POLICY FOR CONTROL OF HEALTH CARE WORKER EXPOSURE TO MYCOBACTERIUM TUBERCULOSIS

(August, 2018)

EXECUTIVE SUMMARY

BACKGROUND

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 drafted 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 UConn Health. 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 an airborne precautions 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 UConn Health 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 Environmental Health and Safety (EH&S) website. Other relevant documents are also linked to this policy.

The risk of exposure of UConn Health staff to TB is low based on the Centers for Disease Control guidelines dated 2005 and data obtained by those writing this policy. 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 Student Health Services 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 UConn Health. Individuals in non-target areas may enter the program on a voluntary basis by contacting the Department of Epidemiology and/or Environmental Health and Safety. Duties have been assigned to various UConn Health 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 Environmental Health and Safety, Employee Student Health Services, the Department of Epidemiology and the Infection Control Committee.

I. INTRODUCTION

UConn Health 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 Employee Student Health Services, UConn Health Infection Control Committee, Environmental Health and Safety and UConn Health’s 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” (still current) 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. 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, UConn Health’s “Infection Control Manual” is incorporated by reference. This policy will be available in the Environmental Health and Safety office or online at http://research.uchc.edu/rcs/ehs/ with reference to hard copies of UConn Health’s Infection Control Manual and the UConn Health’s Written Respirator Program for the Selection and Use of Respirators. But it may best be accessed by computer. Use of the http://research.uchc.edu/rcs/ehs/ is preferred where sections of all policies are immediately available. The Infection Control Manual may be accessed at http://infectioncontrol.uchc.edu/.

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. UCONN HEALTH RISK ASSESSMENT

Observation of reported cases from 1998 through 2017 in the State of Connecticut indicate the following:

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>128</td>
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<tr>
<td>1999</td>
<td>121</td>
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<tr>
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<td>2006</td>
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<td>2007</td>
<td>108</td>
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<td>98</td>
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<td>2013</td>
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<td>2014</td>
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<tr>
<td>2015</td>
<td>70</td>
</tr>
<tr>
<td>2016</td>
<td>52</td>
</tr>
<tr>
<td>2017</td>
<td>63</td>
</tr>
</tbody>
</table>

REPORTED TB CASES CONNECTICUT

In addition to State data, the following table provides the number of confirmed respiratory TB cases identified for UConn Health. Reporting is now based on counties as opposed to individual towns.
It is concluded that there are TB patients in the State and local communities, and it is plausible that one of these patients could enter UConn Health. However, UConn Health does receive patients from populations at greater risk for acquiring TB such as the Department of Corrections or foreign borne travelers. UConn Health 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 UConn Health has had no more than 2 active TB patients admitted during ANY year. UConn Health is therefore classified as a Low Risk facility based upon the CDC criteria of fewer than 6 or more patients per year entering a facility of 200 beds or more.

### III. ELEMENTS OF UCONN HEALTH’S TB INFECTION CONTROL PROGRAM – LOW RISK FACILITY

The CDC recommended in the 2005 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:
<table>
<thead>
<tr>
<th>Assigning Responsibilities</th>
<th>Infection Control (IC)</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Health</td>
<td></td>
<td></td>
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<tr>
<td>Environmental Health &amp; Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducting Risk Assessment</td>
<td>Baseline risk</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Community Profile</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>UCHC Case Surveillance</td>
<td>Continuous</td>
</tr>
<tr>
<td></td>
<td>*HCW TST Tests/ Risks</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>Review TB Patients</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>Records Review IC Practices</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>Engineering Maintenance</td>
<td>Yearly</td>
</tr>
<tr>
<td>TB Infection Control Plan</td>
<td>Written TB Plan</td>
<td>Recommended</td>
</tr>
<tr>
<td>Treating Potential TB Patients</td>
<td>Protocol Identification</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Protocol for Diagnosis</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Reporting Protocol</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Protocol</td>
<td>Recommended</td>
</tr>
<tr>
<td>Managing Potential TB Patients</td>
<td>ED Triage System</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Protocol ED Treatment</td>
<td>Recommended</td>
</tr>
<tr>
<td>Hospitalized Potential TB Patients</td>
<td>Enough Isolation Rooms</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Protocol TB Isolation</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Protocol TB Practices</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Protocol Discharging</td>
<td>Recommended</td>
</tr>
<tr>
<td>Engineering Controls</td>
<td>Protocols for Maintenance</td>
<td>Recommended</td>
</tr>
<tr>
<td>Respiratory Protection Policy</td>
<td>OSHA Requirement</td>
<td>Required</td>
</tr>
<tr>
<td>Cough/Aerosol Procedures</td>
<td>Protocol for Procedures</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Engineering Controls</td>
<td>Recommended</td>
</tr>
<tr>
<td>Education of HCW’s</td>
<td>TB Education Program</td>
<td>Recommended</td>
</tr>
<tr>
<td>Counseling/Screening HCW’s</td>
<td>HCW’s &amp; TB</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Baseline TST’s</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Routine TST’s HCW’s</td>
<td>Available on request</td>
</tr>
<tr>
<td></td>
<td>Protocol HCW + TST</td>
<td>Recommended</td>
</tr>
<tr>
<td>Problem Evaluation</td>
<td>Investigate + TST/TB</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Investigate Patient-Patient</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Protocol Undiag. Exposures</td>
<td>Recommended</td>
</tr>
<tr>
<td>Coordination with DPH</td>
<td>Reporting System</td>
<td>Recommended</td>
</tr>
</tbody>
</table>

*HCW, Health Care Worker
In addition to this policy, two UConn Health 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 incorporates as needed, and the reader is referred to the document links provided.

IV. UCONN HEALTH RISK AREAS

The Infection Control Committee, Employee Student Health Services 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 Clinic
- Center for Laboratory Animal Care (At risk Staff) Correctional Managed Health Care Diagnostic
- Emergency Department
- Facilities Development & Operations (ECC)
- Gastroenterology
- Housekeeping (Supervisors only)
- Intensive Care Unit
- Intermediate Unit
- Infectious Disease Clinic
- Laboratory Medicine (Phlebotomists)
- Inpatient Medical and Surgical Units
- Orthopaedic/General Surgery
- Permanent Float Pool
- Psych 1
- Radiology/Diagnostic Imaging
- 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 UConn Health 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 UConn Health 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 Environmental Health and 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 UConn Health Policy.
V. OUTPATIENT CLINICS

The outpatient clinics do not knowingly admit suspected tuberculosis patients or patients with active tuberculosis on treatment who meet CDC criteria for airborne isolation precautions. 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, including PAPR use or N-95 fit testing. 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 UConn Health 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 and/or should be instructed to report to the Emergency Department. It is imperative the sending clinic inform the receiving ED of the potential airborne risk.

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 complies with this policy and providing updated information to the Department of Epidemiology and/or Environmental Health and 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:**

Health Care workers will have PAPR units readily available and/or a sufficient supply of N95 respirators and the use of these devices are mandatory. Entry into a respiratory isolation area is forbidden without proper respiratory protection **Minors, students and volunteers shall not be allowed to enter a respiratory isolation room or exposed to a patient on respiratory isolation.**

**Infection Control Committee:**

The Infection Control Committee is responsible for periodic TB risk assessment, evaluation of potential airborne pathogen risk for all UConn Health 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.
**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.

**Environmental Health and Safety:**

Environmental Health and Safety shall be responsible for administering the respiratory protection program, PAPR availability and maintenance. The “Written Program for the Selection and Use of Respirators” can be found on the Environmental Health and Safety website. Environmental Health and 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 Environmental Health and Safety if requested during normal working hours and if medical clearance has been obtained. Environmental Health and Safety may designate individuals to perform fit testing if they have been trained to do so.

Environmental Health and 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 Transportation Department or Environmental Health and Safety shall retrieve a PAPR cart immediately upon notification that the respiratory isolation has been discontinued. Environmental Health and Safety shall sanitize and restock the cart and place it into the permanent storage location located in BG-006 and/or the Transportation Department located in the University Tower (TB940).

**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. Environmental Health and 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 Environmental Health and Safety in providing TB training and PAPR availability. The Department of Epidemiology shall determine, with the assistance of the Employee Student Health Services Medical Director and the Infection Control Committee, the TB risk level at UConn Health and determine if a change in policy is warranted. This should be done as needed.

Environmental Health and Safety will be informed by the Transportation Department when a respiratory isolation area is 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.
UConn Health Division of Occupational and Environmental Medicine, Employee Student Health Services:

The Employee Student Health Services (ESHS) 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, ESHS, or an individual delegated by the Medical Director. For routine, non-emergency respirator assignments, the questionnaire must be returned directly to 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 Student Health Services.

The ESHS 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 baseline and following an unprotected exposure. The Medical Director may designate qualified UConn Health 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 Student Health Services, 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 Student Health Services policy and procedures for the management of LTBI.

Facilities Development and Operations:

Facilities Development and Operations 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. Every effort should be made to negate the necessity of having a member of Facilities Development & Operations from entering a respiratory isolation room. All ECC maintenance staff required to enter a respiratory isolation room shall wear a PAPR unit. All negative pressure rooms are continuously monitored (remotely) and/or 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.

Logistics Management Transportation Department

Logistics Management Transportation Department 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 room TB940 and/or BG-006 and deliver it to the entry doorway to the respiratory isolation room. The Transportation Department staff member should not enter the room, and therefore no respiratory protection is required. The Transportation Department shall notify Environmental Health and Safety (x2723) that a PAPR cart was delivered or notate the delivery location on the board above the carts. When transporting a suspect TB patient, the DNT must ensure a surgical mask is placed on the patient and the department receiving this patient is notified. The Transportation Department staff member does not need to
wear respiratory protection.

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

The Occupational Safety and Health Administration (OSHA) have 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 CFR1910.134. 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 UConn Health. 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 UConn Health’s “Written Respirator Program for the Selection and Use of Respirators”. Supervisory staff ensures 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
- Follow guidance regarding follow-up testing after a TB exposure occurs
- Have Training on the Proper Use of a PAPR Unit

HCW’s who are not current in the requirements for wearing an N95 respirator or have not been trained on the proper use of 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 - UCONN HEALTH 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. UConn Health’s 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 Medial Director, Employee Student Health Services, the Institutional Biological Safety Committee, the Animal Care Committee and Environmental Health and 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 airborne precautions 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. UConn Health 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 Precautions” sign as follows:
Airborne Precautions

Standard precautions also in effect

Visitors Must See Nurse Before Entering Room

Clean Hands Upon Entering and Leaving Room or Area

PAPR Required or N95 Required

Keep Door Closed

The following sign is posted on the PAPR cart when it is delivered.
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 Environmental Health and 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 Student Health Service (x2893) 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 Environmental Health and Safety (x2723) when respirator isolation is discontinued or if additional supplies are needed. Environmental Health and Safety will remove PAPR cart.

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

Any questions, call x2723, Environmental Health and 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 Airborne Precautions. 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 Environmental Health and 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 University Tower is equipped with multiple patient rooms that can be transitioned into a negative pressure isolation room by simply pressing the controller located on the wall adjacent to the entrance to the room (see picture below). The patient’s door must remain closed at all times. DO NOT PROP DOOR OPEN!

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 Logistics Management Transportation Department at x1948. The ECC must be called promptly when respiratory isolation is required in non-traditional healthcare locations with no designated negative pressure rooms. As described in the Facilities Assignment of Responsibilities, ECC will deliver a portable HEPA unit for an isolation room not under negative pressure. NOTE: 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

Airborne precautions shall only be discontinued if the potential for infection is ruled out when 1) three negative consecutive sputum or lower respiratory tract 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 with tuberculosis infection 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 UConn Health, 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:

<table>
<thead>
<tr>
<th>Room Ventilation Air Changes/Hour</th>
<th>Wait Time (minutes) 99% Removal</th>
<th>Wait Time (minutes) 99.9% Removal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>138</td>
<td>207</td>
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<td>69</td>
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<tr>
<td>12</td>
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<td>35</td>
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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. Transportation Department shall be called immediately (x1948) when respiratory isolation is discontinued and the PAPR cart returned to Environmental Health and 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.

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: Airig 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 or IGRA upon hire
- 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 Student Health Services, 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 Student Health Services, the Institutional Biological Safety Committee, the Animal Care Committee and Environmental Health and 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. UConn Health 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. UConn Health’s Written Respirator Program is available on the Environmental Health & Safety’s website or by clicking on “Written Respirator Program for Selection and Use of Respirators”. Any questions should be directed to Environmental Health and Safety (x2723).

IX. RESPIRATORY EXPOSURE CONTROL PLAN REQUIREMENTS - OUTPATIENT CLINICS

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)

3. Call an ambulance service for transport to UConn Health emergency room.

4. Notify ambulance service that the patient is a potentially infectious TB patient (or other).

5. Notify UConn Health’s Infection Control Epidemiologist (679-4376) and the Emergency Department (679-2588) at the UConn Health that a potentially infectious TB patient (or other) will be transported to the ED.

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 Student Health Services (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 that 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.

• Movement of the patient must be coordinated through the 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 Dental Clinic #9.

• 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#9 negative pressure room and PRIOR TO MOVING THE PATIENT, instruct DC#9 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 and/or the use of a small piece of tissue being pulled into the room. 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 Environmental Health and Safety home page and the Hospital Infection Control Manual. This information may be obtained by going to UConn Health Home page, clicking on Research, then on Environmental Health & Safety (5th bulleted link). The Infection Control Manual may also be obtained within the Dental School and on the Infection Control shared folder.
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<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tr>
<td>Nancy Dupont, RN, MPH</td>
<td>Nurse Epidemiologist</td>
<td>860-679-4376</td>
</tr>
<tr>
<td></td>
<td>Infection Control</td>
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<tr>
<td>George Moore, MD, MPH</td>
<td>Medical Director</td>
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<td>Employee Student Health Services</td>
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<tr>
<td>Steven Jacobs</td>
<td>Director</td>
<td>860-679-2723</td>
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<td>Environmental Health and Safety</td>
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<td>David Banach, MD, MPH</td>
<td>Hospital Epidemiologist</td>
<td>860-679-8168</td>
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<td>Infectious Diseases</td>
<td>Cell 475-238-9965</td>
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<td>Ronald Wallace, Ph.D., CIH</td>
<td>Biological Safety Officer</td>
<td>860-679-3781</td>
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<td>JDH Emergency Department</td>
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<td>860-679-2588</td>
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<td>Environmental Operations Center</td>
<td>Facilities Development and Operations</td>
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<td>Transportation</td>
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<tr>
<td>Page Operator</td>
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XII. PLAN APPROVALS

Andrew Agwunobi, M.D., M.B.A.
Chief Executive Officer
UConn Health

George Moore, M.D., M.P.H.
Medical Director
Occupational/Environmental Medicine

Nancy Dupont, R.N., M.P.H.
Director
Epidemiology

Steven Jacobs
Director
Environmental Health and Safety

David Banach, M.D., M.P.H.
Hospital Epidemiologist
Infectious Diseases
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. All University Tower floors are properly equipped with negative pressure rooms. Negative pressure is obtained by pressing “isolation” on the controller on the wall adjacent to the 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. In clinical areas not equipped with a room able to operate under negative pressure contact the Environmental Control Center at x2338 (ECC) to obtain a portable HEPA unit. 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 Logistics Management Transportation Department 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 Department (x1948) 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 disinfection 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.* Environmental Health and 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 Environmental Health and Safety (x2723).

4. Perform daily tests to ensure room is negative, if appropriate.

5. If additional supplies are required, call Environmental Health and 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-Environmental Health and Safety**

The PAPR cart is stored in the Transportation Department office (TB940) and Environmental Health and Safety lab (BG006) and will be delivered to a declared respiratory isolation area 24/7 by Logistics Management Transportation Department, x1948 upon request.

Environmental Health and Safety will provide backup support during normal working hours. The following items will be the responsibility of Environmental Health and Safety.

1. PAPR carts shall be inspected weekly.

2. Retrieve, inspect and restock PAPR carts after each use. Routine inspections by the EH & S 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
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
Envelopes for completed medical clearance forms Sanitization

3. Upon request, 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- Logistics Management Transportation Department**

The Logistics Management Transportation Department 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 Environmental Health and Safety’s lab (BG006)/or the Transportation Department office (TB940).

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 Environmental Health and Safety (x2723) as soon as possible after delivery of the cart. Inform them of the cart’s location. If after hours, leave a message.

4. If applicable, return the key to its proper storage location.