosis Protocol: Isolation Rooms, Monitoring of Negative Pressure”. The policy for maintaining isolation in a situation where a patient is not placed in a designated isolation room is provided in the Infection Control Manual, “Tuberculosis Control: Air Filtration Unit, Use of Portable HEPA Filtration Unit”. Delivery and placement of a portable HEPA unit is done by immediately calling the Environmental Control Center (ECC, x2338). Delivery of a PAPR cart is done by calling the Department of Nursing Transportation at x 1948. ***The ECC must be called promptly when respiratory isolation is required.*** As described in the Facilities Assignment of Responsibilities, ECC will deliver a portable HEPA unit for an isolation room not under negative pressure. Training and use of PAPR’s with a PAPR medical clearance are required for ECC staff to enter into an isolation room.

E. Confirming An Infectious TB or Other Airborne Pathogen Case

After placement of a suspected infectious TB patient (or with other suspected airborne pathogen infection) into an isolation room, sputum samples must be collected to rule out infectious TB. ***A patient shall not be removed from respiratory isolation unless TB is ruled out.*** Details are provided in the Infection Control Manual, “Tuberculosis Control: Sputum Collection for Rule Out Tuberculosis” shall be followed prior to releasing a patient from TB isolation. An important corollary and procedure, “Laboratory Specimens”, must be implemented for all laboratory specimens. Confirmation of other infections due to airborne pathogens and removal of such patients from respiratory isolation precautions is the responsibility of the Hospital Epidemiologist.

F. Discontinuing Respiratory Isolation

Respiratory isolation shall only be discontinued if the potential for infection is ruled out when 1) three negative consecutive sputum specimens for TB cases are negative for acid fast bacilli or 2) Sputum culture report is mycobacterium other than tuberculosis 3) approval is given by the Department of Epidemiology for other airborne pathogens. The length of time required for therapy to render a TB patient non-infectious is variable. A patient must not be removed from TB isolation until the patient has started on a minimum of three drug therapy and has definite clinical improvement. HCW’s are encouraged to contact the Department of Epidemiology and/or refer to the Infection Control Manual for any questions. Prior to discharge, arrangements must be made to ensure continued therapy. An infectious

patient should only be discharged to a facility that has isolation capability or to their homes and as required by the Department of Public Health. Due consideration must be made, if discharged to their home, of other family members exposure. The Infection Control Manual, “Tuberculosis Protocol: Discontinuing Respiratory (STOP-SIGN) Isolation” shall be followed. If an infectious patient requires transport to another facility or area of the Health Center, it is important to minimize the potential for staff exposure. The Infection Control Manual procedure on “Transporting Infected or Colonized Patients” shall be followed. All potentially infectious patients must don a surgical mask while being transported.

G. Releasing a Room After Use for TB Isolation or Other Airborne Pathogens

Once a room is designated for isolation, the “Airborne Precautions” sign shall not be removed until the room is properly sanitized. This is detailed in the Infection Control Manual, “Tuberculosis Protocol: Airing of Rooms Used for Respiratory Isolation”, provides the policy for restoring an isolation room back to “normal”. Entry is not permitted by unauthorized individuals until the sign is removed. The CDC has recommended the following wait times for entering an isolation room:

Room Ventilation Air Changes/Hour	Wait Time (minutes) 99% Removal	Wait Time,(minutes) 99.9% Removal
2	138	207
4	69	104
6	46	69
12	23	35

In general, a room should not be entered until 1 hour has elapsed since removing an active TB patient. For other airborne pathogens, release of the room is permitted only with recommendations and the approval of the Department of Epidemiology. The Office of Research Safety shall be called immediately (x2723) when respiratory isolation is discontinued. The PAPR cart will be removed by the Office of Research Safety.

H. Cough Inducing Procedures

Cough inducing procedures are those that result in the instrumentation of the lower respiratory tract or induction of cough and include: endotracheal intubation and suctioning, diagnostic sputum induction, aerosol treatments (including pentamidine therapy) and bronchoscopy. The following guidelines must be followed for patients that may have infectious TB or other potentially airborne infections, and procedures that produce aerosols should be avoided in such patients.

All cough inducing procedures should be performed using local exhaust ventilation devices (booths or special enclosures), or in an isolation room that meets the requirements for an isolation “Airborne Precautions” sign.

All HCW’s must be qualified to enter the room. A properly fitted and current respirator or PAPR must be worn. Training and medical qualification must be current. Annual refresher training may be done using computer based system.

After completion of cough-inducing procedures, suspect patients should remain in isolation until coughing subsides, and isolation controls kept in place.

Refer questions to the Department of Epidemiology (x4376). The Infection Control Manual should be consulted: “Placing and Maintaining a Patient on Respiratory Isolation”, “Tuberculosis Protocol: Isolation Rooms, Monitoring of Negative Pressure”, “Tuberculosis Control: Air Filtration Unit, Use of Portable HEPA Filtration Unit”, “Tuberculosis Control: Discontinuing Respiratory Isolation”, Section 2.6 “Transporting Infected or Colonized Patients” and “Tuberculosis Control: Airing of Rooms Used for Respiratory Isolation”. Many of the other procedures referenced in this policy should be used as needed.

I. Health Care Worker (HCW) Monitoring

Maintaining a safe working environment for HCWs is of primary concern and requires an ongoing effort to maintain an effective exposure control program. HCWs that have been designated to care for patients potentially positive for TB must be, prior to *ANY* exposure to a potentially infectious TB patient:

Attended Training

Obtain TST at Least Annually

Be Medically Qualified to Wear a PAPR

Trained in the Use of PAPR

The HCW's immediate supervisor is responsible for ensuring compliance with these requirements. The HCW shall not be exposed if these requirements are not met. The Medical Director, Employee Health Service, shall determine the method used for annual medical evaluations of HCW for PAPR and/or respirator medical clearance. The section of the Infection Control Manual, “Tuberculosis Skin Testing (PPD)” should be consulted for specific requirements.

Staff working in Research who may be exposed will have specific protocols developed for their work. The Medical Director, Employee Health Service, the Institutional Biological Safety Committee, the Animal Care Committee and the Office of Research Safety shall jointly develop exposure control and monitoring requirements prior to the initiation of any such research.

J. HCW Work Restrictions

The Department of Epidemiology shall determine if any work restrictions are needed should a HCW develop active TB (or other contagious respiratory infection) or has a TST conversion or was potentially exposed to an airborne pathogen. The Infection Control Committee may be consulted. All information relating to the patient's identification will be kept confidential. The Infection Control Manual, “Employee Work Restrictions Because of Communicable Diseases or Special Conditions” shall be consulted.

K. Post-Mortem Handling of Bodies

Standard universal precautions are usually sufficient unless activities involve generation of airborne tissue. The Infection Control Manual, "Post-Mortem Handling of Bodies" shall be followed.

L. UCHC Written Program for Use of Respirators

Health Care Workers potentially exposed to airborne pathogens must wear a PAPR or be fitted with appropriate N95 respiratory protection respirator. The UCHC's Written Respirator Program is available on the Research Safety Web site, or by clicking on "Written Respirator Program for Selection and Use of Respirators". Any questions should be directed to the Office of Research Safety (x2723).

IX. RESPIRATORY EXPOSURE CONTROL PLAN REQUIREMENTS-OUTPATIENT CLINICS- MARB, SIMSBURY, EAST HARTFORD, WEST HARTFORD AND OTHER OUTPATIENT AREAS

A. SUSPECT PATIENT ADMISSION POLICY

Suspect or confirmed TB patients or other patients posing risk of airborne transmission of a pathogen *SHALL NOT* be admitted into these facilities for medical examination or treatment.

B. PROCEDURE FOR IDENTIFYING AND REROUTING SUSPECT TB AND OTHER INFECTIOUS OUTPATIENTS

1. Characteristics of a potentially infectious TB patient include the presence of a persistent cough, fever, anorexia and weight loss. Any patient with pulmonary disease of undiagnosed etiology must be suspect. Medical advice must be obtained for handling such patients.
2. Once an individual is identified as a potentially infectious (i.e. active TB patient) measures must be taken immediately to protect yourself, other patients, and staff. Ask the individual to cover their mouth when coughing and provide them a surgical mask. Do not give the patient a respirator. Obtain the patient's name and other information that would be helpful in locating the patient in the future. If possible, obtain a list of patients and staff that may have been exposed and forward to Department of Epidemiology (x4376).
3. Isolate the patient in a room and place a blue "Airborne Precautions" sign on the door. (see previous photo)
4. Call an ambulance service for transport to the John Dempsey Hospital emergency room. Notify ambulance service that the patient is a potentially infectious TB patient (or other).
5. Notify the Infection Control Epidemiologist (679-4376) at the John Dempsey Hospital that a potentially infectious TB patient (or other) will be transported to the ED. Notify the Emergency Department (679-2588) also.
6. If the patient refuses transport to JDH, contact the Infection Control Specialist at 679-4376. Ask the patient to leave the facility.
7. Keep the door to the room used for isolation closed and posted for one hour after the patient leaves.

8. The Infection Control Epidemiologist will inform you if the patient was later found to be infectious. If so, you must contact the Employee Health Service (679-2893) for medical follow up.

X. SCHOOL OF DENTAL MEDICINE POLICY/PROCEDURE PERTAINING TO THE HANDLING AND TREATMENT OF A SUSPECT TB (TUBERCULOSIS) PATIENT

Early identification by front line staff is critical for timely containment and minimization of risk to staff and caregivers.

If a patient or visitor exhibits signs or symptoms of TB (chronic productive cough, night sweats, etc.) or other respiratory infection staff should immediately contact a faculty member for further analysis. If the faculty member determines that this individual is a potential TB case (or other airborne pathogen infection) and requires a rule out the following steps must be taken as soon as possible.

- Immediately provide the patient or visitor with a surgical mask (do not give them a respirator mask) or tissues to cough into.
- Isolate the individual in a vacant patient room with a door and close the door. Post an isolation “Airborne Precautions” sign on the door. An inventory of patients and staff who may have come in contact with the suspect individual should be maintained in case follow-up procedures are necessary and forward the list to the Department of Epidemiology.
- Contact the Infection Control Practitioner x4376 and the Manager of Dental Clinic Support Services x3161 or beeper 825-9922.
- Movement of the patient must be coordinated through the Hospital Transportation Department at x1948. You must convey your concerns about the suspect individual and inform the Transportation Department representative that respiratory precautions are necessary. Only employees who have been trained and medically qualified to wear a respirator may wear a respirator.
- The patient may then be transported to the negative pressure room located in DC#5 room #16 or directly to the Emergency Department.
- **Advanced notice to all receiving areas is mandatory to allow for preparation of the isolation room and to provide time for staff to don personal protective equipment (respirators).** If the suspect patient is to be placed in the DC#5 negative pressure room and ***PRIOR TO MOVING THE PATIENT***, instruct DC#5 staff to turn on the HEPA unit, post the respiratory isolation sign and visually verify the room is negative by the “ball in the wall” indicator. If negative pressure is not achieved by the HEPA unit, reroute suspect patient to the Emergency Department. (Contact facilities regarding negative pressure room)

Nights, weekend or holiday emergency patient visits must be seen in the Emergency Department. The Emergency Department is trained to receive potentially infectious patients.

Additional information and subsequent procedures that must be adhered to are contained on the Office of Research Safety home page and the Hospital Infection Control Manual. This information may be obtained by going to the UCHC Home page, clicking on Faculty and Staff, then on Office of Research Safety. The Infection Control Manual may also be obtained within the Dental School and on the Infection Control shared folder

XI. LISTING OF CONTACTS

Nancy Dupont, BSN, RN	Nurse Epidemiologist	679-4376 (w) Page, 2626
Oluremi Oliy, MD, Ph.D.	Medical Director Employee Health Service	679-4564 (w) Page, 2626
Kenneth Price, MPH, CHP	Executive Director Environmental Health and Safety Programs	679-2723 (w) 203-671-1521 (c)
Steven Jacobs	Assistant Director Office of Research Safety	679-2723 (w) 825-3938 (p)
Ronald Wallace, Ph.D, CIH	Biological Safety Officer Office of Research Safety	679-3781 (w) 202-7802 (c)
JDH Emergency Department	Emergency Services	679-2588
Environmental Ops Center	Facilities Management	679-2338 (24h)
Transportation	Nursing, Transportation	679-1948
Page Operator	Telecommunications	679-2626 (24h)

XII. PLAN APPROVALS

Kenneth W. Price, MPH, CHP
Executive Director
Environmental Health and Safety Programs

Oluremi Aliyu, MD, MPH, Medical Director
Occupational/Environmental Medicine

Nancy Dupont, RN, MPH
Director, Epidemiology

Mike Summerer, M.D., Director
John Dempsey Hospital

Ellen Leone
Chief Nursing Officer
Associate V.P. Operations

APPENDIX I: IMPLEMENTING PROCEDURES

IP-Health Care Worker (HCW)

Upon discovery of a potential TB or other airborne pathogen risk to Health Care Workers and/or other patients

1. Immediately provide the patient with a surgical mask. If mask is not available, provide a tissue and instruct patient to cover their mouths when coughing or sneezing.
2. Place patient in respiratory isolation room.
3. If a patient poses a risk of infection by dermal contact and airborne transmission, the room must be set up for both respiratory isolation and contact precaution isolation. Contact the Department of Epidemiology for advice at x4376. Call the Environmental Control Center at x2338 (ECC) to obtain a portable HEPA unit if the room is not under negative pressure. Inform ECC as follows:
 - a. Whether the patient is in a negative pressure room or not.
4. Avoid entry into the room and keep a mask on the patient until proper procedures are in place.
5. Call the Department of Nursing, Transportation at x1948 and request a PAPR cart be delivered to the immediate area.
6. When it has been determined the patient does not pose a risk of airborne infection to others, remove "Airborne Precautions" sign. Call Transportation to have the PAPR cart removed.
7. If the patient remains contagious and is moved from the isolation room, keep the room posted with "Airborne Precautions" sign until proper time has elapsed to release the room (usually 1 hour). If "Contact Precautions" have also been implemented room and contents will require sanitization (disinfection, sterilization?) prior to release. Call the Infection Control Office at x 4376 for instructions.
8. After proper treatment and/or release of the isolation room has occurred, call ECC to remove the portable HEPA unit if it was delivered.

IP-Environmental Control Center (ECC)

The Environmental Control Center will receive a call if a respiratory isolation room has been established. The following procedures should be followed upon receiving a call. ***This procedure does not apply to Hazmat type incidents and/or terrorist events. The HEPA unit (if needed) should only be delivered if a respiratory isolation room is established for TB isolation or other infections with similar concerns.*** The Office of Research Safety will maintain a PAPR cart for respiratory isolation rooms.

1. Nurse or other staff member will provide the room number and if the room is a negative pressure room.
2. Deliver HEPA air filtering unit if room is not a negative pressure room. You must don a PAPR unit if entering a respiratory isolation room. If using a PAPR, complete a medical self-evaluation form.
3. Contact the Infection Control Office (x4376, page x2626) and the Office of Research Safety (x2723).
4. Perform daily tests to ensure room is negative, if appropriate.
5. If additional supplies are required, call the Office of Research Safety and supplies will be delivered.
6. Upon receiving a call that isolation has been terminated and the room has been released, return to the area and retrieve the HEPA unit if it was delivered. Verify room has been "aired out" for at least 1 hour prior to entry.

IP-OFFICE OF RESEARCH SAFETY (ORS)

The PAPR cart is stored in the Office of Research Safety Lab and will be delivered to a declared respiratory isolation area 24/7 by the Department of Nursing, Transportation, x1948 when needed.

The Office of Research Safety will provide backup support during normal working hours. The following items will be the responsibility of the Office of Research Safety.

1. PAPR carts shall be inspected weekly.
2. Retrieve and inspect PAPR carts after each use. Routine inspections by the ORS shall be documented and shall include:

- Adequate supply of hoods
- Adequate number of air hoses
- HEPA filters present and current
- PAPR battery check and blower function
- Additional batteries fully charged
- Masking tape on carts
- Magic Markers on Carts
- Hood cleaning/disinfection or disposal/Ensuring all items are properly cleansed
- Proper Signs located on PAPR cart
- Inspection of all items for integrity
- Obtaining additional supplies as needed
- Provide Medical Self Evaluation Forms
- Ensure PAPR units are assembled except for hoods
- Envelope for completed medical clearance forms
- Sanitization

3. As needed, provide initial and annual fit testing for those staff using N-95 respirators.
4. Inspect the cart, sanitize, re-supply as necessary, verify blower operation and replace batteries, check filters, etc as soon as possible after use (return of cart).
5. Rotate excess batteries on a weekly schedule to ensure an adequate supply of batteries is available.

IP-Department of Nursing, Transportation (DNT)

The DNSP (Transportation) is responsible for delivery of the PAPR cart to the entry door of the declared respiratory isolation room. The following procedure should be followed.

1. Upon receiving a call for delivery of the PAPR cart, obtain the key to the storage area and remove the cart from the Office of Research Safety's lab (BG006).
2. Transport the cart to the area just outside of the room that has been declared a "Respiratory Isolation Area". Do not enter the room
3. Contact the Office of Research Safety (x2723) as soon as possible after delivery of the cart. Inform them of the cart's location.
4. Leave area and return to your work area, placing the cart room key in its proper storage location.