

Infection Control

Policies and Procedures



Exposure Incident

Report exposure immediately; you may need immediate therapy.

- ◆ **Needlesticks/puncture wounds:**
Wash the affected area with antiseptic soap and warm water for 15 minutes
- ◆ **Mucous membrane exposure:**
Flush the affected area for 15 minutes using an eyewash.

For all exposure incidents:

- ◆ Notify Principal Investigator, manager or supervisor (if available) to initiate accident or exposure incident report.
- ◆ Seek medical assistance immediately (within 1-2 hours) from University Health Services, Urgent Visit (432-0123). Medical Area employees may also go to the Yale-New Haven Hospital (Y-NHH) Personnel Health Services (688-2462), CCSS Building – 20 York St from 7:30 a.m. to 4:00 p.m. or the Y-NHH Emergency Room (688-2222) from 4:00 p.m. to 7:30 a.m.

All employees should receive follow up care through Yale Employee Health (432-7978)

Emergency Phone Numbers

Police, Fire, and Medical on campus:

111 (any campus phone) or 432-4400

911 (off campus)

Yale University Health Services:

17 Hillhouse Avenue

Urgent Visit: 432-0123

Employee Health: 432-0071

OEHS Emergency Numbers

8:30 a.m. to 5:00 p.m. Monday-Friday: 785-3555

Other hours: 111

OEHS:

Main Office Number 785-3550

Bio-Medical Waste, Chemical or Radiation Waste Pick-up: 785-3551

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Foreward

In the mid 1990's, concerns over the lack of uniformity of infection control practices across Yale University's clinical areas not monitored by the Yale-New Haven Hospital, prompted the Deputy Provost to request the establishment of an Infection Control Work Group. Infection control coordinators, nurses and doctors from various clinical locations as well as representatives from the Office of Environmental Health and Safety were selected to participate in the work group. The group conducted an initial assessment of infection control programs in each University clinical area. The Yale University Infection Control Work Group had prepared this manual to inform the Yale clinical community of standard infection control issues and practices. This manual will not replace established policy and procedure manuals that are in place at clinical areas. However, this manual was established with the intent to provide consistent infection control policies and programs that meet or exceed minimal acceptable standards, across Yale's clinical areas and satellite facilities. Areas lacking an established infection control manual can use the manual as a framework and amend it with site specific information as required. As of 2007, Yale University Infection Control Work Group is now infection control subcommittee of the Yale University Biological Safety Committee.

This manual is a document in progress, all are encouraged to review this manual and contact the Office of Environmental Health and Safety concerning any infection control or safety issues.

In addition to preparing this manual, the Office of Environmental Health and Safety and Yale's Infection Control Subcommittee is available to assist your site with the following:

- help establish policies and procedures for your site;
- help establish an infection control committee for your site;
- work with you to identify an on-site infection control coordinator;
- assist with the evaluation of new engineering controls designed to minimize occupational exposures, such as sharps safety devices

Special thanks to those individuals who took time to review this manual and contributed information and suggestions to improve the presentation. Periodically, this manual will be reviewed and updated. The Office of Environmental Health and Safety and Yale's Infection Control Subcommittee will continue to serve as a resource for infection control, and will periodically monitor locations to ensure that the appropriate practices are upheld.

SECTION 1: Staff Orientation and Education Information

1.1 Introduction

This manual has been prepared to provide current guidelines for the prevention and control of infections among patients, employees and visitors. These guidelines provide a rational approach to isolation and other infection control practices, balancing the theoretical with what is practical and cost-effective.

All personnel (physicians, nurses, technicians, support staff and others) are responsible for complying with isolation precautions and other infection control procedures, and for tactfully calling observed infractions to the attention of offenders. Compliance with infection control procedures cannot be effectively dictated and enforced by a committee or administration, but must arise from a personal sense of responsibility to the patient and others in the health-care environment. Unfortunately, infractions by some are sufficient to negate the conscientious efforts of others, so constant vigilance is important.

Thus, professional responsibility is the key to detecting and correcting breaches in aseptic techniques as well as setting an example of a philosophy of total patient care. Physicians, nurses and others in leadership positions have an excellent opportunity to teach by example. Acting as role models, they influence the practice of others a great deal.

Patients, as well as their visitors, also have a responsibility for complying with infection control procedures. Physicians and nurses responsible for their care should inform them of appropriate infection control procedures. *Everyone in contact with patients must practice hand washing, the single most effective procedure in preventing cross-infection.* Even routine activities, such as examining a patient or taking a blood pressure reading, can transfer organisms to the hands of the health-care personnel. Hence, it is essential that hands be washed before touching a patient, during patient care when going from one body site to another, after contact with infective material such as blood, secretions and excretions, after handling articles and equipment contaminated with body fluids, and before touching another patient. Patients must also be encouraged to wash their hands at regular intervals.

Spread of infection requires three elements: a source of infecting organism, a susceptible host and a means of transmission for the organism. The source of the infecting agent may be patients, personnel, or, on occasion, visitors, and may include persons with acute diseases, persons in the incubation period of a disease, or persons who are colonized by the infectious agent, but have no apparent disease. Another source of infection can be the person's own endogenous flora (autogenous infection). Other potential sources are inanimate objects in the environment that have become contaminated, including equipment and medications.

Patient's resistance to pathogenic microorganisms varies greatly. Some patients may be immune to, or able to resist colonization by an infectious agent; others exposed to the same agent may establish a commensal relationship with the infecting organism and become asymptomatic carriers; still others may develop clinical disease. Host resistance may be compromised by illness, as in patients with diabetes mellitus, neoplasia, HIV-infection, leukemia and lymphoma, uremia, traumatic injury or burns. Alternatively, resistance may be decreased by iatrogenic physical intervention, most commonly urethral and intravenous catheters, respiratory tract manipulation and surgical procedures, or medical measures, especially steroids and other immunosuppressive medication.

Microorganisms are transmitted by various routes, and the same microorganism may be transmitted by more than one route. For example, varicella-zoster virus (chicken pox) can be spread either by the airborne route (droplet nuclei) or by direct contact. The differences in

infectivity and in the mode of transmission of the various agents form the basis for the differences in isolation precautions recommended in this guideline.

1.2 Routes of Transmissions

There are four main routes of transmission — contact, vehicle, airborne, and vector-borne.

1.2.1 Contact Transmission

The most important and frequent means of transmission of nosocomial (hospital acquired) infections can be divided into three subgroups: direct, indirect and droplet contact.

- Direct contact: Direct physical transfer between a susceptible host and an infected or a colonized person, as occurs when personnel turn patients, give baths, change dressings or perform other procedures involving direct personal contact.
- Indirect contact: This involves personal contact of the susceptible host with a contaminated intermediate object, usually inanimate, such as bed linens, clothing, instruments and dressings.
- Droplet contact: Infectious agents may come in contact with the conjunctiva, nose, or mouth of a susceptible person as a result of coughing, sneezing or talking by an infected person who has clinical disease or is a carrier of the organism. This is considered “contact” transmission rather than airborne since droplets usually travel no more than about three feet.

1.2.2 Vehicle Route

The vehicle route applies in diseases transmitted through such contaminated items as:

- Food (e.g., salmonellosis)
- Water (e.g., giardiasis)
- Drugs (e.g., bacteremia from an infusion of contaminated product)
- Blood (e.g., Hepatitis B, Hepatitis C, HIV).

1.2.3 Airborne Transmission

Airborne transmission occurs by the inhalation of aerosols containing an infectious agent. Organisms carried in this manner can be widely dispersed by air currents before being inhaled by or deposited on a susceptible host. Tuberculosis is spread via airborne transmission.

1.2.4 Vector-Borne Transmission

Vector-borne transmission occurs when an infected vector bites a susceptible host, most commonly arthropods (e.g., ticks, mosquitoes). World wide it is of special concern in tropical countries where mosquito-transmitted malaria is endemic. In the United States, Lyme Disease and Rocky Mountain Spotted Fever are examples of diseases transmitted by tick vectors, and Eastern Equine Encephalitis (EEE) by mosquitoes.

1.3 Standard Precautions

Standard Precautions are a philosophy for providing medical care that assumes patients may be infectious. It must be applied to all patients receiving care in University facilities regardless of diagnostic or infection status. Standard Precautions apply to blood; all body fluids; secretions and excretions (except sweat), regardless of whether or not they contain visible blood; non-intact skin; and mucous membranes.

Standard Precautions state that gloves must be used whenever contact is anticipated, changed between patients, and hands washed after gloves are removed. In addition, gowns (impermeable

to liquids) and shoe covers must be worn when splashes of body fluids or blood are anticipated in order to reduce the risk of exposure to bloodborne pathogens. Masks, face shields, or goggles must also be worn during procedures that are likely to generate splashes or sprays of blood, body fluids, or secretions.

1.4 Transmission-Based Precautions

These precautions are designed for patients who are documented or suspected to be infected with highly transmissible or epidemiologically - important pathogens. These precautions are designed to be implemented in addition to Standard Precautions:

1.4.1 Airborne Precautions

These precautions are designed for infections that are transmitted by airborne droplet nuclei (<5 microns in diameter) that can remain suspended in the air. Examples of infectious agents that fall into this category include tuberculosis, rubeola (measles), and varicella (chickenpox).

In addition to Standard Precautions:

- Patients should be placed in a private room with monitored negative air pressure in relation to surrounding areas.
- The room should have 6-12 air changes per hour with appropriate discharge of air outdoors or through a high efficiency filtration system before the air is recirculated to other areas of the building. The door must be kept closed with the patient kept in the room. If a private room is not available, another patient with the same active infection may be placed in the room (cohorting).
- Personnel who enter the isolation room should be immune to the infection. Non-immune personnel must wear a respirator (N-95 or better) before entering the room.
- Patient transport should be limited to that which is absolutely necessary. Patients should wear surgical masks if transported outside of the room.

1.4.2 Droplet Precautions

Droplet precautions are designed to prevent the transmission of organisms that are transmitted by large droplet contact with conjunctiva or mucous membranes of the nose or mouth. Droplets greater than 5 microns in diameter are usually generated with coughing, sneezing, talking, as well as during procedures such as bronchoscopy or suctioning. These larger droplets generally travel only short distances (3 feet or less). Examples of organisms in this category include influenza, mycoplasma, strep pneumonia, mumps, and whooping cough.

- Patients should be placed in a private room or, if not available, they may be placed in a room with a patient who has an active infection with the same organism.
- A surgical (or better) mask must be worn when working within 3 feet of the patient.
- Patient transport should be limited to that which is absolutely necessary. A surgical mask should be placed on the patient during transport.

1.4.3 Contact Precautions

These should be used for patients who are infected with organisms that are transmitted by direct skin to skin contact or by indirect contact with environmental surfaces or patient care items. These precautions are also used for patients who are colonized with organisms that are epidemiologically-important. Examples of contact precaution organisms include herpes simplex, scabies, streptococcus, and gastrointestinal colonization by drug resistant organisms.

In addition to Standard Precautions,

- Patients must be placed in a private room or with another patient who has an active infection with the same organism.
- Gloves must be worn when entering the patient's room. Gloves should be changed after handling material that may have high concentrations of organisms. Gloves must be removed before leaving the patient's room and hands washed with an antimicrobial soap.
- Caregivers must ensure that hands do not touch potentially contaminated environmental surfaces after glove removal.
- A gown should be worn if substantial contact with the patient or environmental surfaces is anticipated or if the patient is incontinent, has diarrhea, an ostomy site, or other drainage not contained by a dressing. The gown should be removed prior to leaving the room and care taken to avoid touching surfaces after removing the gown.
- Patient transport should be limited to that which is absolutely necessary. Care should be taken during transport to minimize contact with other patients or environmental surfaces.
- Non-critical patient care equipment should be used only for a single patient. If sharing of common equipment is absolutely necessary, the equipment must be adequately cleaned and disinfected before using it for another patient. (See section 7 for information on sterilization of reusable medical Instruments/devices and for information on housekeeping for cleaning/decontamination).

*1.4.4 Synopsis of Types of Precautions and Patients Requiring the Precautions**

See Appendix A for a complete listing of type and duration of precautions needed for selected infections and conditions.

Standard Precautions

Use Standard Precautions for the care of all patients

Airborne Precautions

In addition to Standard Precautions, use Airborne Precautions for patients known or suspected to have serious illnesses transmitted by airborne droplet nuclei. Examples of such illnesses include:

Measles

Varicella (including disseminated zoster) +

Tuberculosis ++

Droplet Precautions

In addition to Standard Precautions, use Droplet Precautions for patients known or suspected to have serious illnesses transmitted by large particle droplets. Examples of such illnesses include:

Invasive *Haemophilus influenzae* type b disease, including meningitis, pneumonia, epiglottitis, and sepsis

Invasive *Neisseria meningitidis* disease, including meningitis, pneumonia, and sepsis

Other serious bacterial respiratory infections spread by droplet transmission, including:

Diphtheria (pharyngeal)

Mycoplasma pneumoniae

Pertussis

Pneumonic plague

Streptococcal pharyngitis, pneumonia, or scarlet fever in infants and young children

Serious viral infections spread by droplet transmission, including:

Adenovirus +

Influenza
Mumps
Parvovirus B19
Rubella

Contact Precautions

In addition to Standard Precautions, use Contact Precautions for patients known or suspected to have serious illnesses easily transmitted by direct patient contact or by contact with items in the patient's environment. Examples of such illnesses include:

Gastrointestinal, respiratory, skin, or wound infections or colonization with multidrug-resistant bacteria judged by the infection control program, based on current state, regional, or national recommendations, to be of special clinical and epidemiologic significance

Enteric infections with a low infectious dose or prolonged environmental survival, including:

Clostridium difficile

For diapered or incontinent patients: enterohemorrhagic *Escherichia coli* (O157:H7), *Shigella*, hepatitis A, or rotavirus

Respiratory syncytial virus, parainfluenza virus, or enteroviral infections in infants and young children

Skin infections that are highly contagious or that may occur on dry skin, including:

Diphtheria (cutaneous)

Herpes simplex virus (neonatal or mucocutaneous)

Impetigo

Noncontained abscesses, cellulitis, or decubiti

Pediculosis

Scabies

Staphylococcal furunculosis in infants and young children

Herpes or varicella Zoster (disseminated or in the immunocompromised host) +

Viral/hemorrhagic conjunctivitis

Viral hemorrhagic infections (Ebola, Lassa, or Marburg) *

* See Appendix A for a complete listing of infections requiring precautions, including appropriate footnotes.

+ Certain infections require more than one type of precaution.

++ See CDC Guidelines for Preventing the Transmission of Tuberculosis in Health-Care Facilities.

1.4.5 Empiric Use of Transmission-Based Precautions - Pending Confirmation of Diagnosis

Patients can transmit infections prior to the establishment of a definitive diagnosis. The risk of transmission is often greatest in the early stages of evaluation before confirmatory testing is complete. All patients should be treated under Standard Precautions to decrease the risk of disease transmission. In addition, an attempt should be made to identify all patients requiring enhanced transmission-based precautions while awaiting definitive diagnosis.

The following table, adopted from the CDC’s Isolation Guidelines (AJIC, Vol. 24, No. 1), is meant as a guide to help identify clinical syndromes that warrant additional transmission-based precautions:

Clinical Syndrome or Condition †	Potential Pathogens±	Empiric Precautions
Diarrhea		
Acute diarrhea with a likely infectious cause in an incontinent or diapered patient.....	Enteric pathogens§.....	Contact
Diarrhea in an adult with a history of recent antibiotic use.....	<i>Clostridium difficile</i>	Contact
Meningitis	<i>Neisseria meningitidis</i>	Droplet
Rash or exanthems, generalized, etiology unknown		
Petechial/ecchymotic with fever.....	<i>Neisseria meningitidis</i>	Droplet
Vesicular.....	Varicella (chickenpox).....	Airborne & Contact
Maculopapular with coryza and fever.....	Rubeola (measles).....	Airborne
Respiratory infections		
Cough/fever/upper lobe pulmonary infiltrate in an HIV- seronegative patient and/or a patient at low risk for HIV infection.....	<i>Mycobacterium tuberculosis</i> ..	Airborne
Cough/fever/pulmonary infiltrate in any lung location in an HIV-infected patient and/or a patient at high risk for HIV infection.....	<i>Mycobacterium tuberculosis</i> ..	Airborne
Paroxysmal or severe persistent cough during periods of pertussis activity.....	<i>Bordetella pertussis</i>	Droplet
Respiratory infections, particularly bronchiolitis and croup, in infants and young children.....	Respiratory syncytial or parainfluenza virus.....	Contact
Risk of multidrug-resistant microorganisms		
History of infection or colonization with multidrug-resistant organisms.....	Resistant bacteria.....	Contact
Skin, wound or urinary tract infection in a patient with a recent hospital or nursing home stay in a facility where multidrug-resistant organisms are prevalent.....	Resistant bacteria.....	Contact
Skin or wound infection		
Abscess or draining wound that cannot be covered.....	<i>Staphylococcus aureus</i> , Group A streptococcus.....	Contact

†Patients with the syndromes or conditions listed below may have atypical signs or symptoms (e.g., pertussis in neonates and adults may not have paroxysmal or severe cough). The clinicians’s index of suspicion should be guided by the prevalence of specific conditions in the community, as well as clinical judgment.

±The organisms listed under the column “Potential Pathogens” are not intended to represent the complete or even most likely diagnoses, but rather possible etiologic agents that require additional precautions beyond Standard Precautions until they can be ruled out.

§These pathogens include enterohemorrhagic *Escherichia coli* O157:H7, *Shigella*, hepatitis A, and rotavirus.

—Resistant bacteria judged by the infection control program on the basis of current state, regional or national recommendations, to be of special clinical or epidemiological significance.

1.6 Respiratory Hygiene/Cough Etiquette

The CDC guidelines on Respiratory Hygiene/Cough Etiquette in Healthcare Settings (see appendix B) must be followed to prevent the transmission of all respiratory infections, including influenza, in healthcare settings. The infection control measures listed in the CDC guidelines should be implemented at the first point of contact with a potentially infected person. They should be incorporated into infection control practices as one component of Standard Precautions all year round. Post signs and information on respiratory etiquette. Provide materials at an universal respiratory etiquette station in waiting areas. The station should have a sign and information on respiratory/cough etiquette; tissues; no-touch receptacles for used tissue disposal and masks. Provide a dispenser of alcohol-based hand rub; where sinks are available, ensure that supplies for hand washing (i.e., soap, disposable towels) are available.

All individuals with signs and symptoms of a respiratory secretions need to:

- Cover the nose/mouth when coughing or sneezing;
- Use tissues to contain respiratory secretions and dispose of them in the nearest waste receptacle after use;
- Perform hand hygiene (e.g., hand washing with non-antimicrobial soap and water, alcohol-based hand rub, or antiseptic handwash) after having contact with respiratory secretions and contaminated objects/materials.
- If person is coughing, offer a mask for the person to wear to contain respiratory secretions. Either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties) may be used to contain respiratory secretions (respirators such as N-95 or above are not necessary for this purpose).

Please note that healthcare personnel need to follow Droplet Precautions by wearing a surgical or procedure mask for close contact when examining a patient with symptoms of a respiratory infection. These precautions should be maintained until it is determined that the cause of symptoms is not an infectious agent that requires Droplet Precautions.

1.7 TB Exposure Control Plan

Yale University has a procedure in place to prevent and control tuberculosis (TB) in our patients, employees and students. TB is a potentially severe, contagious disease that primarily affects the lungs, but can also damage other parts of the body. It is usually transmitted by airborne droplets containing TB bacteria that are spread by infected persons whenever they cough, speak, or sneeze. On rare occasions, blood and body fluids may become contaminated with TB. Control measures include understanding the mode of transmission, signs and symptoms of infection, medical surveillance and therapy, and site-specific protocols.

In conjunction with the facility Infection Control Coordinator, area managers and supervisors must conduct a risk assessment of their workplace to determine the risk for occupational transmission of TB and implement an appropriate exposure control plan. The Office of Environmental Health and Safety and the Employee Health can assist with TB risk assessments.

1.7.1 Risk Assessment

The number of reported TB cases in Connecticut (CT) for 2006 was 89. The percentage change in number of cases from 2005 to 2006 in CT is -6.4%. The statewide rate of tuberculosis is 2.5 cases per 100,000 population. This is lower than the national rate of 4.6 cases per 100,000 population for 2006.

1.7.2 Transmission and Pathogenesis

Tuberculosis is an airborne communicable disease caused by *Mycobacterium tuberculosis*, the tubercle bacillus. It is spread primarily by tiny airborne particles (1 - 5 microns in diameter), known as droplet nuclei, that are generated when a person with infectious TB (pulmonary or laryngeal) sneezes, coughs, speaks, or sings. If another person inhales these droplet nuclei, transmission may occur. Infection begins with multiplication of tubercle bacilli in alveolar macrophages, some of which spread through the bloodstream; however, the immune system response usually prevents the development of disease. Persons infected with TB but who do not develop active TB are often asymptomatic and not infectious; such persons usually have a positive reaction to the tuberculin skin test. Only about 10% of infected persons develop active TB disease at some time in their lives, but the risk is considerably higher for persons who are immunosuppressed, especially those with HIV infection. Although the majority of TB cases are pulmonary, TB can occur in almost any anatomical site or as disseminated disease. Extrapulmonary TB can be transmitted through blood and body fluids.

An extremely serious aspect of TB that has developed over the past two decades is multidrug resistant strains (MDR TB) that are usually resistant to at least isoniazid and rifampin. Infection with MDR-TB has a 50 to 80% mortality rate. MDR-TB can usually be prevented by initially treating TB patients with four drugs and by administering TB medications on a directly observed basis. Persons at higher risk for MDR-TB include those: recently exposed to MDR-TB, especially the immunocompromised; TB patients who failed to take medications as prescribed; TB patients who were prescribed an ineffective treatment regimen; and persons previously treated for TB.

1.7.3 Guidelines for TB Control

- Employees at risk should be tested for TB exposure by a tuberculin skin test (PPD) at least annually. New employees will be referred to the Employee Health office (University Health Services, 17 Hillhouse Avenue, (432-0071) upon being hired for baseline PPD testing. Employees with potential exposure must be tested within 2 weeks of hire. Employees with a history of a previous positive PPD test will not be retested but should provide documentation of a negative chest x-ray as part of their evaluation. Employees exempt from the tuberculin skin test must be informed about symptoms of TB and the need for immediate evaluation of any pulmonary symptoms suggestive of TB by their health care provider to determine if active disease has developed.
- University employees and students in contact with patients or clients in hospitals, clinics, or long term facilities must be tested for TB exposure by a tuberculin skin test (PPD) on an annual basis. This includes students who deliver care, conduct research or consult individuals. In addition, students who volunteer in correctional facilities, hospices, shelters for the homeless, or drug/alcohol treatment facilities should be tested on an annual basis.
- Employees and students who test positive on PPD testing will be referred for a chest x-ray and evaluated for signs of active TB infection. If no signs of active infection (such as fatigue, fever, chills, night sweats, loss of appetite, weight loss, productive sputum, coughing up blood (hemoptysis), chest pain, hoarse voice) are present, the employees will be referred for prophylactic treatment as appropriate following established CDC recommendations.
- Health care providers, employees and students (as designated in the above statements) should be educated through infection control staff about the transmission of TB and appropriate methods of protection. OSHA compliant TB training will be provided to those in covered risk groups annually. Awareness level training will be provided periodically to students and volunteers working in a health care setting.

- Health care providers should concentrate on identifying TB infection among our patient population.

The following guidelines are recommended for testing groups of patients at high risk for TB infection:

- Patients with history of combined cough, fever, weight loss, night sweats, hemoptysis for greater than 2 weeks.
- Patients with radiographic abnormalities suggestive of TB infection.
- Recent contacts with infectious TB cases.
- Patients infected with HIV.
- Groups at high risk for TB infection such as foreign born persons who arrived within the past 5 years from Asia, Africa, Latin America and Caribbean, medically underserved populations, long term residents of hospitals, nursing homes, homeless shelters, and correctional facilities.
- Patients with underlying medical conditions that increase the risk of TB such as silicosis, diabetes mellitus, long term corticosteroid therapy, immunosuppressive therapy, injecting drug use, underlying malignancies, end stage renal disease, post gastrectomy, or intestinal by pass. In addition, anergy testing should also be performed on any patient suspected of being immunocompromised.
- Patients who are identified as having a positive skin test should have a chest x-ray and be evaluated for signs of active TB by their health care provider. Patients should be referred when appropriate for curative or prophylactic treatment under CDC guidelines.

1.7.4 TB Exposure Control Procedures for Suspected or Known Active TB Cases

Ask the person/patient presenting symptoms to cover their nose and mouth.

Provide a surgical mask for the person to wear to contain droplets. Recognize the signs and symptoms of active TB - these include: fatigue, fever, chills, night sweats, loss of appetite and weight loss. The advanced stages of TB disease include: sputum-producing cough, coughing up blood, chest pain, and hoarseness of voice.

Isolate patient from other visitors and employees

If available, place any patient strongly suspected of active TB in a room with:

- negative air pressure in relation to the surrounding areas that can be monitored,
- 6 to 12 room air exchanges per hour,
- air discharged directly outdoors or through monitored high efficiency particulate aerosol (HEPA) filters before recirculation to other areas in the facility.

Post a sign at the entrance of the room. The sign will have a red and white stop sign with the statement “No Admittance without Wearing a Type N95 or More Protective Respirator”.

Provide a surgical mask for patient to wear to contain droplets

If a facility does not have a negative air flow room, any patient who is strongly suspected of having active TB should be given a molded surgical mask, instructed to keep it on, and escorted to a private exam room. These areas are not appropriate for strict isolation but can be used as a separate waiting area for a short duration until transport can be arranged. Post a sign at the entrance of the room.

Refer patient to medical assistance as soon as possible

The health care provider evaluating the patient should make arrangements to transfer the patient to a facility with an appropriate isolation room to complete the remainder of the TB work up (i.e.

Yale-New Haven Hospital). Ambulance as well as emergency room personnel at the admitting facility must be notified of the suspected diagnosis so that appropriate precautions can be taken.

The examining room used as a holding area should be closed and terminally cleaned after the patient has left and then disinfected with an institutionally approved disinfectant.

Immediately notify your supervisor, state and local health department, Employee Health and OEHS

Any case of TB in a patient or employee must be reported by the health care provider immediately by telephone and by written report within 12 hours, to the state and appropriate local health departments and to Employee Health (432-0071) and OEHS (785-3550) for documentation and follow-up investigation.

Wear a respirator for close or prolonged contact

When in close contact with a suspected active TB case, wear a NIOSH certified N-95 mask or a HEPA respirator. The employee must be fit tested before using N-95 or HEPA respirator, before wearing a respirator, personnel must be evaluated by Employee Health (432-0071) at the University Health Services (17 Hillhouse Avenue) and must contact the Office of Environmental Health and Safety (785-3550) at 135 College Street for training regarding respirator selection, fit testing, and use.

1.7.5 Evaluation of Health Care Workers Post Exposure to Active TB Cases

Health care workers who have been exposed to active TB cases are recommended to have an initial baseline TB test at time of exposure and a follow up test at 3 months post-exposure.

Health care workers with PPD test conversion from negative to positive post-exposure will be advised to have a chest x-ray and referred for appropriate prophylactic therapy.

1.7.6 Continuing Risk Assessment at Yale University

PPD conversion rates among employees as well as active TB cases among patients will be reviewed annually by Employee Health and Infection Control Staff for the purpose of risk assessment. Any evidence of PPD conversion clusters or patient to patient transmission of TB will be the impetus for further investigation to maintain compliance with TB control guidelines. The Office of Environmental Health and Safety will be responsible to provide training and fit testing (respiratory protection) to employees who may be at risk of occupational exposure to TB.

The University Health Services –Dept. of Employee Health will provide the medical surveillance of employees at risk of occupational exposure to tuberculosis for screening and post-exposure follow-up.

The facility Infection Control Committee will coordinate risk assessment and compliance. Human Resources will notify OEHS & UHS of potential occupationally exposed new hire employee.

1.8 Guidelines for Multidrug-Resistant Organisms (MDROs)

Multidrug-resistant organisms (MDROs) have been defined as bacteria that are resistant to one or more classes of antimicrobial agents and usually are resistant to all but one or two commercially available antimicrobial agents (e.g., MRSA, VRE, extended spectrum beta-lactamase [ESBL]-producing or intrinsically resistant gram-negative bacilli).

Common examples of these organisms include:

- MRSA (methicillin/oxacillin-resistant Staphylococcus aureus)
- VISA (vancomycin-intermediate *S. aureus*)

VRSA (vancomycin-resistant *S. aureus*)
VRE (vancomycin-resistant enterococci)
ESBLs –(extended-spectrum beta-lactamases)
MDR-*Acinetobacter baumannii*
MDR-GNB (Gram negative bacilli)
PRSP (penicillin-resistant *Streptococcus pneumoniae*)

Staphylococcus aureus is an important cause of healthcare-associated infections. The diseases associated with this organism range from mild skin and soft-tissue infections to potentially fatal systemic illnesses such as endocarditis and toxic-shock syndrome. *S. aureus* is a common pathogen that affects individuals across the age spectrum.

Methicillin-resistant *Staphylococcus aureus* (MRSA) has become a prevalent nosocomial pathogen in the United States. In healthcare facility's, the most important reservoirs of MRSA are infected or colonized patients. Although healthcare facility's personnel can serve as reservoirs for MRSA and may harbor the organism for many months, they have been more commonly identified as a link for transmission between colonized or infected patients. The main mode of transmission of MRSA is via hands (especially health care workers' hands) which may become contaminated by contact with a) colonized or infected patients, b) colonized or infected body sites of the personnel themselves, or c) devices, items, or environmental surfaces contaminated with body fluids containing MRSA. Standard Precautions, as described in the "Guideline for Isolation Precautions in Hospitals" (Infect Control Hosp Epidemiol 1996;17:53-80), should control the spread of MRSA in most instances. See Appendix A for the list of type and duration of precautions needed for selected infections and conditions.

1.8.1 Standard Precautions for MDROs

1) Handwashing

Wash hands after touching blood, body fluids, secretions, excretions, and contaminated items, whether or not gloves are worn. Wash hands immediately after gloves are removed, between patient contacts, and when otherwise indicated to avoid transfer of microorganisms to other patients or environments. It may be necessary to wash hands between tasks and procedures on the same patient to prevent cross-contamination of different body sites.

Handwashing may be performed by either using soap (non-antimicrobial or soap containing antiseptic agents) and water; or antiseptic hand rub (waterless antiseptic product, most often alcohol-based, rubbed on all surfaces of hands);

2) Gloving

Wear gloves (clean non-sterile gloves are adequate) when touching blood, body fluids, secretions, excretions, and contaminated items; put on clean gloves just before touching mucous membranes and non-intact skin. Remove gloves promptly after use, before touching non-contaminated items and environmental surfaces, and before going to another patient, and wash hands immediately to avoid transfer of microorganisms to other patients or environments.

3) Face Protection (Masking & Safety Glasses, Goggles or Face Shield)

Wear a mask and eye protection or a face shield to protect mucous membranes of the eyes, nose, and mouth during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions. Examples are wound irrigation, oral suctioning, intubations. Also, when caring for patients with open tracheostomies and the

potential for projectile secretions, and when there is evidence of transmission from heavily colonized sources such as burn wounds.

4) Gowning

Wear a gown (a clean non-sterile gown is adequate) to protect skin and prevent soiling of clothes during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions or cause soiling of clothing.

5) Appropriate device handling

Handle used patient-care equipment soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing and transfer of microorganisms to other patients and environments. Ensure that reusable equipment is not used for the care of another patient until it has been appropriately cleaned and reprocessed and that single-use items are properly discarded.

6) Appropriate handling of laundry

Handle, transport, and process used linen soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of microorganisms to other patients and environments.

1.8.2 Contact Precautions for MDROs:

- 1) Placing a patient with in a private room. When a private room is not available, the patient may be placed in a room with a patient(s) who is colonized or infected with the same organism, but does not have any other infection (co-horting).
- 2) Wearing gloves (clean nonsterile gloves are adequate) when entering the room. During the course of providing care for a patient, change gloves after having contact with infective material that may contain high concentrations of microorganisms (e.g., fecal material and wound drainage). Remove gloves before leaving the patient's room and wash hands immediately with an antimicrobial agent. After glove removal and handwashing, ensure that hands do not touch potentially contaminated environmental surfaces or items in the patient's room to avoid transfer of microorganisms to other patients and environments.
- 3) Wearing a gown when entering the room if you anticipate that your clothing will have substantial contact with the patient, environmental surfaces, or items in the patient's room, or if the patient is incontinent, or has diarrhea, an ileostomy, a colostomy, or wound drainage not contained by a dressing. Remove the gown before leaving the patient's room. After gown removal, ensure that clothing does not contact potentially contaminated environmental surfaces to avoid transfer of microorganisms to other patients and environments.
- 4) Wearing a mask/eye protection or face shield if performing procedures likely to generate splash or splatter (e.g., wound manipulation, suctioning).
- 5) Limiting the movement and transport of the patient from the room to essential purposes only. If the patient is transported out of the room, ensure that precautions are maintained to minimize the risk of transmission of microorganisms to other patients and contamination of environmental surfaces or equipment.

- 6) Ensuring that patient-care items, bedside equipment, and frequently touched surfaces receive daily cleaning.
- 7) When possible, dedicating the use of non-critical patient-care equipment and items such as stethoscope, sphygmomanometer, bedside commode, or electronic rectal thermometer to a single patient (or cohort of patients infected or colonized with drug resistant organism) to avoid sharing between patients. If use of common equipment or items is unavoidable, then adequately clean and disinfect them before use on another patient.

1.8.4 Control of MDRO Outbreaks

When an outbreak of MDRO infection occurs, an epidemiologic assessment should be initiated to identify risk factors for MDRO acquisition in the institution; clinical isolates of MDRO should be saved and submitted for strain typing. Colonized or infected patients should be identified as quickly as possible, appropriate barrier precautions should be instituted, and handwashing by medical personnel before and after all patient contacts should be strictly adhered to.

All personnel should be reinstructed on appropriate precautions for patients colonized or infected with MDRO and on the importance of handwashing and barrier precautions in preventing contact transmission.

- The source patient colonized or infected with MDRO should immediately be placed on Contact Precautions in a private room (or in the same room as another MDRO infected patient).
- Contact Precautions for MDRO require that gloves are worn when entering the room; gowns should also be worn if substantial contact with the patient or environmental surfaces (including furniture, bed rails, etc.) is anticipated or if the patient is incontinent.
- Hands should be washed with antimicrobial soap after removal of gloves and gowns.
- Non-critical patient care items such as stethoscopes, thermometers or sphygmomanometers should be dedicated for the exclusive use of the patient on Contact Precautions.
- Items (i.e., wheel chairs, stretchers,) that cannot be specially dedicated to the source patient should be first cleaned and then disinfected with an institutionally approved disinfectant after each use.
- Patient(s) on Contact Precautions who need to be transported outside of the facility but within the building should be accompanied by a staff member who can inform the receiving department of the Contact Precautions. Any contaminated surfaces in the receiving department should be disinfected as above) after use by the affected patient(s).
- The charge nurse should insure that any outside facility or agency (including ambulance) is notified of Contact Precautions prior to receiving the patient.
- After discharge of a patient with MDRO, housekeeping should be instructed to clean and disinfect all environmental surfaces in the room (including phones, doorknobs etc.) using the institutionally approved disinfectant. It is the responsibility of the charge nurse to ensure that this step is completed.

Follow the recommendations published by CDC/HICPAC guidelines on Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006.

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CDC's Website "Antimicrobial Resistance in Healthcare Setting"
<http://www.cdc.gov/ncidod/dhqp/ar.html>

Section 2: Medical Surveillance

2.1 Recommended Immunizations for Health Care Workers

The information in this section has been adopted from AJIC Vol. 26 No 3 June 1998 *CDC Personnel Health Guideline: Guideline for Infection Control in Health Care Personnel*.

All health care workers should be immunized against the following diseases that may be encountered in their workplace: hepatitis B, measles, mumps, rubella, and diphtheria-tetanus. In addition, non-immune workers should be vaccinated against Varicella-zoster. Health care workers should also receive the influenza vaccine on a yearly basis to prevent transmission of the disease to their high-risk patients. Table 1 outlines the recommended vaccinations along with their indications and contraindications. There are some additional vaccinations listed in the table which may be indicated in certain situations for health care workers, but which is not routinely recommended. Health Care workers are also recommended to receive one adult tetanus-diphtheria-pertussis booster as an adult and repeat diphtheria-tetanus boosters as recommended by CDC

Table 1. Immunobiologics and schedules for health care personnel: Immunizing agents strongly recommended for health care personnel

Generic name	Primary booster Dose schedule	Indications	Major precautions and contraindications	Special considerations
Hepatitis B-recombinant vaccine	Two doses IM in the deltoid muscle 4 wk apart; 3rd dose 5 mo. after 2nd; booster doses not necessary if titer is positive	Health care personnel at risk of exposure to blood and body fluids	No apparent adverse effects to developing fetuses, not contraindicated in pregnancy; history of anaphylactic reaction to common bakers yeast	No therapeutic or adverse effects on HBV-infected persons; cost-effectiveness of prevaccination screening for susceptibility to HBV depends on costs of vaccination and antibody testing and prevalence of immunity in the group of potential vaccines; health care personnel who have ongoing contact with patients or blood should be tested 1-2 mo. after completing the vaccination series to determine serologic response
Influenza vaccine (inactivated whole or split virus)	Annual single-dose vaccination IM with current (either whole- or split-virus) vaccine	Health care personnel with contact with high-risk patients or working in chronic care facilities; personnel with high-risk medical conditions and/or ≥65 yr.	History of anaphylactic hypersensitivity after egg ingestion	No evidence of maternal or fetal risk when vaccine was given to pregnant women with underlying conditions that render them at high risk for serious influenza complications.
Measles live-virus vaccine	One dose SC; 2 nd dose at least 1 mo. later	Health care personnel born in or after 1957 without documentation of (a) receipt of two doses of live vaccine on or after their 1st birthday, (b) physician-diagnosed measles, or (c) laboratory evidence of immunity; vaccine should be considered for all personnel, including those born before 1957, who have no proof of immunity	Pregnancy; immunocompromised* state; (including HIV-infected persons with severe immunosuppression) history of anaphylactic reactions after gelatin ingestion or receipt of neomycin; or recent receipt of immune globulin	MMR is the vaccine of choice if recipients are also likely to be susceptible to rubella and/or mumps; persons vaccinated between 1963 and 1967 with (a) a killed measles vaccine alone, (b) killed vaccine followed by live vaccine, or (c) a vaccine of unknown type should be revaccinated with two doses of live measles vaccine
Mumps live- virus vaccine	Two dose of live mumps virus vaccine	Susceptible health care workers should receive 2 doses of live mumps vaccine unless they have laboratory evidence of immunity, or physician diagnosed mumps, birth before 1957 is presumptive immunity but additional 1 dose of vaccine can be considered.	Pregnancy; immunocompromised* state; history of anaphylactic reaction after gelatin ingestion or receipt of neomycin	MMR is the vaccine of choice if recipients are also likely to be susceptible to measles and rubella
HDCV, Human diploid cell rabies vaccine; rabies vaccine absorbed; IPV, inactivated poliovirus vaccine; OPV, oral poliovirus vaccine; ID, intradermally. *Persons immunocompromised because of immune deficiencies, HIV infection, leukemia, lymphoma, generalized malignancy, or immunosuppressive therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation.				

Table 1. Continued

Generic name	Primary booster Dose schedule	Indications	Major precautions and contraindications	Special considerations
Rubella live- virus vaccine	One dose SC; no booster	Health care personnel, both male and female, who lack documentation of receipt of live vaccine on or after their 1 st birthday, or of laboratory evidence of immunity; adults born before 1957 can be considered immune, except women of childbearing age	Pregnancy; immunocompromised* state; history of anaphylactic reaction after receipt of neomycin	Women pregnant when vaccinated or who become pregnant within 3 mo. of vaccination should be counseled on the theoretic risks to the fetus, the risk of rubella vaccine-associated malformations in these women is negligible; MMR is the vaccine of choice if recipients are also likely to be susceptible to measles or mumps
Varicella-zoster live-virus vaccine	Two 0.5 ml doses SC 4-8 wk apart if ≥13 yr.	Health care personnel without reliable history of Varicella or laboratory evidence of Varicella immunity	Pregnancy, immunocompromised* state, history of anaphylactic reaction after receipt of neomycin or gelatin; salicylate use should be avoided for 6 wk after vaccination	Because 71%-93% of persons without a history of varicella are immune, serologic testing before vaccination may be cost-effective
BCG vaccine (for tuberculosis)	One percutaneous dose of 0.3 ml; no booster dose recommended	Health care personnel in communities where (a) MDR-TB is prevalent, (b) strong likelihood of infection exists, and (c) full implementation of TB infection control precautions has been inadequate in controlling the spread of infection (<i>NOTE: BCG should be used after consultation with local and/or state health department</i>)	Immunocompromised* state and pregnancy	In the United States, TB control efforts are directed toward early identification and treatment of cases of active TB and toward preventive therapy with isoniazid for PPD converters
Hepatitis A Vaccine	Two doses of vaccine IM, either (HAVRIX™) 6-12 mo. apart or (VAQTA™) 6 mo. apart	Not routinely indicated for U.S. health care personnel; however, persons who work with HAV-infected primates or with HAV in a laboratory setting should be vaccinated	History of anaphylactic reaction to alum or the preservative 2-phenoxy-ethanol; vaccine safety in pregnant women has not been evaluated, risk to fetus is likely low and should be weighed against the risk of hepatitis A in women at high risk	Health care personnel who travel internationally to endemic areas should be evaluated for vaccination
HDCV, Human diploid cell rabies vaccine; rabies vaccine absorbed; IPV, inactivated poliovirus vaccine; OPV, oral poliovirus vaccine; ID, intradermally. *Persons immunocompromised because of immune deficiencies, HIV infection, leukemia, lymphoma, generalized malignancy, or immunosuppressive therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation.				

Table 1. Continued

Generic name	Primary booster Dose schedule	Indications	Major precautions and contraindications	Special considerations
Meningo-coccal poly-saccharide (quadrivalent A, C, W135, and Y) vaccine	One dose in volume and by route specified by manufacturer; need for boosters is unknown	Not routinely indicated for health care workers in the United States	Vaccine safety in pregnant women has not been evaluated; vaccine should not be given during pregnancy unless risk of infection is high.	May be useful in certain outbreak situations
Polio vaccine	IPV, two doses SC given 4-8 wk apart followed by 3rd dose 6-12 mo. after 2nd dose; booster doses may be IPV	Health care personnel in close contact with persons who may be excreting wild virus and laboratory personnel handling specimens that may contain wild poliovirus	History of anaphylactic reaction after receipt of streptomycin or neomycin; because safety of vaccine has not been evaluated in pregnant women, it should not be given during pregnancy	Use only IPV for immunosuppressed persons or personnel who care for immunosuppressed patients.
Rabies vaccine	Primary, HDCV or RVA IM, 1.0 ml (deltoid area) one each on days 0, 7, 21, or 28, or HDCV, ID, 0.1 ml, one each on days 0, 7, 21, and 28; booster, HDCV or RVA, IM, 1.0 ml (deltoid area), day 0 only, or HDCV, ID, 0.1 ml, day 0 only	Personnel who work with rabies virus or infected animals in diagnostic or research activities	No restriction	The frequency of booster doses should be based on frequency of exposure. See CDC reference for Rabies Prevention for postexposure recommendations
Tetanus and Diphtheria (Td)	Two doses IM 4 wk apart; 3 rd dose 6-12 mo. after 2nd dose; booster every 10 yr.	All adults; tetanus prophylaxis in wound management	First trimester of pregnancy; history of a neurologic reaction or immediate hypersensitivity reaction; individuals with severe local (Arthus-type) reaction after previous dose of Td vaccine should not be given further routine or emergency doses of Td for 10 yr.	
*The term immunocompromised includes persons who are immunocompromised from immune deficiency diseases, HIV infection, leukemia, lymphoma, or generalized malignancy, or immunosuppressed as a result of therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation.				

Table 1. Continued

Generic name	Primary booster Dose schedule	Indications	Major precautions And contraindications	Special considerations
Tetanus-diphtheria acellular pertussis	One dose as an adult	Adults should have one dose in place of regular diphtheria-tetanus booster at greater than or equal to 10 years after last Td booster. Adults who have contact with children under 12 months old and health care workers are recommended to get one Tdap if more than 2 years have passed since last tetanus booster.	Pregnant women should defer Tdap until after delivery at this time. Anyone with unstable neurological condition should defer, see other precautions under Adult diphtheria-tetanus	
Typhoid vaccines: IM, SC and oral	One 0.5 ml dose IM; booster dose of 0.5 ml; every 2 yr.; (Vi capsular polysaccharide) or two 0.5 ml doses SC, 4 or more wk apart; boosters of 0.5 ml SC every 3 yr. if exposure continues or four oral doses on alternate days; (Ty21a) vaccine manufacturer's recommendation is revaccination with the entire four-dose series every 5 yr.	Personnel in laboratories who frequently work with Salmonella typhi	History of severe local or systemic reaction to a previous dose of typhoid vaccine; Ty21a vaccine should not be given to immunocompromised* personnel	Vaccination should not be considered as an alternative to the use of proper procedures when handling specimens and cultures in the laboratory
Vaccinia vaccine (smallpox)	One dose administered with a bifurcated needle; boosters every 10 yr.	Personnel who directly handle cultures of or animals contaminated with recombinant Vaccinia viruses or orthopox viruses (monkeypox, cowpox, Vaccinia, etc.) that infect human beings	Pregnancy, presence or history of eczema, or immunocompromised ⁷ status in potential vaccinees or in their household contacts	Vaccination may be considered for health care personnel who have direct contact with contaminated dressings or other infectious material from volunteers in clinical studies involving recombinant Vaccinia virus
*The term immunocompromised includes persons who are immunocompromised from immune deficiency diseases, HIV infection, leukemia, lymphoma, or generalized malignancy, or immunosuppressed as a result of therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation.				

2.2 Tuberculosis Testing

Employees and students at risk should be tested for TB exposure by a tuberculin skin test (PPD) on an annual basis. New employees will be referred to the Employee Health Department upon being hired for baseline PPD testing. Employees with a history of a previous positive PPD test will not be retested but should provide documentation of a negative chest x-ray as part of their evaluation for the positive PPD. Employees exempt from the tuberculin skin test must be informed about symptoms of TB and the need for immediate evaluation of any pulmonary symptoms suggestive of TB by a primary or trained health care provider to determine if symptoms of TB disease have developed.

All University employees and students in contact with patients or clients in hospitals, clinics or long term facilities must be tested for TB exposure by a tuberculin skin test (PPD) on an annual basis. This includes students who deliver care conduct research or consult individuals. In addition, any student who volunteers in correctional facilities, hospices, shelters for the homeless or drug/alcohol treatment facilities should be retested on an annual basis.

Employees and students who test positive on PPD testing will be referred for a chest *x-ray* and will be evaluated for any signs of active TB infection. If no signs of active infection (such as fatigue, fever, chills, night sweats, loss of appetite, weight loss, sputum production, coughing up blood - hemoptysis, chest pain, hoarse voice) are present the employees will be referred for prophylactic treatment when appropriate following established CDC recommendations.

If an employee is exposed to someone with active TB through their job, they should contact the Employee Health Department at 432-7978 at Yale University Health Services to arrange for a tuberculosis skin test now and again at 3 months. If the employee's skin test remains negative, they can return for annual skin testing if they are in a job category which has potential exposure. If the skin test shows evidence of recent infection, they will be referred for a Chest X-ray and a discussion of appropriate treatment or prophylaxis.

2.3 Communicable Disease Work Restrictions for Health Care Workers

Adopted from the AJIC Vol. 26 No 3 June 1998 *CDC Personnel Health Guideline: Guideline for Infection Control in Health Care Personnel*

Table 2 summarizes the suggested work restrictions for health care workers who are infected with infectious diseases of importance in health care settings. In some cases, state and local regulations may regulate the restrictions in a given area. Employees who are suffering from any of these listed infections should report it to their supervisor, who should then report it to the infection control coordinator and the Department of Employee Health for further guidance or advice on the restrictions and return to duty.

Table 2. Summary of suggested work restrictions for health care personnel exposed to or infected with infectious diseases of importance in health care setting (modified from ACIP recommendations).

Disease/Problem	Work Restriction	Duration
Conjunctivitis	Restrict from patient contact and contact with the patient's environment	Until discharge ceases
Cytomegalovirus infections	No restriction	
Diarrheal diseases Acute stage (diarrhea with other symptoms) Convalescent stage, <i>Salmonella</i> spp.	Restrict from patient contact, contact with the patient's environment, or food handling Restrict from care of high-risk patients	Until symptoms resolve Until symptoms resolve; consult with local and state health authorities regarding need for negative stool cultures
Diphtheria	Exclude from duty	Until antimicrobial therapy completed and 2 cultures obtained ≥ 24 hours apart are negative
Enteroviral infections	Restrict from care of infants, neonates, and immunocompromised patients and their environments	Until symptoms resolve
Hepatitis A	Restrict from patient contact, contact with patient's environment, and food handling	Until 7 days after onset of jaundice
Hepatitis B Personnel with acute or chronic hepatitis B surface antigenemia who do not perform exposure-prone procedures Personnel with acute or chronic hepatitis B e antigenemia who perform exposure-prone procedures	No restriction*; refer to state regulations; standard precautions should always be observed Do not perform exposure-prone invasive procedures until counsel from an expert review panel has been sought; panel should review and recommend procedures the worker can perform, taking into account specific procedure as well as skill and technique of worker; refer to state regulations	Until hepatitis B e antigen is negative
Hepatitis C	No recommendation	
<p>*Unless epidemiologically linked to transmission of infection †Those susceptible to Varicella and who are at increased risk of complications of Varicella, such as neonates and immunocompromised persons of any age. ‡ High-risk patients as defined by the ACIP for complications of influenza.</p>		

Table 2 Continued

Disease/Problem	Work Restriction	Duration
Herpes simplex Genital Hands (herpetic whitlow) Oralfacial	No restriction Restrict from patient contact and contact with the patient’s environment Evaluate for need to restrict from care of high-risk patients	Until lesions heal
Human immunodeficiency virus	Do not perform exposure-prone invasive procedures until counsel from an expert review panel has been sought; panel should review and recommend procedures the worker can perform, taking into account specific procedures as well as skill and technique of the worker; standard precautions should always be observed; refer to state regulations	
Measles Active Postexposure (susceptible personnel)	Exclude from duty Exclude from duty	Until 7 days after the rash appears From 5 th day after 1 st exposure through 21 st day after last exposure and/or 7 days after rash appears
Meningococcal infections	Exclude from duty	Until 24 hours after start of effective therapy
Mumps Active Postexposure (susceptible personnel)	Exclude from duty Exclude from duty	Until 9 days after onset of parotitis From 12 th day after 1 st exposure through 26 th day after last exposure or until 9 days after onset of parotitis
Pediculosis	Restrict from patient contact	Until treated and observed to be free of adult and immature lice
*Unless epidemiologically linked to transmission of infection †Those susceptible to Varicella and who are at increased risk of complications of Varicella, such as neonates and immunocompromised persons of any age. ‡ High-risk patients as defined by the ACIP for complications of influenza.		

Table 2 Continued

Revised: 10/29/01

Disease/Problem	Work Restriction	Duration
Pertussis Active Postexposure (asymptomatic personnel) Postexposure (symptomatic personnel)	Exclude from duty No restriction, prophylaxis recommended Exclude from duty	From beginning of catarrhal (inflammation of mucous membranes) stage through 3 rd wk after onset of paroxysms or until 5 days after start of effective antimicrobial therapy Until 5 days after start of effective antimicrobial therapy
Rubella Active Postexposure (susceptible personnel)	Exclude from duty Exclude from duty	Until 5 days after rash appears From 7 th day after 1 st exposure through 21 st day after last exposure
Scabies	Restrict from patient contact	Until cleared by medical evaluation
<i>Staphylococcus aureus</i> infection Active, draining skin lesions Carrier state	Restrict from contact with patients and patient's environment or food handling No restriction, unless personnel are epidemiologically linked to transmission of the organism	Until lesions have resolved
Streptococcal infection, Group A	Restrict from patient care, contact with patient's environment, or food handling	Until 24 hours after adequate treatment started
Tuberculosis Active disease PPD converter	Exclude from duty No restriction	Until proved noninfectious
Varicella Active Postexposure (susceptible personnel)	Exclude from duty Exclude from duty	Until all lesions dry and crust From 10 th day after 1 st exposure through 21 st day (28 th day if VZIG given) after last exposure
*Unless epidemiologically linked to transmission of infection †Those susceptible to Varicella and who are at increased risk of complications of Varicella, such as neonates and immunocompromised persons of any age. ‡ High-risk patients as defined by the ACIP for complications of influenza.		

Table 2 Continued

Disease/Problem	Work Restriction	Duration
<p>Zoster</p> <p>Localized, in healthy person</p> <p>Generalized or localized in immunosuppressed person</p> <p>Postexposure (susceptible personnel)</p>	<p>Cover lesions; restrict from care of high-risk patients†</p> <p>Restrict from patient contact</p> <p>Restrict from patient contact</p>	<p>Until all lesions dry and crust</p> <p>Until all lesions dry and crust</p> <p>From 8th day after 1st exposure through 21st day (28th day if VZIG given) after last exposure or, if Varicella occurs, until all lesions dry and crust</p>
<p>Viral respiratory infections, acute febrile</p>	<p>Consider excluding from the care of high risk patients‡ or contact with their environment during community outbreak of RSV and influenza</p>	<p>Until acute symptoms resolve</p>
<p>*Unless epidemiologically linked to transmission of infection</p> <p>†Those susceptible to Varicella and who are at increased risk of complications of Varicella, such as neonates and immunocompromised persons of any age.</p> <p>‡ High-risk patients as defined by the ACIP for complications of influenza.</p>		

2.4 Guidelines for Pregnant Health care Personnel

Adopt from AJIC Vol. 26 No 3 June 1998 *CDC Personnel Health Guideline: Guideline for Infection Control in Health Care Personnel*

Pregnant health care workers are at no greater risk than other personnel for acquiring an infectious disease as a result of caring for patients. However, since some infections can pose a risk to the fetus due to perinatal transmission, pregnant workers should adhere to Standard and Transmission Based Precautions regardless of their individual immune status with respect to certain diseases. Pregnant workers should also be aware of their own immune status with respect to communicable diseases and be up-to-date on vaccinations that are available for these diseases.

Table 3. Pregnant health care personnel: Pertinent facts to guide management of occupational exposures to infectious agents

Agent	Potential Effect on Fetus	Rate of Perinatal Transmission	Maternal Screening	Prevention
1. Cytomegalovirus	Hearing loss; congenital syndrome*	15% after primary maternal infection; symptomatic 5%	Antibody provides some but not complete protection against clinical disease; routine screening not recommended	Standard precautions
2. Hepatitis B	Hepatitis; development of chronic infection in infant	HBeAg seropositive 90%; HBeAg negative 0-25%	HBsAg routine screening recommended	Vaccine and HBIG to infant; standard precautions
3. Hepatitis C	Hepatitis	2% - 5%	Anti-HCV; HCV RNA in reference labs; routine screening not recommended	Standard precautions
4. Herpes simplex	Mucocutaneous lesions, sepsis, encephalitis; congenital malformations (rare)	Unlikely from nosocomial exposure; primary 33%-50%, recurrent 4%	Antibody testing not useful; inspection for lesions at delivery	Standard precautions
5. Human immunodeficiency virus (HIV)	AIDS by 2-3 yr.	8%-30%	Antibody by enzyme immunoassay, Western blot	Avoid high-risk behaviors; consider postexposure prophylaxis after high-risk needlestick exposure; intrapartum and postnatal zidovudine for HIV-seropositive mothers and their babies; standard precautions
6. Influenza	Inconsistent	Rare	None	Vaccine (safe during pregnancy); droplet precautions

Table 3 Continued

Agent	Potential Effect on Fetus	Rate of Perinatal Transmission	Maternal Screening	Prevention
7. Measles	Prematurity; abortion	Rare	History, antibody	Vaccine†; airborne precautions
8. Parovirus B19	Hydrops, stillbirth	Rare, 3% - 9% maximum adverse outcome	IgM and IgG antibody prepregnancy; antibody protection	Droplet precautions
9. Rubella	Congenital syndrome*	45% - 50% overall; 90% in 1 st 12 wk	Antibody	Vaccine†; droplet precautions for acute infection; contact precautions for congenital rubella
10. Tuberculosis	Hepatomegaly, pulmonary, CNS	Rare	Skin test	Isoniazid ethambutol for disease; airborne precautions
11. Varicella-zoster	Malformations (skin, limb, CNS, eye); chickenpox	Total 25%; congenital syndrome (0-4%)	Antibody	Vaccine†; VZIG within 96 hours of exposure if susceptible; airborne and contact precautions

Modified from Siegel JD. Risk and exposure for the pregnant health-care worker. In: Olmstead RN, editor. APIC infection control and applied epidemiology; principles and practices. St Louis: Mosby; 1996. p. 22-2-22-3 (table 22-1). *HBeAg*, Hepatitis Be antigen; *CNS*, central nervous system.
 *Congenital syndrome: varying combinations of jaundice, hepatosplenomegaly, microcephaly, CNS abnormalities, thrombocytopenia, anemia, retinopathy, and skin and bone lesions.
 †Live-virus vaccines are given routinely before pregnancy.

2.5 Emergency Procedures for Exposure to Blood, Body Fluids, or Other Potentially Infectious Materials

An "exposure incident" is specific contact (eye, mouth, other mucous membrane, respiratory tract via inhalation, non-intact skin, or parenteral) with potentially infectious materials that results from the performance of an employee's duties. An employee who sustains a known or potential exposure incident must remove gloves and treat the affected area immediately by following the appropriate exposure incident response below. Employees should immediately report the exposure incident to their supervisor and seek medical attention.

2.5.1 Needlestick, Percutaneous Injury or Splatter/Splash to Non-Intact Skin

- Employees exposed to blood or body fluids by a needlestick, cut, bite, or splash to a mucous membrane or non-intact skin should immediately wash the affected area with soap and water for 15 minutes. If the splash is to the eyes or mucous membrane, the area should be flushed with water for 15 minutes.

2.5.2 Eyes or Mucous Membrane

- If the splash is to the eyes or mucous membrane, the area should be flushed with water for 15 minutes

2.5.3 Reporting Incident

Employees should immediately report the exposure incident to their supervisor. The supervisor must complete a Department Head's Report of Injury form and a Health Service Report form documenting the route of exposure and the circumstances under which the incident occurred.

2.5.4 Medical Assistance

- Employees or students should immediately report for medical care at Yale Health Plan (**Employee Health Office 432-7978, Graduate Student Medicine 432-0312 or Urgent Visit 432-0123**). It is important to begin any recommended treatment within 1 to 2 hours after exposure.
- If the exposure occurs at the Yale-New Haven Hospital (YNHH) and the employee wishes to be seen on site, they should report to Personnel Health Service (7:30 A.M. to 4:30 P.M., Monday through Friday) or the Yale-New Haven Hospital Emergency Room if the episode occurs outside of regular daytime working hours. However, employee must still contact Employee Health to notify of incident and to report to Employee Health for any follow-up visits after the initial visit at YNHH Personnel Health Service or YNHH Emergency Room .

2.5.5 Needlestick Procedures

- The exposed employee/student should immediately be tested for baseline HIV, Hepatitis B Surface Ab, and Hepatitis C Ab following established testing guidelines.
- The exposed person will be counseled regarding the risk of seroconversion for HIV; symptoms of disease (acute retroviral syndrome), precautions to prevent secondary spread, and possible indication for antiviral prophylaxis. The enclosed counseling guidelines should be referenced and the following table should be used when making decisions regarding antiviral prophylaxis.
- Workers who receive antiviral prophylaxis should also have baseline CBC and renal and hepatic function tests drawn.
- The suspected source patient for the exposure should be immediately approached to give consent for a baseline HIV, Hepatitis B S Ag, Hepatitis B S Ab, Hepatitis B core Ab, and Hepatitis C Ab. The attending primary care provider for the source patient should be notified to obtain this testing. The Yale Health Plan or Personnel Health providers can assist with this process. If the source patient does not give consent for testing, the institution's needlestick committee should convene as soon as possible to take the necessary steps to obtain testing.
- If antiviral prophylaxis for HIV is indicated, the employee/student will be given a 96-hour packet of prophylactic medication that is available at each institution.
- The exposed person will then be instructed to follow up with the appropriate department (either Employee Health at 432-7978 or Graduate Student Medicine at 432-7529) on the next business day to receive further instructions.
- Anyone receiving antiviral prophylaxis should be reevaluated at 2 weeks and 4 weeks post-exposure for CBC, LFT's, and renal function to check for any symptoms of drug toxicity that might indicate the need for reduction of dosage or change in medication. Expert consultation with an infectious disease specialist should be obtained for situations that might require a change in the protocol.
- Exposed person should be retested for HIV antibody at 6 weeks, 12 weeks and 6 months post-exposure. Testing may be extended for a year if recommended by the medical provider on a case-by-case basis.

- Appropriate prophylaxis for Hepatitis B exposure should be included in all evaluations where indicated.
- If the source patient's HIV status subsequently becomes known, the decision about antiviral prophylaxis can be modified as clinically indicated.
- Those exposed to blood or bodily fluids should make sure an incident report is filed within 24 hours; employees should also make sure a Supervisor's Report of Injury is filed.

All records of testing and treatment must follow established confidentiality guidelines and be recorded on a separate sheet of paper and forwarded to the physician who will be following the patient (either in Employee Health or Graduate Medicine). The records must not be placed in the patient's chart. Breaches of confidentiality will be vigorously investigated and may result in disciplinary actions.

2.6 Post Exposure Prophylaxis guidelines for exposure to other infectious agents

Adopt from AJIC Vol. 26 No 3 June 1998 *CDC Personnel Health Guideline: Guideline for Infection Control in Health Care Personnel*

The following table outlines prophylactic regimens that may be prescribed in situations where a health care worker is exposed to an infectious agent or communicable disease. Health care workers who are exposed to any of these infections through their work should notify their supervisor, who will then refer them to the Department of Employee Health for evaluation and discussion of prophylaxis.

Table 4. Immunobiologics and schedules for health care personnel: Diseases for which postexposure prophylaxis may be indicated for health care personnel

Disease	Prophylaxis	Indications	Major precautions and contraindications	Special considerations
Diphtheria	Benzathine penicillin, 1.2 mU IM, single dose, or erythromycin (1 gm/day) PO x 7 days	For health care personnel exposed to diphtheria or identified as carriers		Also administer one dose Td to previously immunized if no Td has been given in ≥ 5 yr.
Hepatitis A	One IM dose IG 0.02 ml/kg given within 2 wk of exposure in large muscle mass (deltoid, gluteal)	May be indicated for health care personnel exposed to feces of infected persons during outbreaks	Persons with IgA deficiency; do not administer within 2 wk after MMR or within 3 wk after varicella vaccine	
Hepatitis B	HBIG 0.06 ml/kg IM as soon as possible (and within 7 days) after exposure (with dose 1 of hepatitis B vaccine given at different body site); if hepatitis B series has not been started, 2 nd dose of HBIG should be given 1 mo. after 1 st	HBV-susceptible health care personnel with percutaneous or mucous-membrane exposure to blood known to be HBsAg seropositive		
Meningococcal disease	Rifampin, 600 mg PO every 12 hours for 2 days, or ceftriaxone, 250 mg IM, single dose, or ciprofloxacin, 500 mg PO, single dose	Personnel with direct contact with respiratory secretions from infected persons without the use of proper precautions (e.g., mouth-to-mouth resuscitation, endotracheal intubation, endotracheal tube management, or close examination of oropharynx)	Rifampin and ciprofloxacin not recommended during pregnancy	
Pertussis	Erythromycin, 500 mg qid PO, or trimetho-prim-sulfamethoxazole, 1 tablet bid PO, for 14 days after exposure	Personnel with direct contact with respiratory secretions or large aerosol droplets from respiratory tract of infected persons.		
<p><i>PO</i>, Orally; <i>Td</i>, tetanus-diphtheria toxoid; <i>IG</i>, immune globulin; <i>IgA</i>, immunoglobulin A; <i>qid</i>, four times daily; <i>bid</i>, twice daily; <i>HRIG</i>, human rabies immunoglobulin; <i>HDCV</i>, human diploid cell rabies vaccine; <i>RVA</i>, rabies vaccine absorbed.</p> <p>*Persons immunocompromised because of immune deficiencies, HIV infection, leukemia, generalized malignancy, or immunosuppressive therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation.</p> <p>†Some persons have recommended 125 U/10 kg regardless of total body weight.</p>				

Table 4. Continued

Disease	Prophylaxis	Indications	Major precautions and contraindications	Special considerations
Rabies	For those never vaccinated: HRIG 20 IU/kg, half infiltrated around wound, and HDCV or RVA vaccine, 1.0 ml, IM (deltoid area), 1 each on days 0, 3, 7, 14, and 28	Personnel who have been bitten by human being or animal with rabies or have had scratches, abrasions, open wounds, or mucous membranes contaminated with saliva or other potentially infective material (e.g., brain tissue)		Personnel who have previously been vaccinated, give HDCV or RVA vaccine, 1.0 ml, IM, on days 0 and 3; no HRIG is necessary
Varicella zoster virus	VZIG for persons ≤50 kg: 125 U/10kg IM; for persons >50 kg: 625 U†	Personnel known or likely to be susceptible to varicella and who have close and prolonged exposure to an infectious health care worker or patient, particularly those at high risk for complications, such as pregnant or immunocompromised persons		Serologic testing may help in assessing whether to administer VZIG; if varicella is prevented by the use of VZIG, vaccine should be offered later
<p><i>PO</i>, Orally; <i>Td</i>, tetanus-diphtheria toxoid; <i>IG</i>, immune globulin; <i>IgA</i>, immunoglobulin A; <i>qid</i>, four times daily; <i>bid</i>, twice daily; <i>HRIG</i>, human rabies immunoglobulin; <i>HDCV</i>, human diploid cell rabies vaccine; <i>RVA</i>, rabies vaccine absorbed, <i>VZIG</i> Varicella Zoster Immune globulin.</p> <p>*Persons immunocompromised because of immune deficiencies, HIV infection, leukemia, generalized malignancy, or immunosuppressive therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation.</p> <p>†Some persons have recommended 125 U/10 kg regardless of total body weight.</p>				

Section 3: Handling Waste

The purpose of this section is to provide practical guidelines for employees who handle, manage, transport and dispose of waste.

3.1 Definition of Biomedical Waste

3.1.1 Human Pathological Wastes

Pathological waste consists of human tissues; organs; body parts; blood; dialysate; cerebrospinal, synovial, pleural, peritoneal, and pericardial fluids; and their respective containers.

3.1.2 Human Blood and Blood Products Waste and Their Containers Including:

- Waste human blood and blood products (e.g. blood plasma, platelets, red or white corpuscles, and other derived licensed products such as interferon, etc.)
- Items saturated or dripping with human blood or blood products.
- Items caked with dried human blood or blood products.
- Items that can release human blood, blood products or body fluids if compressed.
- Intravenous (IV) bags.

3.1.3 Intravenous bags

Chemotherapy Intravenous bags or containers with chemotherapy liquid <3% of container volume must be placed into the red plastic medical waste containers.

IV bags or containers containing human blood and blood products.

3.1.4 Sharps Waste

This category includes used hypodermic needles, syringes (with or without the attached needles), pasteur pipettes, disposable plastic pipettes, scalpel blades, razor blades, blood vials, test tubes, needles with attached tubing, broken plastic culture dishes, unbroken glass culture dishes, and other types of broken and unbroken glassware that was in contact with infectious material including microscope slides and coverslips.

All intravascular sharps are considered medical waste regardless of the presence of infectious material and must be discarded in beige sharps containers. Do not discard intravascular sharps in the look alike waste stream.

3.1.5 Isolation Wastes

Isolation wastes are defined as biological wastes and discarded materials contaminated with blood, excretion, exudates, or secretions from humans or animals isolated due to infection with Class 4 microbial agents.

If a human or animal is known to be infected with a Class 4 agent, contact the Biological Safety Officer (737-5009) immediately.

3.1.6 Chemotherapy Waste and Medical Waste

Items contaminated with trace amounts of a chemotherapeutic agent or empty stock bottles may be disposed of through the medical waste stream. "Empty" is defined as containing less than 3% by weight of the total capacity of the container.

Chemotherapy IV bags or containers (no needles attached) with >3% of container volume must call OEHS at 785-3551 to schedule a pickup of this waste. Stock solutions of these chemicals

and items that are heavily contaminated are disposed of through the Chemical Hazardous Waste Program. These containers must be labeled with the words “Hazardous Waste”. Call Yale University’s Environmental Services Section (785-3551) for guidelines concerning the disposal of chemical hazardous waste.

3.1.7 Look-Alike Waste

Look-alike waste is not considered medical waste. Look-alike waste is plastic or glass labware, lab matting and gloves that have not been in contact with human materials or other potentially infectious material. Saline IV bags are not regulated medical waste. Place saline bags (no needles attached) into the general trash containers. Look-alike waste is disposed of through a separate waste stream and should not be placed in the medical waste stream. Items should be discarded in a manner to prevent physical injury to those people handling the waste. Glass and items that are capable of puncturing bags should be placed in a plastic lined cardboard box. Do not autoclave or chemically decontaminate look-alike waste.

3.2 Medical Waste Management

There is no epidemiological evidence that clinical waste, when properly disposed, is more infective to the community than residential waste. However, it does present a greater risk to waste-handlers until it reaches the final disposal location. Medical waste must always, therefore, be handled carefully. *Infection capability is dependent on:*

- the presence of a human pathogen
- a pathogen with sufficient virulence in sufficient dose to cause disease
- the availability of a potential host’s portal of entry
- the resistance of the host

The following waste shall be declared as medical waste and shall be subject to the special waste-handling described below

- contaminated sharps
- unused, discarded hypodermic needles, suture needles, scalpel blades and syringes
- used intravenous equipment
- isolation wastes from patients infected with these viruses
 - Kyasanur Forest Disease
 - Hypr
 - Junin
 - Marburg
 - Russian spring-summer encephalitis
 - Congo-Crimean Hemorrhagic fever
 - Omsk hemorrhagic fever
 - Lassa
 - Machupo
 - Ebola
- cultures and stocks of infectious agents
- human blood and blood products
- dressings, paper tissues and other disposable items saturated or dripping with blood or items caked with dried blood
- pathological wastes

- Medical waste must be collected and transported in leak proof and impervious bags or containers prior to autoclaving or incineration. Items other than the infective waste described, even if the item has had contact with blood, exudates or secretions, may be disposed of with all other trash. All trash must be collected and transported to the collection bin in leak proof, impervious bags. Bulk blood, suctioned fluids, excretions and secretions must be carefully poured down a drain connected to a sanitary sewer, and bleach must be poured into the drain before disposing of contaminated fluid and also after disposing of contaminated fluid.

3.3 Guidelines on the Management of Infectious Waste

Medical Waste

- Wearing gloves place contaminated dressings, tissues and other articles soiled by respiratory, oral, blood or wound secretions in a red medical waste container.
- Place waste in the designated area for Medical waste removal.
- Dispose of urine, feces, secretions and excretions into the patient's toilet or hopper sink.
- Do not dispose of wastes in the patient's sink.
- If there is no toilet in the patient's room, the nurse must prearrange with another staff member to be available to handle the patient's contaminated secretions and excretions. Wearing gloves, the employee will carefully transport the waste material to the soiled utility room (or bathroom if dirty utility room unavailable) for disposal in the hopper sink.

Blood and Blood Products

- **Wash hands** (See section on handwashing).
- Wear gloves when soiling with blood is likely and when collecting, handling, transporting, examining and disposing of items contaminated with blood.
- Wear a gown if soiling with blood or body fluids is likely.
- Wash hands immediately following contact with blood and blood products. This remains an essential activity for self-protection. Hands should always be washed after contamination with patient's secretions, excretions, contaminated equipment and soiled linen.
- Clean up any spillage of blood immediately with a solution of 5.25 sodium hypochlorite (bleach) and water. Use one part bleach to nine parts water, or another EPA registered disinfectant.

These recommendations are for the protection of patient care personnel, specimen transporting personnel, laboratory personnel, and everyone who works in the institution. When handling blood, employees should be aware the potential exists for the acquisition of Hepatitis B, Hepatitis C, HIV, Cytomegalovirus (CMV), other viruses and biological agents which are bloodborne.

3.4 Trash handling

- All material for disposal, except material designated as "infectious," will be disposed of using the ordinary trash removal system which terminates with the trash removal from facility and off-loading at an approved municipal landfill.
- Gross liquid content found in various containers to be discarded should be eliminated by the individual, generating the waste, prior to the introduction of the container into the trash disposal system.
- Containers (e.g., bed pans, emesis basins, urinals, urinal hats, respiratory suction tubing, suction canister liners & tubing) holding urine, feces, vomitus or nasogastric drainage are

discarded in regular trash after emptying fluids into sanitary sewer system, and rinsing container.

- All trash shall be placed in a high tensile strength, impervious, liquid-tight bag prior to being sent down a trash chute.

3.5 Procedure for Trash Disposal

- Use plastic liners in all wastebaskets.
- Discard paper and disposable items into the plastic liner in the wastebasket. When full, the plastic liner should be sealed and disposed of into another larger bag, and not reused.
- Do not discard needles and syringes into the wastebasket.
- Close bag tightly and secure with tie or tape.

3.6 Disposal of Chemotherapy Waste

There are currently eight chemotherapy drugs that are listed as hazardous waste:

- Arsenic Trioxide
- Chlorambucil
- Cyclophosphamide
- Daunomycin
- Melphalan
- Mitomycin C
- Streptozotocin
- Uracil Mustard

However, due to similarity of structure, mode of action and toxicity, all chemotherapy drugs are to be managed and disposed of as hazardous waste at Yale University and its affiliated clinics.

As a large quantity generator of hazardous waste, Yale University is regulated by the Environmental Protection Agency (EPA) and the Connecticut Department of Environmental Protection (CTDEP). Federal and state hazardous waste laws allow for civil and criminal penalties to be assessed against institutions and/or individuals that improperly dispose of hazardous wastes. The following procedures are recommended for laboratory and clinic personnel for the compliant management and disposal of chemotherapy drugs and related waste.

Empty syringes, vials and IV bags should be placed into a biomedical waste container that is labeled as “Anatomical/Pathological Waste.” “Anatomical/Pathological Waste” labels can be obtained from OEHS by calling 785-3551. A container is considered empty if it contains no more than 3% by weight of the total capacity of the container. This is important because, with the exception of Arsenic Trioxide which is designated as acutely hazardous waste by EPA regulations, empty containers do not have to be disposed of as hazardous waste. Empty containers that previously held Arsenic Trioxide should be managed and disposed of as hazardous waste (see 3.6.1 Hazardous Waste Management & Disposal Guidelines). Items that have come in contact with Arsenic Trioxide should be managed and disposed of as hazardous waste (see 3.6.1 Hazardous Waste Management & Disposal Guidelines). Examples of such items include, but are not limited to, gloves and empty syringes.

Vials and IV bags that are not empty (> 3% by weight of the total capacity of the container) should be managed and disposed of as hazardous waste (see 3.6.1 Hazardous Waste Management & Disposal Guidelines). Because chemotherapy drugs are compatible with each other, vials and

IV bags that are not empty should be consolidated into a larger container that is labeled and managed per the Hazardous Waste Management & Disposal Guidelines in section 3.6.1.

Items that are heavily contaminated with chemotherapy drugs should be managed and disposed of as hazardous waste (see 3.6.1 Hazardous Waste Management & Disposal Guidelines).

All syringes (with and without needles) should be placed into a needle box. If, after use, a syringe contains liquid, the liquid must be removed from the syringe and collected in a separate closed container (i.e. the original drug vial). Once the liquid is removed, the syringe should be placed into a needle box. Containers used to collect liquid from syringes should be managed and disposed of as hazardous waste (see 3.6.1 Hazardous Waste Management & Disposal Guidelines).

3.6.1 Hazardous Waste Management and Disposal Guidelines

Hazardous waste container labeling requirements:

- Each container must be labeled with the words “Hazardous Waste.”
- Each container must be labeled with its specific chemical contents spelled out in English (i.e. Mitomycin C, Arsenic Trioxide).

Hazardous waste container management requirements:

- Each container must be capped at all times except when waste is added or removed.
- Each container must be in good condition (no leaks when inverted and no chemical residue on its exterior). If a container is not in good condition, it should be placed in a secondary container, which can be closed securely (i.e. zippered plastic bag, jar with a screw-on lid)
- Each container must be compatible with its contents.
- Containers of hazardous waste should be stored in secondary containers, such as the blue trays provided by OEHS. To request the delivery of secondary containment trays, call OEHS at 785-3551.
- Containers of hazardous waste must be stored in a designated Satellite Accumulation Area until removed by OEHS. Satellite Accumulation Areas are to be identified using the fluorescent green posters provided by OEHS. For assistance setting up a Satellite Accumulation Area or for the delivery of a Satellite Accumulation Area poster, call OEHS at 785-3551.

Hazardous waste container disposal:

- Complete and send a completed chemical waste pickup request form to OEHS via fax (432-6148) or via email to: waste.requests@yale.edu
- The chemical waste pickup request form can be found at the following URL: www.yale.edu/oehs/wasteforms.htm

3.7 Needles and Syringes and Other Sharp item

Personnel should use caution when handling all used needles and syringes because it is usually not known which patient’s blood is contaminated with the hepatitis virus, HIV or other bloodborne diseases. To prevent needle-stick injuries, used needles should not be recapped; bent, broken, or removed. Place used needle and syringes into an appropriate sharps disposal container after use. The sharps disposal container used for needles/syringes or

other intravascular sharps must be a rigid puncture-resistant, leakproof on sides and bottom, the container lid opening must be a one way system to prevent spillage and retrieval of items from container, and appropriately labeled with the international biohazard symbol and word biohazard (see figure below).



Procedures for Used Needles, Syringes, Knife Blades and other intravascular Sharps -- These guidelines should be followed by all personnel:

Sharp instruments and disposable items:

- Needles must not be recapped, purposely bent or broken by hand, removed from disposable syringes, or otherwise manipulated by hand.
- After syringes and needles, scalpel blades and other sharp items are used they must be placed in appropriate sharps disposal containers for disposal.
- Such containers must be easily accessible to personnel needing them and located in all areas where sharps are commonly used. Sharps containers must be constructed so that they will not spill their contents and will not themselves allow injuries when handled.
- These containers must also be located in patient's examination or treatment rooms and any other setting where blood is drawn and needles are used.

Disposal of knife blades:

- Remove knife blades from handle with clamp.
- Deposit blades in the sharps disposal container that is used for needles and syringes.

Other Sharps

- ◆ Non-intravascular sharp items (e.g., glass slides, glass tubes, vacutainers, glass medication vials, vaccine vials) are deposited into the designated puncture-resistant medical waste containers.

3.8 Dressings and Tissues

Wound dressings are to be disposed of in a manner so as to “confine and contain” any blood and body fluid that may be present.

- Small dressings can be enclosed in the disposable glove used by the caregiver removing the dressing. While holding the dressing, the glove should be pulled off inside out over the dressing. The dressing will be contained in the inverted glove. The dressing and glove can be safely discarded into the regular trash container located in the patient/clinic room.
- Larger dressings should be removed using gloves on both hands. The gloves, dressings and other trash from the dressing change procedure should be placed directly into an impervious plastic bag located at the exam table/bedside. The bag should be zipped or tied closed and deposited into the regular trash.
- Dressings, paper tissues and other disposable items saturated or dripping with blood or items caked with dried blood must be placed in red biohazard bag and disposed as regulated medical waste.

- Any waste item that is caked, dried, soaked or dripping with blood is deposited into red biohazard bag, if the item is capable of puncturing the bag then place the item in a puncture resistant red medical waste container.
- Other body fluids (semen, vaginal secretions, cerebrospinal fluids, synovial fluids, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids) are empty from container when feasible, by patient care area staff, by pouring into the sanitary sewer system (soiled utility room or toilet facility) and deposit containers and/or sealed units in red medical waste container: Containers that cannot be emptied are stoppered to prevent leakage and placed in red medical waste container.

3.9 Disposal Procedures

3.9.1 Sanitary Sewer

The sanitary sewer was designed for the disposal of certain liquid wastes. Use of the sanitary sewer reduces the chance for leaks or spills during transport and reduces disposal costs.

- Waste microbiological liquid stocks (Class 1,2 and 3 agents) shall be autoclaved or chemically disinfected and poured down the drain whenever possible.
- Human blood and body fluids do not need to be disinfected before being poured down the drain.
- Remember to rinse and disinfect the sink area afterward. .

3.9.2 General Trash Containers

Discard the following items are not regulated medical waste and are discarded into the general trash container:

- Office paper, forms, packaging materials.
- All soft waste not dripping or soaked with human blood, blood products, or body fluids
 - Examples of items not visibly dripping or soaked with human blood, blood products, or body fluids are:
 - gloves, masks, gowns,
 - wrappers, foil, paper towels, tissues, cups
 - casts, cast padding and splints
 - bandages, dressings, gauze pads, table papers, table drapes
 - tape, pads, cotton
 - respiratory suction tubing, ventilator tubing
 - suction canisters liners and tubing, salem sump (NG) tubes
 - irrigation sets
 - foley bags and foley catheters, red rubber catheters
 - bed pans, emesis bassins,urinals, urinal hats, urinal filters
 - diapers, peri(OB) pads
- Any containers, saline containing IV bags and tubing not attached to needles or catheters, with no blood, body fluids, or containing chemotherapy agents.
- Urinals, bedpans, emesis basins, etc. (empty and rinsed)

3.9.3 Sharps (Needle Disposal) Wall Mounted Containers

- Discard all intravascular sharps waste
- hypodermic needles, syringes (with/without the attached needles)
- All needles such as IV, hypodermic, spinal, sutures needles
- Safety pins, spears, scrapers, scissors
- Lancets, scalpel blades

- Vacutainer holders and needles
- Deposit any other type of intravascular sharps waste into this container.

3.9.4 Red Medical Waste Containers

Do not discard needles, syringes or other intravascular sharps into a red medical waste containers. It is illegal to do so.

- Discard all non-intravascular sharps waste such as: pasteur pipettes, disposable plastic pipettes, blood vials, vacutainers, glass culture dishes, microscope slides and overslips, sharp broken plasticware and other types of broken or unbroken glassware that may have been in contact with infectious material.
- Empty glass medication vials, blood transfer devices
- Discard empty treatment containers and vials,
- Discard IV containers containing blood or blood products
- Chemotherapy Intravenous bags or containers with chemotherapy liquid <3% of container volume must be placed into the red plastic medical waste containers
- Discard items saturated or dripping with human blood or blood products.
- Discard items caked with dried human blood or blood products.
- Discard items that can release human blood, blood products or body fluids if compressed.
Examples of items saturated, dripping, or caked with dried human blood, blood products or body fluids:
 - sponges, pleurivacs, hemovacs, other collection bags/devices
 - hemodialysis, CVVH filters, tubing & bags
 - suction tubing and canister liners
 - specimen containers
 - vacuum bottles containing ascites or pleural fluid
- All waste from a person that has a Biosafety Level 4 disease such as hemorrhagic fever.
- Cultures and stocks of agents infectious to humans and associated biologicals including cultures from medical, clinical and laboratories, culture dishes and devices used to transfer, inoculate or mix cultures.

3.10 Autoclaves

Autoclaves can sterilize all items that are heat stable (not damaged by steam or high temperature) or used to decontaminate waste items. In gravity autoclaves, cycles of 250°F (121°C), 15 to 18 lbs. pressure for one hour may be required for decontamination. In the newer vacuum autoclaves, decontamination may require 270°F (132°C), 27 to 30 lbs. pressure for 45 minutes. Use a biological indicator to verify your autoclave technique and sterilization. Contact the Office of Environmental Health and Safety (785-3550) for more information on the Biological Indicator test kit. Personal protection equipment (PPE) such as rubberized aprons, full-face shields and heat and liquid resistant gloves must be worn when operating autoclaves.

When autoclaves cannot be used, an alternative method such as chemical decontamination may be employed. Items must be soaked in a tuberculocidal disinfectant or a 10% bleach (sodium hypochlorite) solution for at least 30 minutes. Heavily soiled items must be cleaned first.

Whatever the temperature and time requirement for decontamination, the contents of each load must be positioned so that steam penetrates into, or heated air flows freely among all items to be decontaminated. Tightly sealed or stoppered materials may not be effectively decontaminated and may become dangerously pressurized causing injury when removed

A routine autoclave maintenance program is recommended. Regular chemical "tape" monitoring of temperature and periodic monitoring with a biological indicator should be performed to evaluate the effectiveness of the autoclave. Place biological indicators at locations inside the load, the area slowest to heat up, throughout the autoclave are the best indication of sterilization. Autoclaves should be tested periodically. Contact the Office of Environmental Health and Safety for assistance in testing your autoclave.

Items containing chemicals (such as phenol-chloroform) should not be placed in an autoclave or a hot air oven (remove chemicals first).

Questions should be addressed to the Office of Environmental Health and Safety — 785-3550

Section 4: Good Work Practices

This section contains information essential to understanding and properly using Standard Precautions. These techniques and recommendations should be applied to all patient care procedures.

For example,

- gowns are appropriate for patient-care personnel when soiling with feces is likely, whether or not the patient is known or suspected to be infected with an enteric pathogen, i.e. hepatitis.
- Caution should always be used when handling a used needle.
- Minimize splashing, spraying, or generation of droplets during procedures involving blood or other potentially infectious materials.
- Keep goggles, gowns, and gloves available and easily accessible in all exam rooms and other direct patient care areas.
- Do not store clean supplies on the floor, in the soiled utility room, or next to sinks where splashing of water or soiling may occur. Instead, designate different areas for clean and used supplies.

4.1 Hand washing/Hand Hygiene

Hand washing is the single most important means of preventing the spread of infection. Personnel should always wash their hands, even when gloves are used, after taking care of any patient. In addition, personnel should wash their hands after touching excretions (feces, urine, or material soiled with these) before touching the patient again. Hands should also be washed before performing invasive procedures, touching wounds, or touching patients who are particularly susceptible to infection.

A good general rule is to wash hands between and after each patient contact.

4.1.1 Basic Hand Washing with Soap (nonantimicrobial or antimicrobial) and Water:

- Turn water on and wet hands thoroughly. Apply an amount of liquid or foam hand soap recommended by the manufacturer to hands.
- Vigorously lather with soap, covering well beyond areas of contamination.
- Use friction, one hand upon the other with fingers interlaced for at least 15 seconds.
- Rinse hands thoroughly under running water.
- Dry hands with a clean, dry paper towel.
- Use a paper towel to turn off the water faucet.

4.1.2 Decontaminating Hands with an Alcohol Base Hand Rub:

- Apply an alcohol-based hand rub to palm of one hand. Follow the manufacturer's recommendations regarding the column of product to use.
- Rub hands together, covering all surfaces of hands and fingers, until hands are dry.

4.1.3 Surgical Hand Antisepsis:

- Remove rings, watches, and bracelets before using surgical hand scrub.
- Remove debris from underneath fingernails using a nail cleaner under running water.

- Surgical hand antisepsis using either an antimicrobial soap or an alcohol-based hand rub with persistent activity is recommended before donning sterile gloves when performing surgical procedures.
- When performing surgical hand antisepsis using an antimicrobial soap, scrub hands and forearms for the length of time recommended by the manufacturer, usually 2 – 6 minutes.
- When using an alcohol-based surgical hand scrub product with persistent activity, follow the manufacturer's instructions. Before applying the alcohol solution, prewash hands and forearms with a non-antimicrobial soap and dry hands and forearms completely. After application of the alcohol-based product as recommended, allow hands and forearms to dry thoroughly before donning sterile gloves.

4.1.4 Indications for Handwashing and Hand Antisepsis:

When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with either a nonantimicrobial soap and water or an antimicrobial soap and water. If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands.

- Decontaminate hands before having direct contact with patients.
- Decontaminate hands before donning sterile gloves when inserting a central intravascular catheter.
- Decontaminate hands before inserting indwelling urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure.
- Decontaminate hands after contact with a patient's intact skin (e.g., when taking a pulse or blood pressure, and lifting a patient).
- Decontaminate hands after contact with body fluids or excretions, mucous membranes, nonintact skin, and wound dressings if hands are not visibly soiled.
- Decontaminate hands if moving from a contaminated-body site to a clean-body site during patient care.
- Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient.
- Decontaminate hands after removing gloves.
- Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water.

4.1.5 Other Aspects of Hand Hygiene:

- Do not wear artificial fingernails or extenders when having direct contact with patients at high risk (e.g., those in intensive-care units or operating rooms).
- Keep natural nails tips less than 1/4-inch long.
- Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and non-intact skin could occur.
- Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients.
- Change gloves during patient care if moving from a contaminated body site to a clean body site

4.2 Safe Sharps Devices

Needlesticks occur in situations where needles must be manipulated or disassembled. There are devices or systems that reduce the need to use needles or decrease the danger of accidental needlesticks. These or similar devices should be utilized whenever feasible.

“Sharps with Engineered Sharps Injury Protections” include non-needle sharps or needle devices containing built-in safety features that are used for collecting fluids or administering medications or other fluids, or other procedures involving the risk of sharps injury. This description covers a broad array of devices, including:

- syringes with a sliding sheath that shields the attached needle after use;
- needles that retract into a syringe after use;
- shielded or retracting catheters
- intravenous (IV) medication delivery systems that use a catheter port with a needle housed in a protective covering.

“Needleless Systems” are devices that provide an alternative to needles for various procedures to reduce the risk of injury from contaminated sharps. Examples include:

IV medication systems which administer medication or fluids through a catheter port using non-needle connections, and jet injection systems that deliver liquid medication beneath the skin or through a muscle.

Safe sharps devices, such as needleless systems and needles that include safety features must be strongly evaluated by the employer to prevent or minimize exposure. The employer must also evaluate whether these devices could prevent future incidents as part of its responsibility under the law in evaluating exposures that occur in the workplace. The employer must solicit input from non-managerial employees regarding the identification, evaluation and selection of effective engineering controls, including safer medical devices. The employer must document each evaluation and continue to pursue engineering controls that are designed to prevent occupational exposure. Finally, where a new engineering control is issued, suitable training on its use must be provided to the employees and documented.

Where engineering controls will reduce employee exposure either by directly removing, eliminating or isolating the hazard, they must be used. Contact Office of Environmental Health and Safety for information on needleless systems or needle protected devices or evaluation of safety devices.

Needlesticks occur in situations where needles must be manipulated or disassembled. Safe medical devices or systems reduces the need to use needles or decreases the danger of accidental needlesticks. These or similar devices should be utilized whenever feasible.

All disposable sharps should be disposed of in the designated sharps container. Contaminated needles should not be bent, or removed from the syringe by hand. Contaminated needles should not be recapped, unless absolutely necessary for the performance of the procedure. In situations where recapping may be necessary, a mechanical device or one-handed technique should be used.

4.3 Storage and Consumption of Food and Drinks

Eating, drinking, application of cosmetics or lip balm, and handling of contact lenses is prohibited in work/patient care areas (e.g., exam rooms, labs, procedure/treatment rooms, dirty/soiled utility

rooms) where there is reasonable likelihood of occupational exposure to blood, body fluids, chemicals, radioactive materials, and all other hazardous materials.

Food and drink should not be kept in refrigerators, freezers, cabinets, or on shelves or countertops where blood or other potentially infectious materials, chemicals, radioactive materials and all hazardous materials are present.

Label and date all patients' and staff food items.

4.4 Material Safety Data Sheets (MSDSs)

Material Safety Data Sheets (MSDSs) for all chemicals and disinfectants used should be maintained and readily accessible in the clinic area.

4.5 Patients with Communicable Diseases

All patients who have or may have a disease that is transmitted by the airborne/respiratory route should be seen in a negative pressure room or a private room with the door closed. There should be the appropriate signage on the closed door. The patient and staff should wear respirators.

Patients with known communicable (i.e., chickenpox, measles) diseases scheduled to be seen in the clinic, should be seen in a negative pressure or private room, or appointments should be deferred until the condition is resolved. In the event that this is not possible, patients should be scheduled for the end of the clinic day.

Protective pads should be placed on portions of chairs, wheelchairs, stools, and exam tables that are likely to have direct contact with a patient's skin.

4.6 Cleaning, Disinfectant and Sterilization

- Use protective pads on chairs, wheelchairs, stools, and exam tables that have direct contact with patient's skin.
- Cover stretchers and exam/treatment tables with a clean sheet and/or disposable exam table paper before each patient use. Wipe the surface with an institutionally-approved disinfectant (such as, tuberculocidal disinfectant or a 10% bleach solution) at the end of the shift and when soiled with blood or body fluids.
- Clean portable equipment (e.g., IV poles, pumps, blood pressure cuffs) with an approved disinfectant-detergent in accordance with the manufacturers instructions when visibly soiled.
- Place contaminated reusable instruments in designated containers before removal to another area for cleaning.
- Check all sterile supplies weekly for inventory rotation and expiration dates.
- Prepare fresh solutions of disinfectant according to manufacturer's instructions. Place a date on the container as to when the solution was prepared. If using bleach solution, (10% in water) it must be prepared daily.

4.7 Eyewash Station and Spill Clean-Up Supplies

Employees need to know where the emergency eyewash, chemical and biological spill supplies, and other safety equipment (e.g., fire extinguisher) is located. If your facility does not have an eyewash station, contact the Office of Environmental Health and Safety for a faucet mount eyewash unit that installs on the sink. Eyewash stations should be tested routinely by clinical personnel to be certain that water flows through it.

4.8 Refrigerators: Utilization and Maintenance

There must be separate refrigerators for food, specimens and medications, each with a cleaning schedule. Signs must be affixed to indicate its designated use. A biohazard label must be affixed to the outside of refrigerators used to store specimens. Refrigerators must be monitored for temperature and cleanliness, which includes daily temperature checks, weekly and as needed cleaning, and routine inspection of contents. Laboratory specimens requiring refrigeration while awaiting transport may not be stored in the same refrigerator as medications, juices or water stored for the purpose of dispensing with medication. There should be a program to monitor temperature and cleanliness, which includes daily temperature checks, weekly and as-needed cleaning and routine inspection of contents. (See refrigerator cleaning and monitoring log in Appendix D).

4.8.1 Food refrigerators:

- Specific refrigerators are designated for employee food.
- Patient food refrigerators:
 - Individual patient's food must be wrapped or placed in a leak proof storage container and labeled with the patient's name and expiration date. Food expires after 24 hours and must be discarded.
 - Bulk nourishment for patients are labeled with the date the item expires. Nourishments are discarded when expired:
 - margarine, butter or creamers are delivered to the unit with labeled expiration dates;
 - plastic jugs of juice expire 2 weeks after opening;
 - individual juices are stored first in first out and are discarded if open or seal is raised.
- Breast milk refrigerators:
 - breast milk refrigerators are used only for the storage of breast milk in containers labeled with the mother's name and the date the milk was stored;

4.8.2 Medication Refrigerator

Medication refrigerators are used for the storage of medication requiring refrigeration according to manufacturer's guidelines.

4.8.3 Specimen refrigerators:

- All specimens must be placed in proper leakproof containers, labeled with the date and time the specimen was collected;
- Specimen refrigerators are also labeled with a biohazard sticker.

4.8.4 Temperature Regulation

The temperature of all refrigerators is checked daily to assure the appropriate temperature is maintained. The temperature registering on a thermometer inside the refrigerator and the initials of the individual performing the check are recorded on the temperature log. Logs are maintained and kept on file for a period of three months.

Temperature requirements:

- Food refrigerators are maintained between 37° and 40° F.
- Medication and specimen refrigerators are maintained between 36° and 46° F.
- Specimen refrigerators are kept 36° - 46° F.

When a refrigerator temperature is out of the appropriate range, the charge nurse is notified to determine the appropriate action to be taken. Any actions taken are documented on the temperature log.

4.9 Sterile Solutions:

Upon opening sterile solutions, staff must write the date, time, and their name or initials on the label. Sterile stock solutions should be checked prior to use for turbidity, leaks, cracks, particle matter, discoloration, and expiration date.

When pouring from a container of sterile solution, first pour and then discard a small amount. Unused remaining sterile solutions must be discarded after 24 hours or as per explicit instructions of the pharmacist.

4.10 Disposable Supplies

Single-use disposable type sterile and non-sterile supplies must be inspected upon receipt and again just prior to use for intact packaging, evidence of water damage or other contamination or tampering, and to ensure that the expiration date has not passed.

Store supplies in a clean, dry, enclosed area (e.g., cupboard, closet) in their original cartons. Never store clinical supplies under the sink since they may receive moisture damage/contamination during routine cleaning procedures and from water leakage. Disposable supplies may only be used once and not reprocessed, resterilized, or reused. After use, promptly dispose items in the appropriate waste container.

4.11 Clean Supplies

Clean patient care items should not be stored on the floor, in the soiled utility room, and under or next to sinks where splashing of water or soiling is likely. There should be designated areas for clean and dirty supplies. All supplies should be stored above floor level using pallets, if necessary. No item can be stored within 18 inches from the ceiling.

4.12 Sterile items

Sterile packages must be inspected for integrity, rips, or moisture damage prior to use. If the integrity of the package has been breached, the item is discarded if single use or re-sterilized before use if re-usable.

4.13 Perishable Foods and Juices (Bulk Nourishment) Guidelines

Before opening a can, wipe the surface with a moistened paper towel to avoid introducing contaminants. A dedicated refrigerator is required for the storage of patient food and juices, and must be monitored daily for temperature and cleanliness.

4.13.1 Handling and Shelf-Life Guidelines

- All milks, orange juices, custards, and jellos are labeled for you with the expiration dates. Discard leftovers on expiration dates.
- All milks and orange juices must be dated with expiration date.
- Other items that should be dated on the Patient Division include:
 - Canned juices (once opened) - Cover & use within two (2) days
 - Margarines, Butters, and Creamers - Cover & discard when expired.
 - Individual juices - if not opened, must be used within one week.
 - Jugs of juice (Apple & Cranberry) - Once opened, they have a 2-week shelf life under refrigeration.

4.13.2 Tips for Handling Foods Properly

- Put bulk nourishment away as soon as they are delivered or within thirty minutes of delivery.
- Personal patient/family food items should be covered, labeled and dated with expiration date.
- Discard any items not dated or after 24 hours.

- Dispose of any opened or outdated items immediately.
- Dispose of any small (individual) juices that have "raised" lids immediately.

4.14 Dietary

- No special dishes or other precautions are necessary when visiting, serving or interviewing patients, except when those patients are on Transmission Based Precautions.
- Disposable dishware and trays are not required for any patient except those on Transmission Based Precautions.
- No special precautions are needed when passing or collecting menus (except for those patients on Transmission Based Precautions), unless the menus are visibly soiled. If soiled, wear gloves to handle and dispose of the soiled menus and promptly wash hands.
- No special precautions are needed when passing trays or delivering nourishment to patients (except those on Transmission Based Precautions). For collecting trays, gloves should be worn. All disposable items should be removed from trays and discarded into the appropriate waste receptacle in the patient's room. Only reusable items should be returned to the Food Service. However, exceptions may apply under the following circumstances:
 - Because it is unsanitary to mix clean and contaminated materials, bedpans and urinals must be removed from patient bed tables prior to mealtime.
 - In order for food trays to be collected by Food Service Personnel, they must be free of direct patient care items.
 - Employees in the dish-room must wear gloves and discard them and wash their hands before working in "clean" food areas.

4.15 Procedures Performed in the Clinic

All procedures involving blood or other potentially infectious materials should be performed in such a manner as to minimize splashing, spraying, or generation of droplets.

Goggles, gowns, and gloves should be available and easily accessible in all exam rooms.

Each clinic must have a clinic specific policy regarding invasive procedures performed in the clinic. This policy should be reviewed annually. All procedures performed in the clinic must have a written /protocol procedure designating the infection control principles associated with the procedure.

Each clinic that performs invasive procedures should have a method in place for the surveillance of infection post procedure.

4.16 Private Rooms

Private rooms are required for all patients who soil the room with body substances, as well as for patients who are likely to have an infectious disease transmissible by the airborne route. Few patients require private rooms, so in choosing roommate combinations, nurses should assess the risk of transmission between patients. When practicing Standard Precautions, roommate selection should be based on the likelihood of soiling of articles in the room.

4.17 Roommates for Patients on Transmission Based Precautions

If infected or colonized patients are not placed in private rooms, they should be placed with appropriate roommates. Infected patients should not share a room with a patient who is likely to become infected or in whom consequences of infection are likely to be severe (e.g., immunosuppressed patient).

In general, patients infected by the same microorganism may share a room. Also, infants and young children with the same respiratory clinical syndrome, for example, croup, may share a room. Such grouping (or cohorting) of patients is especially useful during outbreaks when there is a shortage of private rooms.

4.18 Airborne Precaution Rooms

4.18.1 General Considerations

Patients with Airborne Precautions should have a label affixed to their chart. This label will identify the patient as potentially infectious and alert employees to take precautions. The chart should not be allowed to come into contact with infective material or objects that may be contaminated with infective material. The chart may not be taken into an isolation room.

4.18.2 Medical Record Documentation

The individual ordering Airborne Precautions is responsible for appropriate documentation in the patient's chart. The note should include:

- Date Airborne Precautions were first instituted.
- Rationale for precautions.
- Information on pertinent cultures, serological tests, history and clinical findings. If data is pending, the suspected disease should be noted.

The patient should be assessed daily by the attending physician and nurse. Pertinent clinical information should be recorded in the history and progress section of the medical record. When the criteria for terminating Airborne Precautions have been met, the patient may be removed from isolation. The date these precautions were discontinued and the rationale for termination must also be clearly documented.

4.18.3 Identification of Patient on Airborne Precautions

At the time isolation is instituted, the appropriate precautions card should be posted on the patient's door to alert hospital staff and visitors.

4.18.4 Visitors

Visitors should talk with a healthcare provider before entering the room of a patient on Airborne Precautions and be instructed in the appropriate use of mask or other special precautions. Healthcare staff has the responsibility to explain in simple terms why the patient has been placed on airborne precautions and, if possible, explain how long the patient may be on precautions. They are also responsible for emphasizing the importance of complying with Airborne Precautions, especially hand washing and the use of respiratory protection.

4.18.5 Clothing

Clothing soiled with potentially infective material should be placed in a plastic bag and sealed before being sent home with the patient or patient's family, with recommendations to promptly wash the clothing in warm water with an abundant supply of soap or detergent.

4.18.6 Books, Magazines, and Toys

In general, any article visibly soiled with infective material should be disinfected or discarded. A child with an infection that may be spread by fomites or by contact transmission should not share toys with any other children.

Procedure for Visibly Soiled Articles

- Disinfect hard-surfaced items with the institutionally accepted disinfectant or use a detergent disinfectant according to the manufacturer's directions, or
- Send for decontamination, sterilization by steam, or
- Put them in bags and dispose of them in the regular trash, unless visibly contaminated with blood or body fluids, then dispose in biohazard container.

4.18.7 Valuables

Personal valuables (e.g., watches, jewelry, cash) should be inspected for gross soiling. If grossly soiled (blood, secretions, excretions), wipe off with germicide solution or bleach solution, place valuables in clear plastic ziploc bag or baggie, and then close the bag securely.

4.18.8 Postmortem handling of a Patient

Generally, personnel should use the same precautions to protect themselves during postmortem handling as they would if the patient were still alive.

4.18.9 Cleaning Patient Rooms

4.18.9.1 Routine Cleaning

Patient rooms and other treatment area must be cleaned and disinfected prior to the introduction of a new patient. This cleaning and disinfecting must be in compliance with established custodial policies using only approved cleaning and disinfecting agents. Cleaning equipment used in rooms of patients whose infection requires a private room should be disinfected before being used in other patient rooms, i.e. dirty water should be discarded, wiping cloths and mop heads should be laundered. If cleaning cloths and mop heads are contaminated with infective material or blood, they should be bagged and labeled before being sent to the laundry.

Environmental surfaces such as walls, floors and other surfaces are not associated with transmission of infections to patients or health-care workers. Therefore, extraordinary attempts to disinfect or sterilize these environmental surfaces are not necessary. However, cleaning and removal of soil should be done routinely.

Cleaning schedules and methods vary according to the facility, the type of surface to be cleaned and the amount and type of soil present. Horizontal surfaces (e.g. bedside tables and hard-surfaced flooring) in patient-care areas are usually cleaned on a regular basis, when soiling or spills occur, and when a patient is discharged. Cleaning of walls, blinds and curtains is recommended only if they are visibly soiled.

Disinfectant-detergent formulations registered by the Environmental Protection Agency (EPA) can be used for cleaning environmental surfaces, but **the actual physical removal of microorganisms by scrubbing is probably as important as any antimicrobial effect of the cleaning agent used.** Therefore, cost, safety, and acceptability by Housekeeping can be the main criteria for selecting any such registered agent. The manufacturer's instructions for appropriate use should be followed.

4.18.9.2 Nurses' Responsibilities in Terminal Cleaning of the Isolation Room or Cubicle

- Clean, bag and remove all supplies from the room before Housekeeping arrives to terminally clean the room.
- Empty all non-disposable receptacles such as drainage bottles into the toilet or hopper sink. If the receptacles are disposable, empty and discard them according to facility's policy.
- Have Housekeeping wipe other patient care supplies such as reusable equipment with a detergent disinfectant.
- Discard all opened disposable items into trash receptacle.

4.18.9.3 Terminal Cleaning

Although microorganisms may be present on walls, floors and tabletops in rooms used for patients on isolation precautions, these environmental surfaces, unless visibly contaminated, are rarely associated with transmission of infections to other patients when such equipment is not appropriately decontaminated and reprocessed. Therefore, terminal cleaning should primarily be directed toward those items that have been in direct contact with the patient or in contact with the patient's infective material (excretions, secretions, blood or body fluids). The disinfectant-detergent solution used during terminal cleaning should be freshly prepared. Terminal cleaning of rooms (or cubicles) consists of the following:

Generally, Housekeeping personnel should use the same precautions to protect themselves during terminal cleaning that they use if the patient were still in the room; however, masks are not needed if they had been indicated previously only for direct or close patient contact.

All non-disposable receptacles (drainage bottles, urinals, bedpans, flow meter jars. etc.) should be returned for decontamination and reprocessing. Articles contaminated with infective material should be bagged before being sent for decontamination and reprocessing.

All opened disposable items should be discarded. Articles grossly contaminated with infective material should be bagged and disposed of in accordance with Yale University's policy on disposal of infectious wastes. No special precautions are indicated for disposal of items that are not contaminated (or not likely to be contaminated) with infective material.

All equipment not sent for sterilization or discarded should be cleaned with a disinfectant-detergent solution.

All surfaces of furniture and mattress covers should be cleaned with a disinfectant-detergent solution.

All floors should be wet-vacuumed or mopped with a disinfectant- detergent solution. Routine washing of walls, blinds and curtains is not indicated; however, these should be washed if they are visibly soiled. Cubicle curtains should be changed if visibly soiled or according to facility policy.

Disinfectant fogging is an unsatisfactory method of decontaminating air and surfaces and thus should not be used.

Airing a room from which a patient has been discharged is not an effective terminal disinfection procedure and is not necessary.

References:

Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HIPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *Morbidity and Mortality Weekly Report (MMWR)*. October 25, 2002; 51(RR16):1-56.

Guidelines for Environmental Infection Control in Health-Care Facilities. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). *Morbidity and Mortality Weekly Report (MMWR)*. June 6, 2004; 52(RR10):1-42.

Section 5 Care and Maintenance of Toys

Toys available in clinic play spaces should be limited to plastic, rubber, wood, or coated board games. Fur covered or other non-washable toys should be excluded from clinic play areas. These items may be used by staff for demonstration purposes. If they become soiled during a demonstration they must be given to the patient.

The Environmental Associate, Patient Care Associate, or other designated staff member is responsible for inspecting and cleaning toys.

The frequency of inspection and cleaning should be based on the frequency at which the toys are handled. (i.e., children handling toys daily - toys should be inspected and cleaned daily etc.). All toys should be inspected and cleaned at least weekly. Toys that are cracked, or develop openings where dirt, etc. can accumulate should be discarded. Cleaning consists of washing with a mild soap and drying, with a clean cloth or wiping all surfaces with alcohol allowing to air dry.

If a toy becomes contaminated after individual use, they should be cleaned immediately before being handled by another patient.

5.1 Washable Toys

Plastic, rubber, wood and coated board games and other washable toys should comprise the majority of the toy supply for the small children population.

The toys must be cleaned with an EPA hospital approved germicide solution followed by a thorough rinsing and drying.

If any toys become contaminated after individual use, they should be cleaned immediately before being handled by another patient.

Toys played with by children in isolation should be cleaned immediately before storage.

Toys should be stored in cabinets after cleaning.

A designated person must be assigned to cleaning the toys.

5.2 Non-Washable Toys

Only new non-washable toys should be accepted as donations.

Any non-washable toy or object (i.e. stuffed animal, blanket) that is distributed to a patient that would result in exposure to secretions and excretions must be given to that patient.

Any non-washable toy, which is used for demonstration purposes, used by the staff and will not result in exposure to secretions and excretions can be shared with other children.

SECTION 6 Personal Protective Equipment

Personal protective equipment (PPE) also known as barrier protection, is used to prevent blood and other potentially infectious materials from making direct contact with an employee's clothing or body. The type and amount of PPE required depends upon the task to be performed and the anticipated exposure.

6.1 Gloves

Gloves reduce the possibility personnel will become infected with microorganisms that are infecting patients; gloves reduce the likelihood personnel will transmit their own endogenous microbial flora to patients; gloves reduce the possibility personnel will become transiently colonized with microorganisms which can be transmitted to other patients.

When gloves are indicated, disposable single-use gloves (sterile or non-sterile, depending on the purpose for use) should be worn. Use sterile gloves for procedures involving contact with normally sterile areas of the body. Use examination gloves for procedures involving contact with mucous membranes, unless otherwise indicated, and for other patient care or diagnostic procedures that do not require the use of sterile gloves.

Since no one glove can provide protection against all hazards, the gloves selected must be of appropriate material, usually intact latex, vinyl, or nitrile, of appropriate quality for the procedures performed, and of appropriate size for each health-care worker. Employers must not wash or disinfect surgical or examination gloves for reuse. Washing with surfactants may cause "wicking," i.e. the enhanced penetration of liquids through undetected holes in the glove. Direct glove contact with disinfecting agents (i.e., bleach, ethanol or isopropanol, glutaraldehyde) will cause glove deterioration and must be avoided. General-purpose utility (rubber) gloves worn by maintenance, housekeeping, laundry or other non-medical personnel may be decontaminated and reused. Do not use gloves if they are peeling, cracked, or discolored, or if they have punctures, tears, or other evidence of deterioration.

Used gloves should be discarded into an appropriate receptacle. When there is direct contact with a patient's secretions or excretions, gloves should be changed if care of the patient has not been completed.

Note: A small fraction of persons exposed repeatedly to latex rubber products may develop an irritant or allergic reaction. Should you detect such a reaction to latex or other PPE materials, notify your supervisor as soon as possible to arrange for an alternative substrate.

6.1.1 Policy and procedure for wearing gloves

- Wear gloves on both hands for touching blood and body fluids, mucous membranes, or non-intact skin of all patients, for handling items or surfaces soiled with blood or body fluids.
- Change gloves immediately if they are torn or punctured.
- Change gloves after contact with each patient's blood or body fluids or after contact with items or surface soiled with blood or body fluids.
- Remove gloves before leaving the exam/patient room, dirty utility areas or other work areas.
- Change gloves and wash hands between patient contact.
- Wash hands after removing gloves.

Using gloves is essential in the following circumstances

- During phlebotomy, injections, intravenous administration, wear gloves on both hands. Gloves will reduce the incidence of blood contamination of hands, but they cannot prevent penetrating injuries caused by needles or other sharp instruments.
- Any time the health-care worker has cuts, abraded skin, chapped hands, dermatitis or the like. Workers with chapped or abraded skin must contact their supervisor before initiating work

with potentially infectious materials. Waterproof bandages and double gloving should be employed to protect the employee. If the employee cannot provide adequate protection, she/he should not work with potentially infectious materials. This restriction should remain in effect until the condition is resolved.

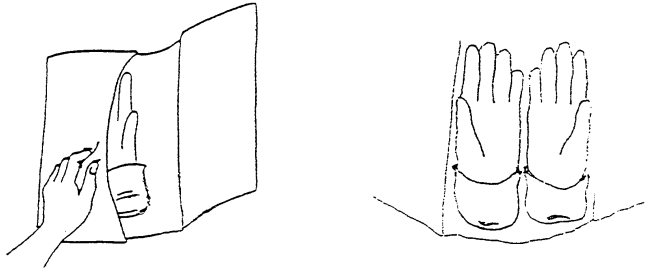
- During instrumental examination of oropharynx, gastrointestinal tract and genitourinary tract.
- When examining abraded or non-intact skin or patients with active bleeding.
- During invasive procedures.
- During all cleaning of body fluids and decontaminating procedures.

6.1.2 Clean technique

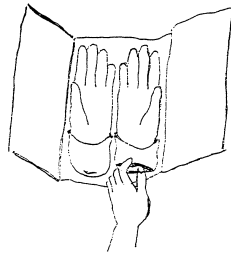
- a. Slip the gloves onto the right hand first and then the left, making sure they fit securely over the cuffs of the isolation gown.
- b. Take an extra pair of gloves, protected by a clean paper towel, into the isolation room. The extra gloves can be used in case the original pair tears or becomes soiled.

6.1.3 Sterile technique

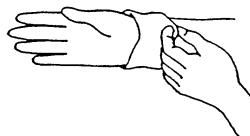
- Remove all jewelry, including rings (a plain wedding band is permitted)
- Wash hands thoroughly with an antiseptic and dry them off with a paper towel. Use a paper towel to turn off the faucet. (refer to page 49 for handwashing technique).
- Open the package containing the sterile gloves.
- Carefully open the inner wrapper, maintaining aseptic technique, being careful not to contaminate the gloves by touching them (see diagram below).



- Grasp the folded edge (inside surface) of the right glove's cuff with the left hand (see diagram below).



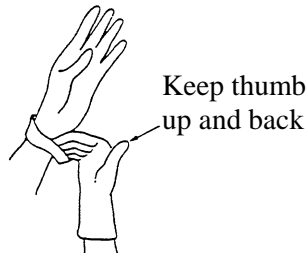
- Slip the right hand inside the glove. To avoid contamination, the fingers on the left hand should touch only the inside of the glove. If the glove becomes contaminated, discard it and obtain a new one



- Slip the fingers of the gloved hand under the cuff (touching only the outer surfaces) of the glove, as shown below.



- Insert the left hand into the glove and pull the glove on with the right hand. Avoid touching the skin with the gloved hand.



- Adjust both gloves so they fit properly. Make sure no gaps exist between the fingertips and the ends of the gloves.
- Inspect the gloves for nicks and tears before and during the procedure. Obtain a new pair of sterile gloves if a break in technique, nick or tear occurs.

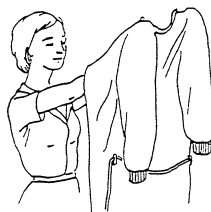
6.2 Gowns

In general, gowns are recommended to prevent soiling of clothing when taking care of patients. Gowns, aprons or lab coats are required when splashes to the skin or clothing with body fluid are likely to occur. Gowns, including surgical gowns, shall be made of or lined with impervious material and shall protect all areas of exposed skin. Gowns will also be worn when arms come into contact with a patient's blood or body fluids or non-intact skin.

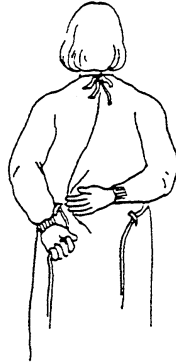
- When gowns are indicated, they should be worn only once and then discarded in an appropriate receptacle.
- Clean, freshly laundered or disposable gowns may be worn in most circumstances.
- In some instances, as with extreme burns or extensive wounds, sterile gowns should be worn when changing dressings.
- Supplies of gowns are to be readily available.
- The gown should be large enough to cover the clothing entirely and protect all areas of exposed skin.

6.2.1 Procedure for putting on a gown

- Slide the gown over the hands and arms by holding arms forward and slightly above head.

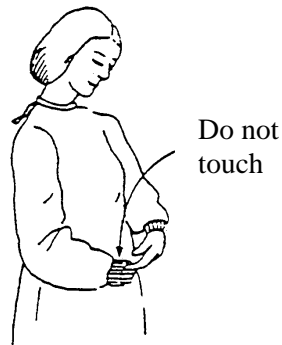


- Fasten the gown at the back of the neck; then grasp the gown at the waistline in the back and overlap the edges as much as possible. While holding the overlapping edge with one hand, grasp one end of the belt with the other hand and pull it around the back and fasten.



6.2.2 Procedure for removing a contaminated gown

- Untie belt in the back of the gown, and remove gloves if applicable. Wash and dry hands using sink inside room. Unfasten the neck of the gown and pull off the first sleeve by slipping the fingers under the cuff.



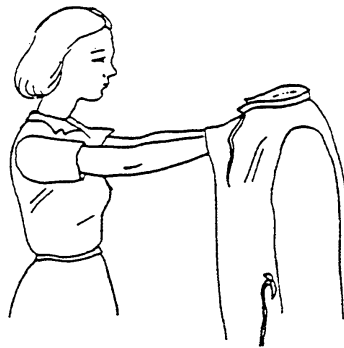
- Do not touch outside surface of cuff; the outside is contaminated and the hands are now clean.



- Remove the second sleeve by grasping it through the first sleeve like this:



- Without touching the outer surface of the gown, fold it with the outer contaminated surfaces together. Then, roll the gown into a ball, being careful to touch only the inner uncontaminated surface of the gown. If gown is non-disposable, place it into the patient's linen hamper. If gown is disposable, discard it into the patient's covered waste receptacle. Always remember to hold the contaminated gown away from the uniform.



- Wash hands before leaving room.

6.3 Face and Eye Protection

Face and eye protection must be worn whenever there is potential for the generation of splashes, spray, splatter or droplets of blood or other potentially infectious material in the eyes, nose, mouth, or other facial areas. Eye protection may prevent damage to the eye in addition to preventing exposure to infectious materials. Certain disinfectants and other chemical can damage the eye or cause blindness if splashed in the eye.

One or more devices may provide face and eye protection. Remember that the nose and mouth must be protected if eye protection is worn, and vice-versa.

Product selection should be based upon acceptability to the wearer and the protection afforded. Eye protection may be provided by safety glasses or normal glasses with side shields, goggles or chin length face shields. Nose and mouth protection may be provided by surgical masks and face shields.



Face shields provide full-face protection against splashes and sprays to the face. Some face shields are strong enough to provide protection against impact injuries. Note that face shields do not offer mucous membrane protection from infectious aerosols.



Goggles are another alternative for eye protection. Goggles form a face seal and provide protection on the sides and top of the eyes



Safety glasses with side shields provide protection against splashes and sprays. Note that splashes may reach the eye because glasses are not flush with the user's face. Also safety glasses do not offer eye protection from infectious aerosols.

6.4 Surgical Masks



Surgical masks protect the mucous membranes of the mouth and nose. Surgical masks are generally protective against droplets, splashes and sprays. Masks must cover both the nose and the mouth, and fit the face closely, so that air passes through the mask before being inhaled. Some surgical masks are available with attached eye shields.

Moisture from expired air may eventually saturate the mask, making breathing difficult or fogging eyeglasses. If this occurs, change the mask, discarding it as medical waste if contaminated with human blood or other potentially infectious materials. Uncontaminated masks may be discarded in the general trash. Surgical masks offer limited protection from infectious aerosols.

The use of masks and protective eye wear or face shields is required when contamination of mucosal membranes (eyes, mouth or nose) with body fluid splashes or aerosolization is likely to occur, such as during suctioning, surgical or dental procedures.

6.4.1 Procedure for Putting on a Mask

- ◆ If the mask has a metal strip, position it over the nose with the metal strip facing outward; if the mask does not have a metal strip, position it properly covering the mouth and nose.
- ◆ Tie the mask's top strings just above the top of the ears or place ties behind ears.
- ◆ Pull down the lower part of the mask over the mouth and chin.
- ◆ Tie the bottom strings around the neck.
- ◆ Press the metal strip over the nose so the mask fits comfortably and snugly.
- ◆ Change mask when it becomes moist, difficult to breath through or damaged.
- ◆ Wash hands before touching mask and/or removing it. Discard mask in waste receptacle in room before leaving room.
- ◆ If both gown and mask are worn, remove gown first, wash hands, remove mask and discard mask in waste receptacle in room. Wash hands prior to leaving room.

6.5 NIOSH Approved Particulate Masks and Respirators

Different respirators offer different levels of protection by varying their aerosol filter efficiency: 95%, 99% and 99.97%. NIOSH approved particulate masks and respirators for airborne precaution use are the N95, N99 or N100. All respirator wearers must complete a medical surveillance questionnaire. Training and fit testing is also required for all respirator wearers prior to use. A respirator wearer would need to be refitted with the respirator if the wearer has a weight change of 20 pounds or more, significant facial scarring in the area of the facepiece seal, significant dental changes (such as multiple extractions without prosthesis or acquiring dentures), reconstructive or cosmetic surgery or any other condition that may interfere with facepiece sealing. Fit testing is required initially and annually on all respirators with tight fitting face pieces. Respirator information, training, and fit testing is available through the Yale Office of

Environmental Health and Safety; medical questionnaires are administered through the Employee Health office.

Respirators should be put on before entering the room of the patient on airborne precautions and taken off, placed in a protective labeled bag in the anteroom. Discard respirators at the end of the shift. Employees who perform duties that may require respirator use must be trained and fit tested as per the Yale University Respiratory Protection Program.

Section 7: Decontamination, Spill Response and Housekeeping

7.1 Sterilization or Disinfection of Reusable Medical Instruments/Devices:

Medical devices, equipment, and surgical materials are divided into three general categories, Critical Items, Semi-Critical Items, and Non-Critical Items, based on the potential risk of infection involved in their use.

7.1.1 Critical Items

Critical items are instruments or objects that are introduced directly into the bloodstream or into other normally sterile areas of the body. Examples of critical items are surgical instruments, cardiac catheters, implants, pertinent components of the heart-lung oxygenator, and the blood compartment of a hemodialyzer. Sterility at the time of use is required for these items; consequently, one of several accepted sterilization procedures is generally recommended.

7.1.2 Semi-Critical Items

Items in the second category are classified as semicritical in terms of the degree of risk of infection. Examples are noninvasive flexible and rigid fiber-optic endoscopes, endotracheal tubes, anesthesia breathing circuits, and cystoscopes. Although these items come in contact with intact mucous membranes, they do not ordinarily penetrate body surfaces. If steam sterilization can be used, it is often cheaper to sterilize many of these items, but sterilization is not absolutely essential; at a minimum, a high-level disinfection procedure that can be expected to destroy vegetative microorganisms, most fungal spores, tubercle bacilli, and small non-lipid viruses is recommended. In most cases, meticulous physical cleaning followed by an appropriate high-level disinfection treatment gives the user a reasonable degree of assurance that the items are free of pathogens.

7.1.3 Non-Critical Items

Non-critical items are those that either do not ordinarily touch the patient or touch only intact skin. Such items include crutches, bedboards, blood pressure cuffs, and a variety of other medical accessories. These items rarely, if ever, transmit disease. Consequently, depending on the particular piece of equipment or item, washing with a detergent may be sufficient.

The level of disinfection achieved depends on several factors, principally contact time, temperature, type and concentration of the active ingredients of the chemical germicide, and the nature of the microbial contamination. Some disinfection procedures are capable of producing sterility if the contact times used are sufficiently long; when these procedures are continued long enough to kill all but resistant bacterial spores, the result is high-level disinfection. Other disinfection procedures that can kill many types of viruses and most vegetative microorganisms (but cannot be relied upon to kill resistant microorganisms such as tubercle bacilli, bacterial spores, or certain viruses) are considered to be intermediate- or low-level disinfection.

The tubercle bacillus, lipid and non-lipid viruses, and other groups of microorganisms in Table I are used in the context of indicator microorganisms that have varying degrees of resistance to chemical germicides and not necessarily because of their importance in causing nosocomial infections. For example, cells of *M. tuberculosis* or *M. bovis*, which are used in routine efficacy tests, are among the most resistant vegetative microorganisms known and, after bacterial endospores, constitute the most severe challenge to a chemical germicide. Thus, a tuberculocidal chemical germicide may be used as a high or intermediate-level disinfectant targeted to many types of nosocomial pathogens but not specifically to control respiratory tuberculosis.

Table 1. Levels of Disinfection According to Types of Microorganism

Levels	Bacteria			Fungi ¹	Viruses	
	Vegetative	Tubercle Bacillus	Spores		Lipid & Medium size	Non-lipid & small
High	+ ²	+	+ ³	+	+	+
Intermediate	+	+	± ⁴	+	+	± ⁵
Low	+	-	-	±	+	-

¹Includes asexual spores but not necessarily chlamydo spores or sexual spores.

²Plus sign indicates that a killing effect can be expected when the normal use-concentrations of chemical disinfectants or pasteurization are properly employed; a negative sign indicates little or no killing effect.

³Only with extended exposure times are high-level disinfectant chemicals capable of actual sterilization.

⁴Some intermediate-level disinfectants can be expected to exhibit some sporicidal action.

⁵Some intermediate-level disinfectants may have limited virucidal activity

In general, reusable medical devices or patient-care equipment that enters normally sterile tissue or the vascular system or through which blood flows should be sterilized before each use. Sterilization means the use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores. The major sterilizing agents used in hospitals are a) moist heat by steam autoclaving, b) ethylene oxide gas, and c) dry heat. However, there are a variety of chemical germicides (sterilants) that have been used for purposes of reprocessing reusable heat-sensitive medical devices and appear to be effective when used appropriately, i.e., according to manufacturer's instructions. These chemicals are rarely used for sterilization, but appear to be effective for high-level disinfection of medical devices that come into contact with mucous membranes during use (e.g., flexible fiber-optic endoscopes).

Disinfection means the use of a chemical procedure that eliminates virtually all recognized pathogenic microorganisms but not necessarily all microbial forms (e.g., bacterial endospores) on inanimate objects. There are three levels of disinfection: high, intermediate, and low. High-level disinfection kills all organisms, except high levels of bacterial spores, and is effected with a chemical germicide cleared for marketing as a sterilant by the Food and Drug Administration. Intermediate-level disinfection kills mycobacterium, most viruses, and bacteria with a chemical germicide registered as a "tuberculocide" by the Environmental Protection Agency (EPA). Low-level disinfection kills some viruses and bacteria with a chemical germicide registered as a hospital disinfectant by the EPA.

Heat stable reusable medical devices that enter the blood stream or enter normally sterile tissue should always be reprocessed using heat-based methods of sterilization (e.g., steam autoclave or dry heat oven).

Laparoscopic or arthroscopic telescopes (optic portions of the endoscopic set) should be subjected to a sterilization procedure before each use; if this is not feasible, they should receive high-level disinfection. Heat stable accessories to the endoscopic set (e.g., trocars, operative instruments) should be sterilized by heat-based methods (e.g., steam autoclave or dry heat oven).

Reusable devices or items that touch mucous membranes should, at a minimum, receive high-level disinfection between patients. These devices include reusable flexible endoscopes, endotracheal tubes, anesthesia breathing circuits, and respiratory therapy equipment.

Medical devices that require sterilization or disinfection must be thoroughly cleaned to reduce organic material or bio-burden before being exposed to the germicide, and the germicide and the device manufacturer's instructions should be closely followed.

Except on rare and special instances (as mentioned below), items that do not ordinarily touch the patient or touch only intact skin are not involved in disease transmission, and generally do not necessitate disinfection between uses on different patients. These items include crutches, bedboards, blood pressure cuffs, and a variety of other medical accessories. Consequently, depending on the particular piece of equipment or item, washing with a detergent or using a low-

level disinfectant may be sufficient when decontamination is needed. If non-critical items are grossly soiled with blood or other body fluids:

- In patient-care areas, visibly soiled areas should first be cleaned and then chemically decontaminated. For disinfection, the pre-cleaned areas should be moistened with the appropriate germicide and allowed to air dry.
- In the laboratory, large spills of cultured or concentrated infectious agents should be flooded with a liquid germicide before cleaning, then decontaminated with fresh germicidal chemical after organic material has been removed. It is not necessary to flood spills of blood or other body fluids with germicide before cleaning.

Gloves should always be worn during cleaning and decontaminating procedures. Eye and face protection may be needed if spraying or splattering is likely to occur to the face. Eye protection may prevent damage to the eye in addition to preventing exposure to infectious materials. Certain disinfectants and other chemical can damage the eye or cause blindness if splashed in the eye. Use goggles or safety glasses and mask or full face shield to protect the mucous membranes of the face.

Exceptional circumstances that require non-critical items to be either dedicated to one patient or patient cohort, or subjected to low-level disinfection between patient uses are those involving

- Patients infected or colonized with vancomycin-resistant enterococci or other drug-resistant microorganisms judged by the infection control program, based on current state, regional, or national recommendations, to be of special or clinical or epidemiologic significance or
- Patients infected with highly virulent microorganisms, e.g., viruses causing hemorrhagic fever (such as Ebola or Lassa).

If you have questions about a low- or intermediate-level disinfectant, contact the manufacturer, your local or state health department, or the Antimicrobial Program Branch, Registration Division, Environmental Protection Agency (EPA), (703) 305-7443. Or, you may call the EPA disinfectant hotline at 1-800-447-6349. The EPA is the federal regulatory agency for low- or intermediate-level disinfectants.

If you have questions about high-level disinfectants (sterilants), or how to clean, disinfect or sterilize a particular medical device, first contact the manufacturer of the product. If you are unable to obtain sufficient information in this manner, contact the Food and Drug Administration (FDA) regional office or the FDA Center for Devices and Radiological Health at (301) 443-4690. FDA is the federal regulatory agency for safe and effective use of medical devices and is now also responsible for regulation of chemical sterilants.

7.2 Reusable Patient-Care Equipment

When contaminated with infective material, equipment should be bagged and labeled before being removed from the patient's room or cubicle and remain bagged until decontaminated or sterilized.

1. Procedure for Handling Contaminated Steam Autoclavable Equipment Used in Isolation

Items that can withstand heat, high temperature and moisture should be sent for reprocessing and sterilization by steam. Reusable glass syringes, rubber articles, glass bottles and metal instruments are examples of items which should be steam autoclaved.

- Rinse non-disposable needles and syringes in cold water, soak in disinfectant, rinse, dry and wrap for autoclaving.
- Place autoclavable items into an ORANGE "Biohazard" bag for autoclaving. Do not use regular plastic bags. These bags will melt at temperatures over 120 degrees Fahrenheit. If outside contamination of the bag is likely, a second bag should be added.

2. Procedure for Contaminated Reusable Equipment Which Requires Terminal Disinfection.

- Examine equipment for gross soiling.
- Before removing equipment from room, wipe all surfaces thoroughly with a cloth moistened with a detergent/disinfectant solution approved by the Environmental Protection Agency.
- Return equipment to the department of origin or to the proper storage area on the patient care unit.

7.3 Glutaraldehyde

Glutaraldehyde, (i.e., Metricide, Cidex, VHA Plus) is an effective chemical used for high level disinfection. However, there is a growing concern over the potential adverse effects of exposure to glutaraldehyde liquid and vapors.

One should avoid glutaraldehyde if high level disinfection is not required. If high level disinfection is necessary, the equipment may be sent to a central processing location such as Central Sterile Supply. One should look into whether other, less hazardous, high level liquid disinfectants that may be utilized as well.

If it is absolutely necessary to use glutaraldehyde for high level disinfect equipment in a clinical area, the following must be carried out:

7.3.1 Notification

The Yale University Office of Environmental Health and Safety (785-3550) needs to be notified of any clinical area utilizing glutaraldehyde for any purpose.

7.3.2 Environmental Considerations

The dirty utility area should be separate from patient and employee areas. Proper ventilation is required and the room should have a minimum of 10 air exchanges per hour. In addition, there should be a local exhaust ventilation system at the point of discharge of the vapors, i.e., contained station or exhaust hood.

7.3.3 Monitor Exposure Levels

Measurement of glutaraldehyde exposure levels must be conducted in any area using glutaraldehyde. The current exposure limit is a ceiling value of 0.05 ppm, which should not be exceeded at any time. This monitoring should be conducted at least once in every area where glutaraldehyde is used. It should also be conducted whenever there is a change in the operation or equipment that may result in a change of exposure. The Yale Office of Environmental Health and Safety will conduct this monitoring and evaluate the results.

7.3.4 Hazard Communication Training

All employees who work with hazardous chemicals are required to attend chemical safety training. This training includes information on the hazards of the chemicals they work with, personal protective equipment, safe work practices, spill clean up procedures, Material Safety Data Sheets (MSDSs), labeling, and engineering controls and other methods to reduce exposures.

7.3.5 Appropriate Barrier Protection

Employees using glutaraldehyde must wear appropriate personal protective equipment (PPE) to protect skin, face, and clothing. At a minimum, anyone working with glutaraldehyde should wear chemical goggles, nitrile gloves, and an impervious gown or apron.

7.3.6 Administrative and Work Practice Controls

Limit employee access and centralize glutaraldehyde usage as much as possible. Install appropriate eyewash stations within the area of all glutaraldehyde usage locations.

Glutaraldehyde vapors increase during agitation of the solution. Pouring, dumping, and moving of glutaraldehyde should be minimized.

7.3.7 Activating and Testing of the Solution

Record the date of activation and expiration of the glutaraldehyde solution. Monitor the solution at least daily with dialdehyde concentration indicators. Document this information on a log sheet. All glutaraldehyde solutions should be stored in closed, covered and correctly labeled containers. The cover of the soaking container should be kept on at all times except when items are deposited or removed.

7.3.8 Accidental Exposure

Employees exposed to glutaraldehyde should immediately remove contaminated clothing and thoroughly wash the skin with water. In case of eye contact, eyes should be flushed with copious amounts of water for at least 15 minutes and contact lenses should be removed. Yale University employees should report immediately to YUHS Urgent Visit (open 24 hours) or Employee Health (8:30 am – 5:00pm).

7.4 Sphygmomanometer and Stethoscope

No special precautions are indicated unless this equipment is contaminated (or likely to be contaminated) with infective material. If soiled, wipe the stethoscope, cuff, gauge, bulb, and other component parts with a cloth moistened with a disinfectant solution. See Contact Precautions for additional information.

7.5 Soiled Linen & Laundry

It is the responsibility of the Housekeeping staff to remove all soiled/dirty linen and all trash from the unit.

There is a method for disposal of linen soiled with blood and body secretions to reduce risk of staff contact with the soiled linen. In accordance with standard precautions, employees are required to wear gloves and gowns if necessary, while handling all soiled linen. All patient laundry is considered to be soiled with blood or body fluids and should be handled using Standard Precautions. All soiled linen is placed in the linen hampers

The risk of disease transmission from soiled linen is negligible. However, soiled linens may carry large numbers of organisms that may contaminate the air and immediate environment if they are “fluffed” or agitated.

All linen will be handled as potentially infectious. Linen will be transported in high tensile strength, impervious bags. Soiled linen should be handled as little as possible and with minimum agitation in order to prevent microbial dissemination into the air and onto employees handling the linen. Soiled linen should not come into contact with attire. Hold the soiled linen away from your clothes. If linen saturated wear a gown and booties to prevent further transmission. It should be placed in bags as close as possible as the location it was used. It should not be sorted or rinsed in patient care areas. Soiled linen must be collected and transported in impervious bags to prevent leakage. Bags must be secured when filled (not overfilled) to prevent spillage during transportation. Soiled laundry must be collected in covered hampers in patient care areas.

Gloves must be worn when handling linen.

7.6 Housekeeping

All waste baskets in the rooms of patients shall be lined with plastic liners. When full these bags shall be removed, using gloves, closed (placed in a second plastic bag that is closed), and transported to the dumpster.

Bathroom's shall be cleaned in the usual manner using gloves and germicide/disinfectant solution.

- Gloves and eye protection shall be worn when cleaning showers and bathtubs, using the germicidal disinfectant solution once each day. Tub cleaning with germicidal disinfectant solution will be followed by scrubbing with a cleaner and rinsed thoroughly.
- Housekeeping Staff shall wear gloves when removing all trash. The trash in the specially marked waste containers in the treatment rooms is to be double bagged and removed by Housekeeping Staff wearing gloves.
- All horizontal surfaces shall be wiped clean with a germicidal solution daily and as required.
- Floors shall be mopped thoroughly and cleaned with germicidal solution once a week and as required.
- Wall shall be spot cleaned with detergent and germicide solution when soiled and shall be periodically cleaned according to prescribed housekeeping routine.

Interim cleaning procedure:

- put on gloves
- face protection and gown if soiling is likely
- saturate disposable cloth with the EPA approved disinfectant
- remove gross soilage (if present)
- dispose of cloth, if saturated with blood dispose into regulated waste container
- saturate second disposable cloth with disinfectant-detergent and wipe entire area
- allow area to dry according to manufacturers recommendations as listed on container

7.7 Cleaning Spills of Blood and Body Fluids on Environmental Surfaces

All spilled blood and other body fluids are handled and managed safely to maintain a safe environment. Household chlorine bleach (5.25% sodium hypochlorite) or an appropriate tuberculocidal disinfectant shall be used to clean all spills of human blood and other potentially infectious materials.

If spill response /mess kits are unavailable in facility, either obtain prepared spill kit or assemble your own spill response kit.

7.7.1 Prepare and maintain a spill response kit.

Basic equipment is some concentrated disinfectant (chlorine bleach), a package of paper towels, household rubber gloves, biohazard bags, and forceps to pick up broken glass. The contents of the kit can be kept in a plastic container. There are commercial available spill kits for cleaning blood and body fluids.

- Remove contaminated clothing, turn exposed areas inward, and place in a biohazard bag.
- Wash all exposed skin with disinfectant.
- Inform Supervisor, and, if assistance is needed, consult OHS Biosafety (785-3550).

7.7.2 To clean up a spill:

- Wear gloves, eye protection, and a lab coat (or tyvek).

- Absorb blood with paper towels or disinfectant-soaked paper towels and place in a biohazard bag. Collect any sharp objects with forceps or other mechanical device and place in a sharp container.
- Using a detergent solution, clean the spill site of all visible blood.
- Spray the spill site with freshly prepared 1:10 dilution of household bleach and allow to air-dry for 15 minutes. Please note: If it is a large spill, make up a fresh dilution of household bleach as follows – mix 1 part household bleach with 4 parts water to pour enough into the spill puddle to double its size. Allow disinfectant to remain in contact for at least 15 minutes.
- After the 15 minute contact time, wipe the area down with disinfectant-soaked paper towels. Discard all disposable materials used to decontaminate the spill and any contaminated personal protective equipment into a biohazard bag. Decontaminate any reusable items with disinfectant.
- Wash your hands after removing personal protective equipment.

7.8 Decontamination of Health Care Worker's Clothing

Health care worker's clothing that becomes contaminated by blood or body fluids/substances should be handled according to the following procedure:

Clothing should be removed promptly while wearing gloves.

Clothing should be placed in a plastic biohazard/leak proof bag.

The health care worker's supervisor should be notified and arrangements should be made for health care worker's personal uniform or clothing to be decontaminated and laundered.

Yale University employees report to Yale University Health Services (YUHS) Urgent Visit (open 24 hours) or Employee Health (8:30 am – 5:00pm) immediately if there is any exposure through clothing to the skin.

7.9 Decontamination of Patient Clothing and Personal Belongings:

Patient clothing and personal belongings that become contaminated by blood or body substances should be handled according to the following procedures. Any items that cannot be managed in the manner below should be sealed in a plastic bag and kept at the bedside until the matter can be discussed with Yale University's Office of Environmental Health and Safety (785-3550).

7.9.1 Clothing

Clothing soiled by blood or body substances should be placed in a tightly sealed plastic bag at the patient's bedside and given to the family for home laundering. The family should be instructed to wash the clothing by machine, using a laundry detergent. Hot water and chlorine bleach should also be used unless these agents will damage the items. The plastic bag used to contain the clothing during its transport should be placed in a second plastic bag, tightly sealed, and discarded in the household trash. Persons involved in the handling of contaminated clothing should be instructed to wash their hands thoroughly after handling the items.

7.9.2 Personal Belongings

- Disinfect hard surfaces by wiping the items using a 1:10 solution of 5.25% sodium hypochlorite in water (1 part chlorine bleach to 9 parts water).
- Disposable articles, such as magazines, that are contaminated by blood or body substances should be disposed of according to the hospital's regulated and non-regulated waste policy.

7.10 Linen Handling

- All clean linen must be kept covered at all times before use.
- Assigned staff from the clinical area will bag linen in impervious linen bags at the point of generation.
- The linen bag will be placed in a covered soiled linen holder.
- All used linen is considered contaminated and should remain covered at all times.
- Care should be taken to prevent linen bags from being overfilled. The bag must be able to be securely closed prior to removal from the clinic.
- Personnel removing linen from the clinic area must wear appropriate personal protective equipment.

References:

Guidelines for Environmental Infection Control in Health-Care Facilities. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). Morbidity and Mortality Weekly Report (MMWR). June 6, 2004; 52(RR10):1-42.

Favero MS, Bond WW. Sterilization, disinfection, and antisepsis in the hospital. In: Manual of Clinical Microbiology, 1991; chapter 24:183-200. American Society for Microbiology. Washington, DC.

Garner JS, Favero MS. Guidelines for handwashing and hospital environmental control, 1985. MMWR, 1987;36(25 Supplement). MMWR 1988;37(24)

Rutala WA. APIC guideline for selection and use of disinfectants. Am J Infect Control 1996;24:313-342.

SECTION 8. Storage of Medications

Unit-dose vials of sterile medication should be used whenever possible.

The rubber stopper should be wiped with alcohol each time the vial is entered. If multiple-dose vials are used, the date and time of opening should be written on the label with the initials of the person who opened it. Multi-dose vials must be examined for precipitate matter and evidence of discoloration prior to each use. Vials are stored in accordance with manufacturer recommendations. The unused portion should be discarded after 30 days or according to explicit instructions from the pharmacist or the expiration date, whichever is earlier.

Medications should be stored in areas with restricted access and secured in a locked cabinet. Medications should not be stored on counter tops next to the sink. The person administering unit dose medications should always check to be certain that the package is sealed and that the expiration date has not passed.

Only supplies used for medication and patient treatment shall be stored in the treatment room or dedicated refrigerator. The medication refrigerator must be checked for outdated medications and kept clean. The temperature (36 F –40F) of the medication refrigerator must be monitored daily. A log must be maintained to include daily temperature checks, weekly and as needed cleaning and routine inspection of contents.

Horizontal surfaces in the treatment room shall be wiped with a germicide solution weekly and as needed and sinks shall be scoured and germicide solution applied daily.

8.1 Expiration Dates of Vials

In view of sterility and stability of medications in multi-dose vials and the variability of injection technique, preservatives and storage conditions for parenteral products, the following guidelines are recommended.

- Sterile water and saline for irrigation should be labeled with the date and time it was opened. The bottles should be discarded at the end of 24 hours.
- Hydrogen peroxide must be dated when opened and discarded at the end of the week.
- Any vial that does not contain a preservative is a single-use vial and shall be used for only a single use.
- Any multi-dose vial that does contain a preservative shall be inspected prior to each use for particulate matter and discoloration.
- All open vials discard after open one month.
-

Exceptions:

- Allergenic extracts, skin test reagents, which are patient specific, can be used until the manufacturer's expiration date.
- For all immune globulin and vaccine vials follow manufacturers specific guidelines on storage.

Contact Environmental Services Section (432- 2093) for information on disposal procedures.

Note: Controlled Substances must be kept in a secured locked area. Clinics who utilize controlled substances must have an updated license with the State and Federal Drug Enforcement Agency. An Inventory must be kept of all controlled substances. A copy of this inventory must be sent to the State DEA by May 1st of each year.

SECTION 9: Storage and Transporting of Specimens

9.1 Handling of Clinical Specimens

All clinical specimens, regardless of patient origin, will be subject to the application of Standard Precautions and handled as potentially infectious.

- ◆ All specimens will be packaged in a sealable plastic bag prior to transportation to the lab so that lab slips will not come in direct contact with specimen container.
- ◆ Urine, vomitus and feces from patients can be safely flushed down the toilet into the municipal sewage system.
- ◆ Care should be taken when collecting specimens to avoid contamination of the outside of the container. Contaminated materials used in laboratory tests should be decontaminated before reprocessing or be placed in bags and disposed of in accordance with institutional policies for disposal of infectious waste. Bagging is intended to prevent inadvertent exposure of laboratory or transport personnel to infective material and prevent contamination of the environment.
- ◆ All blood or body fluid specimens must be transported from one area to another using appropriate leak proof specimen transport container or placed in the specimen refrigerator or specimen pick-up container that are labeled with the biohazard label.

9.2 Protocol on Management of Specimens

- ◆ Wear gloves when collecting and handling specimens.
- ◆ Collect specimens in appropriate container.
- ◆ Close container tightly. Leakage leads to contamination of specimen and personnel.
- ◆ Label specimen container including all appropriate information.
- ◆ Fill out laboratory requisition form completely.
- ◆ Place container into a plastic baggie or ziploc bag.
- ◆ Attach requisition to bagged specimen.
- ◆ Transport specimens in an upright manner to prevent spillage.
- ◆ Deliver specimen promptly to the appropriate pick-up storage container or specimen refrigerator that is labeled with the Biohazard label.
- ◆ Wash hands with soap and water after contact with secretions, excretions, blood and articles contaminated with bodily fluids. See Section 2.5 Emergency Procedures for Exposure to Blood and Body Fluids for additional information concerning exposures to potentially infectious materials.
- ◆ For spills, disinfect area promptly with tuberculocidal disinfectant or 10% household bleach (1:10 dilution: 1 part bleach to 9 parts water). Wear gloves for clean up. Refer to spill policy.

SECTION 10: Transportation of Patient

10.1 Transportation Process

Patient infected with virulent or epidemiologically important microorganisms should leave their room only for essential purposes. When special studies are ordered, the individual requesting the study should indicate on the requisition the patient is on transmission based precautions. The patient and transport personnel should use acquisition barriers (masks, impervious dressings, etc.) to prevent transmission. ***Personnel in the area to which the patient is to be taken should be notified of the impending arrival of the patient and of precautions to be used to Prevent transmission of infection.*** Patient should be alerted to the potential spread of their disease and informed as to how they can assist in maintaining a barrier against transmission of their infection to others.

10.2 General Considerations and Responsibilities

The preparation of transportation of patient to other departments or institutions and the notification concerning the impending arrival of the patient is a multi-disciplinary responsibility that requires collaboration and teamwork. The nurse, the unit receptionist and transport personnel are jointly responsible for the following actions:

Unit Receptionist:

- ◆ Notify the department to which the patient is being transported (e.g. Diagnostic Imaging, Physical Therapy, etc.) that the patient is on transmission based precautions.

Nurse:

- ◆ Instruct the transporter in transmission based precautions when the transporter arrives on the patient-care unit to transport the patient to another area of the hospital. Before entering the room, put on essential protective barriers. Explain to the patient what special precautions will be taken before he/she leaves the room. Put the mask on the patient if required under the specific transmission based precautions. Assist the patient into wheelchair or stretcher.

Transport Personnel:

- ◆ Receive instructions from the nurse when he/she arrives on site. Bring clean wheelchair or stretcher to the patient's room. The vehicle should be protected by a clean sheet. Before entering the room, put on essential protective barriers. Assist the patient into wheelchair or stretcher. Remove gloves and wash hands with an antiseptic solution when transportation is complete. Push transport vehicle outside room and transport patient to designated area as expeditiously as possible.

10.3 Infection Control Considerations for Personnel Transporting Patient

During the transportation process, the following infection control procedures should be considered:

- ◆ When transporting the patient to another department, if soiling of the uniform is likely to occur, wear a gown to protect clothing and wear gloves for touching infective material; if soiling is not likely, no special precautions are required other than GOOD HAND WASHING.
- ◆ Transport patient to area of destination as expeditiously as possible.
- ◆ Wash hands after direct contact with the patient, contaminated equipment and before touching another patient.
- ◆ Discard the sheet in contaminated laundry.
- ◆ Spray the chair, stretcher, and wheelchair and wipe with a disinfectant soaked towels.

10.4 General Considerations for Patients

- ◆ Help the patient to bed.
- ◆ Push wheelchair or stretcher to door.
- ◆ Wash hands upon leaving the isolation area.

Section 11. Reporting Communicable Diseases to the State of Connecticut and appropriate Health Dept.

General Considerations and Responsibilities for Reporting Communicable Diseases

Under Connecticut Public Health Code Section 19-13-A2, healthcare providers are required to report communicable diseases and infections to the State Department of Health Services and the local Health Department of the patient's place of residence. State statutes clearly indicate the attending physician is responsible for "official" reporting of diseases, but the nurse manager or Infection Control Coordinator must also be notified of a documented or suspected infection.

Reportable Diseases to the Health Department – 2007

The commissioner of the Department of Public Health (DPH) is required to declare an annual list of reportable diseases. Changes for 2007 are noted in bold and with an asterisk (*). Each report (by mail or telephone) should include the: full name and address of the person reporting, attending physician, disease being reported, and full name, address, race/ethnicity, sex and occupation of the person affected. The reports should be sent in envelopes marked "CONFIDENTIAL."

Category 1: Reportable immediately by telephone on the day of recognition or strong suspicion of disease. On weekdays, reports are made to the DPH and local health departments; in the evening and on weekends, to the DPH. A Confidential Disease Report (PD-23) or more disease-specific report form should be mailed to both the local and State health departments with 12 hours.

- | | |
|---|--------------|
| Chickenpox | Tuberculosis |
| • admission to hospital, any age | Yellow Fever |
| • adults > 18 years, any clinical setting | |

Cholera

Diphtheria

Influenza-associated deaths in children <18 years of age (1)

Measles

Meningococcal disease

Outbreaks:

Foodborne (involving ≥ 2 persons)

Institutional outbreaks

Unusual disease or illness (2)

Pertussis

Poliomyelitis

Rabies (human and animal)

Rubella (including congenital)

SARS-CoV disease

Staphylococcus aureus disease, reduced or resistant susceptibility to vancomycin(3)

<i>Category 1 Diseases that are possible indicators of Bioterrorism</i>

Anthrax
Botulism
Brucellosis
Plague
Q Fever
Ricin poisoning
Septicemia or meningitis with growth of gram positive rods within 32 hours of inoculation
Smallpox
Staphylococcal enterotoxin B pulmonary poisoning
Tularemia
Venezuelan equine encephalitis
Viral hemorrhagic fever

Category 2: Reportable by mail within 12 hours of recognition or strong suspicion to both DPH and local health departments.

Acquired Immunodeficiency Syndrome (3,4)

Babesiosis

Campylobacteriosis

Carbon monoxide poisoning (5)

Chancroid

Chlamydia (*C.trachomatis*) (all sites)

Chickenpox

Chickenpox-related death

Clostridium difficile, community-onset (6)

Creutzfeldt-Jacob disease, (< 55 years)

Cryptosporidiosis

Cyclosporiasis

Ehrlichiosis

Encephalitis

Legionellosis

Listeriosis

Lyme disease

Lymphocytic choriomeningitis virus infection

Malaria

Mercury poisoning

Mumps

Neonatal herpes (<1 month of age)

Neonatal bacterial sepsis (9)

Occupational Asthma

Pneumococcal disease, invasive (7)

Ryes Syndrome

Rheumatic Fever

Rocky Mountain Spotted Fever

Category 2: continued

Escherichia coli O157:H7 gastroenteritis

Gonorrhea

Group A streptococcal disease, invasive (7)

Group B streptococcal disease, invasive (7)

Haemophilus influenzae disease, invasive, all serotypes (7)

Hansen's disease (Leprosy)

Hemolytic-uremic syndrome

Hepatitis A

Hepatitis B

- Acute infection
- HBsAg positive pregnant woman

Hepatitis C, acute infection (**ALT >400 IU/L**)*

Hepatitis Delta

HIV exposure in infant born 1/1/2001 or later (8)

HIV-1 infection in: (3)

- Persons with active tuberculosis disease
- Persons with latent tuberculosis infection (history or tuberculin skin test ≥ 5 mm by Mantoux technique)
- Persons of any age

Lead Toxicity (blood lead ≥ 20 ug/dl)

Salmonellosis

Shiga toxin-related disease (gastroenteritis)

Shigellosis

Silicosis

Staphylococcus aureus methicillin-resistant disease, invasive, community acquired (7,10)

Staphylococcus epidermidis disease, reduced or resistant susceptibility to vancomycin (3)

Syphilis

Tetanus

Trichinosis

Typhoid Fever

Typhus

Vaccinia disease

- Persons not vaccinated
- Persons vaccinated with the following manifestations: autoinoculation, generalized vaccinia, eczema vaccinatum, progressive vaccinia, or post-vaccination encephalitis

Vibrio infection (*parahaemolyticus*, *vulnificus*, *other*)

(1) Death in child or adolescent who never fully recovers from influenza and dies from a possible complication (e.g., encephalopathy, bacterial pneumonia)

(2) Individual cases of "significant unusual illness" are also reportable.

(3) Report only to the State.

(4) CDC case definition.

(5) Includes persons being treated in hyperbaric chambers for suspect CO poisoning.

(6) Community-onset: illness in a person living in the community at the time of illness onset and no known hospitalizations in preceding 3 months; if hospitalized, a positive test taken within 48 hours of admission.

(7) Invasive disease: confirmed by isolation from blood, CSF, pericardial fluid, pleural fluid, peritoneal fluid, joint fluid, bone, or internal body sites, vitreous fluid or other normally sterile sites. Includes muscle for group A *streptococcus*.

(8) "Exposure" includes infant born to known HIV-infected mother.

(9) Clinical sepsis and blood or CSF isolate obtained from an infant < 7 days old.

(10) Community-acquired: infection present on admission to hospital and person has no previous hospitalizations or regular contact with the healthcare setting.

How to Report

The PD-23 is the general disease reporting form and should be used if other specialized forms are not available. Specialized reporting forms from the following programs are available: HIV/AIDS Surveillance (860-509-7900), Sexually Transmitted Disease Program (860-509-7920), the Pulmonary Diseases Program (860-509-7722), or the Occupational Health Surveillance Program (860-509-7744). Forms may be obtained by writing the Department of Public Health, Epidemiology Program, 410 Capitol Ave., MS#11EPI, P.O. Box 340308, Hartford, CT 06134-0308 (860-509-7994); or by calling the individual program.

Telephone Reports

Telephone reports of Category 1 disease should be made to the local director of health for the town in which the patient resides and to the Epidemiology Program (860-509-7994). Tuberculosis cases should be directly reported to the Pulmonary Diseases Program (860-509-7722). For the name, address, or telephone number of the local Director of Health for a specific town contact the Office of Local Health Administration (860-509-7660). **For public health emergencies, an epidemiologist can be reached nights and weekends through the DPH emergency number (860-509-8000).**

Forms

The PD-23 is the general disease reporting form and should be used if other specialized forms are not available. Specialized reporting forms from the following programs are available: HIV/AIDS Surveillance (860-509-7900), Sexually Transmitted Disease Program (860-509-7920), the Pulmonary Diseases Program (860-509-7722), or the Occupational Health Surveillance Program (860-509-7744).

APPENDIX A Type and Duration of Precautions Needed for Selected Infections and Conditions

Garner, JS, Hospital Infection Control Practices Advisory Committee. Guideline for isolation precautions in hospitals. *Infection Control and Hospital Epidemiology* January 1996; 17:53-80

Infection/Condition	Precautions	
	Type*	Duration†
Abscess		
Draining, major ^a	C	DI
Draining, minor or limited ^b	S	
Acquired immunodeficiency syndrome ^c	S	
Actinomycosis	S	
Adenovirus infection, in infants and young children	D,C	DI
Amebiasis	S	
Anthrax		
Cutaneous	S	
Pulmonary	S	
Antibiotic-associated colitis (see <i>Clostridium difficile</i>)		
Arthropodborne viral encephalitides (eastern, western, Venezuelan equine encephalomyelitis; St Louis, California encephalitis)	S ^d	
Arthropodborne viral fevers (dengue, yellow fever, Colorado tick fever)	S ^d	
Ascariasis	S	
Aspergillosis	S	
Babesiosis	S	
Blastomycosis, North American, cutaneous or pulmonary	S	
Botulism	S	
Bronchiolitis (see respiratory infections in infants and young children)		
Brucellosis (undulant, Malta, Mediterranean fever)	S	
<i>Campylobacter</i> gastroenteritis (see gastroenteritis)		
Candidiasis, all forms including mucocutaneous	S	
Cat-scratch fever (benign inoculation lymphoreticulosis)	S	
Cellulitis, uncontrolled drainage	C	DI
Chancroid (soft chancre)	S	
Chickenpox (varicella; see F ^e for varicella exposure)	A,C	F ^e
<i>Chlamydia trachomatis</i>		
Conjunctivitis	S	
Genital	S	
Respiratory	S	
Cholera (see gastroenteritis)		
Closed-cavity infection		
Draining, limited or minor	S	
Not draining	S	
<i>Clostridium</i>		
<i>C botulinum</i>	S	
<i>C difficile</i>	C	DI
<i>C perfringens</i>		
Food poisoning	S	
Gas gangrene	S	
Coccidioidomycosis (valley fever)		
Draining lesions	S	
Pneumonia	S	
Colorado tick fever	S	
Congenital rubella	C	F ^f

Infection/Condition	Precautions	
	Type*	Duration†
Conjunctivitis		
Acute bacterial	S	
<i>Chlamydia</i>	S	
Gonococcal	S	
Acute viral (acute hemorrhagic)	C	DI
Coxsackievirus disease (see enteroviral infection)		
Creutzfeldt-Jakob disease	S ^g	
Croup (see respiratory infections in infants and young children)		
Cryptococcosis	S	
Cryptosporidiosis (see gastroenteritis)		
Cysticercosis	S	
Cytomegalovirus infection, neonatal or immunosuppressed	S	
Decubitus ulcer, infected		
Major ^a	C	DI
Minor or limited ^b	S	
Dengue	S ^d	
Diarrhea, acute-infective etiology suspected (see gastroenteritis)		
Diphtheria		
Cutaneous	C	CN ^h
Pharyngeal	D	CN ^h
Ebola viral hemorrhagic fever	C ⁱ	DI
Echinococcosis (hydatidosis)	S	
Echovirus (see enteroviral infection)		
Encephalitis or encephalomyelitis (see specific etiologic agents)		
Endometritis	S	
Enterobiasis (pinworm disease, oxyuriasis)	S	
<i>Enterococcus</i> species (see multidrug-resistant organisms if epidemiologically significant or vancomycin resistant)		
Enterocolitis, <i>Clostridium difficile</i>	C	DI
Enteroviral infections		
Adults	S	
Infants and young children	C	DI
Epiglottitis, due to <i>Haemophilus influenzae</i>	D	U(24 hrs)
Epstein-Barr virus infection, including infectious mononucleosis	S	
Erythema infectiosum (also see Parvovirus B19)	S	
<i>Escherichia coli</i> gastroenteritis (see gastroenteritis)		
Food poisoning		
Botulism	S	
<i>Clostridium perfringens</i> or <i>welchii</i>	S	
Staphylococcal	S	
Furunculosis-staphylococcal		
Infants and young children	C	DI
Gangrene (gas gangrene)	S	
Gastroenteritis		
<i>Campylobacter</i> species	S ⁱ	
Cholera	S ⁱ	
<i>Clostridium difficile</i>	C	DI
<i>Cryptosporidium</i> species	S ⁱ	
<i>Escherichia coli</i>		
Enterohemorrhagic O157:H7	S ⁱ	
Diapered or incontinent	C	DI
Other species	S ⁱ	

	Type*	Duration†
<i>Giardia lamblia</i>	S ^j	
Rotavirus	S ⁱ	
Diapered or incontinent	C	DI
<i>Salmonella</i> species (including <i>S typhi</i>)	S ⁱ	
<i>Shigella</i> species	S ⁱ	
Diapered or incontinent	C	DI
<i>Vibrio parahaemolyticus</i>	S ⁱ	
Viral (if not covered elsewhere)	S ⁱ	
<i>Yersinia enterocolitica</i>	S ⁱ	
German measles (see rubella)		
Giardiasis (see gastroenteritis)		
Gonococcal ophthalmia neonatorum (gonorrhoeal ophthalmia, acute conjunctivitis of newborn)	S	
Gonorrhoea	S	
Granuloma inguinale (donovanosis, granuloma venereum)	S	
Guillain-Barré, syndrome	S	
Hand, foot, and mouth disease (see enteroviral infection)		
Hantavirus pulmonary syndrome	S	
<i>Helicobacter pylori</i>	S	
Hemorrhagic fevers (for example, Lassa and Ebola)	C ⁱ	DI
Hepatitis, viral		
Type A	S	
Diapered or incontinent patients	C	F ^k
Type B-HBsAg positive	S	
Type C and other unspecified non-A, non-B	S	
Type E	S	
Herpangina (see enteroviral infection)		
Herpes simplex (<i>Herpesvirus hominis</i>)		
Encephalitis	S	
Neonatal ^l (see F ^l for neonatal exposure)	C	DI
Mucocutaneous, disseminated or primary, severe	C	DI
Mucocutaneous, recurrent (skin, oral, genital)	S	
Herpes zoster (varicella-zoster)		
Localized in immunocompromised patient, or disseminated	A,C	DI ^m
Localized in normal patient	S ^m	
Histoplasmosis	S	
HIV (see human immunodeficiency virus)	S	
Hookworm disease (ancylostomiasis, uncinariasis)	S	
Human immunodeficiency virus (HIV) infection ^e	S	
Impetigo	C	U(24 hrs)
Infectious mononucleosis	S	
Influenza	D ⁿ	DI
Kawasaki syndrome	S	
Lassa fever	C ⁱ	DI
Legionnaires' disease	S	
Leprosy	S	
Leptospirosis	S	
Lice (pediculosis)	C	U(24 hrs)
Listeriosis	S	
Lyme disease	S	
Lymphocytic choriomeningitis	S	
Lymphogranuloma venereum	S	
Malaria	S ^d	

Infection/Condition

Precautions

	Type*	Duration†
Marburg virus disease	C ¹	DI
Measles (rubeola), all presentations	A	DI
Melioidosis, all forms	S	
Meningitis		
Aseptic (nonbacterial or viral meningitis; also see enteroviral infections)	S	
Bacterial, gram-negative enteric, in neonates	S	
Fungal	S	
<i>Haemophilus influenzae</i> , known or suspected	D	U(24 hrs)
<i>Listeria monocytogenes</i>	S	
<i>Neisseria meningitidis</i> (meningococcal) known or suspected	D	U(24 hrs)
Pneumococcal	S	
Tuberculosis ²	S	
Other diagnosed bacterial	S	
Meningococcal pneumonia	D	U(24 hrs)
Meningococemia (meningococcal sepsis)	D	U(24 hrs)
<i>Molluscum contagiosum</i>	S	
Mucormycosis	S	
Multidrug-resistant organisms, infection or colonization ²		
Gastrointestinal	C	CN
Respiratory	C	CN
Pneumococcal	S	
Skin, wound, or burn	C	CN
Mumps (infectious parotitis)	D	F ⁴
Mycobacteria, nontuberculosis (atypical)		
Pulmonary	S	
Wound	S	
<i>Mycoplasma pneumoniae</i>	D	DI
Necrotizing enterocolitis	S	
Nocardiosis, draining lesions or other presentations	S	
Norwalk agent gastroenteritis (see viral gastroenteritis)		
Orf	S	
Parainfluenza virus infection, respiratory in infants and young children	C	DI
Parvovirus B19	D	F ²
Pediculosis (lice)	C	U(24 hrs)
Pertussis (whooping cough)	D	F ²
Pinworm infection	S	
Plague		
Bubonic	S	
Pneumonic	D	U(72 hrs)
Pleurodynia (see enteroviral infection)		
Pneumonia		
Adenovirus	D,C	DI
Bacterial not listed elsewhere (including gram-negative bacterial)	S	
<i>Burkholderia cepacia</i> in cystic fibrosis (CF) patients, including respiratory tract colonization	S ¹	
<i>Chlamydia</i>	S	
Fungal	S	
<i>Haemophilus influenzae</i>		
Adults	S	
Infants and children (any age)	D	U(24 hrs)
<i>Legionella</i>	S	
Meningococcal	D	U(24 hrs)
Multidrug-resistant bacterial (see multidrug-resistant organisms)		
	Infection/Condition	Precautions

	Type*	Duration†
<i>Mycoplasma</i> (primary atypical pneumonia)	D	DI
Pneumococcal	S	
Multidrug-resistant (see multidrug-resistant organisms)		
<i>Pneumocystis carinii</i>	S ^u	
<i>Pseudomonas cepacia</i> (see <i>Burkholderia cepacia</i>)	S ^f	
<i>Staphylococcus aureus</i>	S	
<i>Streptococcus</i> , group A		
Adults	S	
Infants and young children	D	U(24hrs)
Viral		
Adults	S	
Infants and young children (see respiratory infectious disease, acute)		
Poliomyelitis	S	
Psittacosis (ornithosis)	S	
Q fever	S	
Rabies	S	
Rat-bite fever (<i>Streptobacillus moniliformis</i> disease, <i>Spirillum minus</i> disease)	S	
Relapsing fever	S	
Resistant bacterial infection or colonization (see multidrug-resistant organisms)		
Respiratory infectious disease, acute (if not covered elsewhere)		
Adults	S	
Infants and young children ^c	C	DI
Respiratory syncytial virus infection, in infants and young children, and immunocompromised adults	C	DI
Reye's syndrome	S	
Rheumatic fever	S	
Rickettsial fevers, tickborne (Rocky Mountain spotted fever, tickborne typhus fever)	S	
Rickettsialpox (vesicular rickettsiosis)	S	
Ringworm (dermatophytosis, dermatomycosis, tinea)	S	
Ritter's disease (staphylococcal scalded skin syndrome)	S	
Rocky Mountain spotted fever	S	
Roseola infantum (exanthem subitum)	S	
Rotavirus infection (see gastroenteritis)		
Rubella (German measles; also see congenital rubella)	D	F ^v
Salmonellosis (see gastroenteritis)		
Scabies	C	U(24 hrs)
Scalded skin syndrome, staphylococcal (Ritter's disease)	S	
Schistosomiasis (bilharziasis)	S	
Shigellosis (see gastroenteritis)		
Sporotrichosis	S	
<i>Spirillum minus</i> disease (rat-bite fever)	S	
Staphylococcal disease (<i>S aureus</i>)		
Skin, wound, or burn		
Major ^a	C	DI
Minor or limited ^b	S	
Enterocolitis	S ⁱ	
Multidrug-resistant (see multidrug-resistant organisms)		
Pneumonia	S	
Scalded skin syndrome	S	
Toxic shock syndrome	S	
<i>Streptobacillus moniliformis</i> disease (rat-bite fever)	S	
Infection/Condition		Precautions

	Type*	Duration†
Streptococcal disease (group A streptococcus)		
Skin, wound, or burn		
Major ^a	C	U(24 hrs)
Minor or limited ^b	S	
Endometritis (puerperal sepsis)	S	
Pharyngitis in infants and young children	D	U(24 hrs)
Pneumonia in infants and young children	D	U(24 hrs)
Scarlet fever in infants and young children	D	U(24 hrs)
Streptococcal disease (group B streptococcus), neonatal	S	
Streptococcal disease (not group A or B) unless covered elsewhere	S	
Multidrug-resistant (see multidrug-resistant organisms)		
Strongyloidiasis	S	
Syphilis		
Skin and mucous membrane, including congenital, primary, secondary	S	
Latent (tertiary) and seropositivity without lesions	S	
Tapeworm disease		
<i>Hymenolepis nana</i>	S	
<i>Taenia solium</i> (pork)	S	
Other	S	
Tetanus	S	
Tinea (fungus infection dermatophytosis, dermatomycosis, ringworm)	S	
Toxoplasmosis	S	
Toxic shock syndrome (staphylococcal disease)	S	
Trachoma, acute	S	
Trench mouth (Vincent's angina)	S	
Trichinosis	S	
Trichomoniasis	S	
Trichuriasis (whipworm disease)	S	
Tuberculosis		
Extrapulmonary, draining lesion (including scrofula)	S	
Extrapulmonary, meningitis ^a	S	
Pulmonary, confirmed or suspected or laryngeal disease	A	F ^u
Skin-test positive with no evidence of current pulmonary disease	S	
Tularemia		
Draining lesion	S	
Pulmonary	S	
Typhoid (<i>Salmonella typhi</i>) fever (see gastroenteritis)		
Typhus, endemic and epidemic	S	
Urinary tract infection (including pyelonephritis), with or without urinary catheter	S	
Varicella (chickenpox)	A,C	F ^e
<i>Vibrio parahaemolyticus</i> (see gastroenteritis)		
Vincent's angina (trench mouth)	S	
Viral diseases		
Respiratory (if not covered elsewhere)		
Adults	S	
Infants and young children (see respiratory infectious disease, acute)		
Whooping cough (pertussis)	D	F ^s
Wound infections		
Major ^a	C	DI
Minor or limited ^b	S	
<i>Yersinia enterocolitica</i> gastroenteritis (see gastroenteritis)		

Infection/Condition	Precautions
---------------------	-------------

	Type*	Duration†
Zoster (varicella-zoster)		
Localized in immunocompromised patient, disseminated	A,C	DI ^m
Localized in normal patient	S ^m	
Zygomycosis (phycomycosis, mucormycosis)	S	

Abbreviations:

* Type of Precautions: A, Airborne; C, Contact; D, Droplet; S, Standard; when A, C, and D are specified, also use S.

† Duration of precautions: CN, until off antibiotics and culture-negative; DI, duration of illness (with wound lesions, DI means until they stop draining); U, until time specified in hours (hrs) after initiation of effective therapy; F, see footnote.

^a No dressing or dressing does not contain drainage adequately.

^b Dressing covers and contains drainage adequately.

^c Also see syndromes or conditions listed in section 1.5.

^d Install screens in windows and doors in endemic areas.

^e Maintain precautions until all lesions are crusted. The average incubation period for varicella is 10 to 16 days, with a range of 10 to 21 days. After exposure, use varicella zoster immune globulin (VZIG) when appropriate, and discharge susceptible patients if possible. Place exposed susceptible patients on Airborne Precautions beginning 10 days after exposure and continuing until 21 days after last exposure (up to 28 days if VZIG has been given). Susceptible persons should not enter the room of patients on precautions if other immune caregivers are available.

^f Place infant on precautions during any admission until 1 year of age, unless nasopharyngeal and urine cultures are negative for virus after age 3 months.

^g Additional special precautions are necessary for handling and decontamination of blood, body fluids and tissues, and contaminated items from patients with confirmed or suspected disease. See latest College of American Pathologists (Northfield, Illinois) guidelines or other references.

^h Until two cultures taken at least 24 hours apart are negative.

ⁱ Call state health department and CDC for specific advice about management of a suspected case. During the 1995 Ebola outbreak in Zaire, interim recommendations were published. Pending a comprehensive review of the epidemiologic data from the outbreak and evaluation of the interim recommendations, the 1988 guidelines for management of patients with suspected viral hemorrhagic infections will be reviewed and updated if indicated.

^j Use Contact Precautions for diapered or incontinent children <6 years of age for duration of illness.

^k Maintain precautions in infants and children <3 years of age for duration of hospitalization; in children 3 to 14 years of age, until 2 weeks after onset of symptoms; and in others, until 1 week after onset of symptoms.

^l For infants delivered vaginally or by C-section and if mother has active infection and membranes have been ruptured for more than 4 to 6 hours.

^m Persons susceptible to varicella are also at risk for developing varicella when exposed to patients with herpes zoster lesions; therefore, susceptibles should not enter the room if other immune caregivers are available.

ⁿ The "[Guideline for Prevention of Nosocomial Pneumonia](#)" recommends surveillance, vaccination, antiviral agents, and use of private rooms with negative air pressure as much as feasible for patients for whom influenza is suspected or diagnosed. Many hospitals encounter logistic difficulties and physical plant limitations when admitting multiple patients with suspected influenza during community outbreaks. If sufficient private rooms are unavailable, consider cohorting patients or, at the very least, avoid room sharing with high-risk patients. See "Guideline for Prevention of Nosocomial Pneumonia" for additional prevention and control strategies.

^o Patient should be examined for evidence of current (active) pulmonary tuberculosis. If evidence exists, additional precautions are necessary (see tuberculosis).

^p Resistant bacteria judged by the infection control program, based on current state, regional, or national recommendations, to be of special clinical and epidemiologic significance.

^q For 9 days after onset of swelling.

^r Maintain precautions for duration of hospitalization when chronic disease occurs in an immunodeficient patient. For patients with transient aplastic crisis or red-cell crisis, maintain precautions for 7 days.

^s Maintain precautions until 5 days after patient is placed on effective therapy.

^t Avoid cohorting or placement in the same room with a CF patient who is not infected or colonized with *B cepacia*. Persons with CF who visit or provide care and are not infected or colonized with *B cepacia* may elect to wear a mask when within 3 ft of a colonized or infected patient.

^u Avoid placement in the same room with an immunocompromised patient.

^v Until 7 days after onset of rash.

^w Discontinue precautions *only* when TB patient is on effective therapy, is improving clinically, and has three consecutive negative sputum smears collected on different days, or TB is ruled out. Also see CDC "[Guidelines for Preventing the Transmission of Tuberculosis in Health-Care Facilities.](#)"

Appendix B. CDC's Respiratory Hygiene/Cough Etiquette Guidelines



INFLUENZA (FLU)

FACT SHEET

Respiratory Hygiene/Cough Etiquette in Healthcare Settings

To prevent the transmission of all respiratory infections in healthcare settings, including influenza, the following infection control measures should be implemented at the first point of contact with a potentially infected person. They should be incorporated into infection control practices as one component of Standard Precautions.

1. Visual Alerts

Post visual alerts (in appropriate languages) at the entrance to outpatient facilities (e.g., emergency departments, physician offices, outpatient clinics) instructing patients and persons who accompany them (e.g., family, friends) to inform healthcare personnel of symptoms of a respiratory infection when they first register for care and to practice Respiratory Hygiene/Cough Etiquette.

2. Respiratory Hygiene/Cough Etiquette

The following measures to contain respiratory secretions are recommended for all individuals with signs and symptoms of a respiratory infection.

- Cover the nose/mouth when coughing or sneezing;
- Use tissues to contain respiratory secretions and dispose of them in the nearest waste receptacle after use;
- Perform hand hygiene (e.g., hand washing with non-antimicrobial soap and water, alcohol-based hand rub, or antiseptic handwash) after having contact with respiratory secretions and contaminated objects/materials.

Healthcare facilities should ensure the availability of materials for adhering to Respiratory Hygiene/Cough Etiquette in waiting areas for patients and visitors.

- Provide tissues and no-touch receptacles for used tissue disposal.
- Provide conveniently located dispensers of alcohol-based hand rub; where sinks are available, ensure that supplies for hand washing (i.e., soap, disposable towels) are consistently available.

3. Masking and Separation of Persons with Respiratory Symptoms

During periods of increased respiratory infection activity in the community (e.g., when there is increased absenteeism in schools and work settings and increased medical office visits by persons complaining of respiratory illness), offer masks to persons who are coughing. Either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties) may be used to contain respiratory secretions (respirators such as N-95 or above are not necessary for this purpose). When space and chair availability permit, encourage coughing persons to sit at least three feet away from others in common waiting areas. Some facilities may find it logistically easier to institute this recommendation year-round.

December 17, 2003

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
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Respiratory Hygiene/Cough Etiquette in Healthcare Settings
(continued from previous page)

4. Droplet Precautions

Advise healthcare personnel to observe Droplet Precautions (i.e., wearing a surgical or procedure mask for close contact), in addition to Standard Precautions, when examining a patient with symptoms of a respiratory infection, particularly if fever is present. These precautions should be maintained until it is determined that the cause of symptoms is not an infectious agent that requires Droplet Precautions
www.cdc.gov/ncidod/hip/ISOLAT/Isolat.htm.

NOTE: These recommendations are based on the [Draft Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings](#). Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC), CDC

For more information, visit www.cdc.gov/flu, or CDC's Division of Healthcare Quality Promotion at www.cdc.gov/ncidod/hip, or call the National Immunization Hotline at (800) 232-2522 (English), (800) 232-0233 (español), or (800) 243-7889 (TTY).

Appendix C. Standard Operating Procedures (SOP's) for Invasive Clinical Procedures

Department/Clinic: _____

Clinic Location: (Bldg./Room)_____

Clinic Director: _____ Phone: _____

Nurse Manager: _____ Phone: _____

Title of Invasive Procedure: _____

Brief description of project:

Personnel Trained and Authorized to Perform this Procedure:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

List of Equipment and Supplies Required for this Procedure:

,

Check/List Personal Protective Equipment Required to Protect Staff Performing SOP:

Lab Coat Gown Gloves Safety Glasses Mask Face Shield

Other (please specify):_____

Provide a set of Standard Operating Procedures that will be employed by your clinic to reduce both patient and employee risk of exposure or infection during the procedure.

Please list the steps involved in the invasive procedures and also include a description of antiseptic procedures in the handling of sterile supplies and equipment and the decontamination procedures following the procedure. (Note: hands must be washed promptly upon the removal of gloves and other protective clothing, before leaving the procedure room, and in between patients).

Will specimens be transported outside your clinic?

If yes: To what location?

How will the material be transported?

List the disinfectant(s) and concentration(s) that will be used for decontaminating work surfaces and equipment:

Location of Autoclave:

Will autoclave procedures be verified? Yes No How Often? _____

Describe the verification method:

Please describe the emergency response procedures for the following incidents:

Puncture wound or parenteral exposure:

Exposure to mucous membranes of face:

Biohazard (Blood or Body Fluid) Spill:

Reviewed by _____ Date _____

Accepted by _____ Date _____

Revision Dates:

Appendix D Refrigerator Monitoring Log





FOOD																																		
REFRIGERATOR CLEANING / MONITORING LOG																																		
Temp check-Daily (37° - 40° F, 1° - 4° C)																																		
If temp reading ↑ or ↓ call Charge Nurse																																		
Temp/Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
44°																																		
43°																																		
42°																																		
41°																																		
40°																																		
39°																																		
38°																																		
37°																																		
36°																																		
35°																																		
34°																																		
Initials																																		
Pedi Freezer <-17.8 C																																		
Temperature Adjusted																																		
Open Food Labeled																																		
✓ for cleanliness/ Indicate when cleaned																																		
Food Discarded																																		
Eng. Notified																																		
Actions Taken - Date and Initials																																		

- * Cleaned every week (in/out)
- * Discard unlabeled or expired food
- * Charge Nurse authorizes Engineering notification

MEDICATION/SPECIMEN																																	
REFRIGERATOR CLEANING / MONITORING LOG																																	
Temp check-Daily (38° - 48° F, 2° - 8° C)																																	
If temp reading ↑ or ↓ call Charge Nurse																																	
Temp/Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
50°																																	
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34°																																	
33°																																	
≤32°																																	
Initials																																	
✓ for cleanliness / Indicate when cleaned																																	
Eng. Notified																																	
Pharm / Lab Notified																																	
Actions Taken - Date and Initials																																	

- * Cleaned every week (in/out)
- * Charge Nurse authorizes Engineering notification

Appendix E: CDC's Sequence for Donning & Removing PPE

SEQUENCE FOR DONNING PERSONAL PROTECTIVE EQUIPMENT (PPE)	SECUENCIA PARA PONERSE EL EQUIPO DE PROTECCIÓN PERSONAL (PPE)
<p>The type of PPE used will vary based on the level of precautions required; e.g., Standard and Contact, Droplet or Airborne Infection Isolation.</p>	<p>El tipo de PPE que se debe utilizar depende del nivel de precaución que sea necesario; por ejemplo, equipo Estándar y de Contacto o de Aislamiento de Infecciones transportadas por gotas o por aire.</p>
<p>1. GOWN</p> <ul style="list-style-type: none"> Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back Fasten in back of neck and waist 	<p>1. BATA</p> <ul style="list-style-type: none"> Cubra con la bata todo el torso desde el cuello hasta las rodillas, los brazos hasta la muñeca y dóblela alrededor de la espalda Átela por detrás a la altura del cuello y la cintura
<p>2. MASK OR RESPIRATOR</p> <ul style="list-style-type: none"> Secure ties or elastic bands at middle of head and neck Fit flexible band to nose bridge Fit snug to face and below chin Fit-check respirator 	<p>2. MÁSCARA O RESPIRADOR</p> <ul style="list-style-type: none"> Asegúrese los cordones o la banda elástica en la mitad de la cabeza y en el cuello Ajústese la banda flexible en el puente de la nariz Acomódese en la cara y por debajo del mentón Verifique el ajuste del respirador
<p>3. GOGGLES OR FACE SHIELD</p> <ul style="list-style-type: none"> Place over face and eyes and adjust to fit 	<p>3. GAFAS PROTECTORAS O CARETAS</p> <ul style="list-style-type: none"> Colóquelas sobre la cara y los ojos y ajústelas
<p>4. GLOVES</p> <ul style="list-style-type: none"> Extend to cover wrist of isolation gown 	<p>4. GUAANTES</p> <ul style="list-style-type: none"> Extienda los guantes para que cubran la parte del puño en la bata de aislamiento
	
USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION	UTILICE PRÁCTICAS DE TRABAJO SEGURAS PARA PROTEGERSE USTED MISMO Y LIMITAR LA PROPAGACIÓN DE LA CONTAMINACIÓN
<ul style="list-style-type: none"> Keep hands away from face Limit surfaces touched Change gloves when torn or heavily contaminated Perform hand hygiene 	<ul style="list-style-type: none"> Mantenga las manos alejadas de la cara Limite el contacto con superficies Cambie los guantes si se rompen o están demasiado contaminados Realice la higiene de las manos
SEQUENCE FOR REMOVING PERSONAL PROTECTIVE EQUIPMENT (PPE)	SECUENCIA PARA QUITARSE EL EQUIPO DE PROTECCIÓN PERSONAL (PPE)
<p>Except for respirator, remove PPE at doorway or in anteroom. Remove respirator after leaving patient room and closing door.</p>	<p>Con la excepción del respirador, quítase el PPE en la entrada de la puerta o en la antecámara. Quítase el respirador después de salir de la habitación del paciente y de cerrar la puerta.</p>
<p>1. GLOVES</p> <ul style="list-style-type: none"> Outside of gloves is contaminated Grasp outside of glove with opposite gloved hand; peel off Hold removed glove in gloved hand Slide fingers of ungloved hand under remaining glove at wrist Peel glove off over first glove Discard gloves in waste container 	<p>1. GUAANTES</p> <ul style="list-style-type: none"> ¡El exterior de los guantes está contaminado! Agarre la parte exterior del guante con la mano opuesta en la que todavía tiene puesto el guante y quítaselo Sostenga el guante que se quitó con la mano enguantada Deslice los dedos de la mano sin guante por debajo del otro guante que no se ha quitado todavía a la altura de la muñeca Quítase el guante de manera que acabe cubriendo el primer guante Arroje los guantes en el recipiente de desechos
<p>2. GOGGLES OR FACE SHIELD</p> <ul style="list-style-type: none"> Outside of goggles or face shield is contaminated To remove, handle by head band or ear pieces Place in designated receptacle for reprocessing or in waste container 	<p>2. GAFAS PROTECTORAS O CARETA</p> <ul style="list-style-type: none"> ¡El exterior de las gafas protectoras o de la careta está contaminado! Para quitárselas, tómelas por la parte de la banda de la cabeza o de las piezas de las orejas Colóquelas en el recipiente designado para reprocessar materiales o de materiales de desecho
<p>3. GOWN</p> <ul style="list-style-type: none"> Gown front and sleeves are contaminated Unfasten ties Pull away from neck and shoulders, touching inside of gown only Turn gown inside out Fold or roll into a bundle and discard 	<p>3. BATA</p> <ul style="list-style-type: none"> ¡La parte delantera de la bata y las mangas están contaminadas! Desate los cordones Esquando solamente el interior de la bata, pásela por encima del cuello y de los hombros Voltee la bata al revés Dóblela o enróllala y deséchala
<p>4. MASK OR RESPIRATOR</p> <ul style="list-style-type: none"> Front of mask/respirator is contaminated — DO NOT TOUCH! Grasp bottom, then top ties or elastics and remove Discard in waste container 	<p>4. MÁSCARA O RESPIRADOR</p> <ul style="list-style-type: none"> La parte delantera de la máscara o respirador está contaminada — ¡NO LA TOQUE! Primero agarre la parte de abajo, luego los cordones o banda elástica de arriba y por último quítase la máscara o respirador Arrojela en el recipiente de desechos
	
PERFORM HAND HYGIENE IMMEDIATELY AFTER REMOVING ALL PPE	EFECTÚE LA HIGIENE DE LAS MANOS INMEDIATAMENTE DESPUÉS DE QUITARSE CUALQUIER EQUIPO DE PROTECCIÓN PERSONAL

Appendix F Employee Awareness Packet

Bloodborne Pathogens Information

Bloodborne pathogen training is required for all employees with “occupational expose”, defined by the U.S. Occupational Safety and Health Administration (OSHA) as reasonably anticipated skin, eye, mucous membrane or parenteral contact with human blood or other potentially infectious materials that occurs during work. Other potentially infectious materials are defined as semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures (this is noted due to the likelihood of blood contamination in dental procedures), any body fluid that is visibly contaminated with blood, all body fluids in situations where it is difficult or impossible to differentiate between body fluids, any unfixed tissue or organ (other than intact skin) from a human (living or dead), and culture media and animals infected with human immunodeficiency virus (HIV) or Hepatitis B virus (HBV).

Yale University has an **Exposure Control Plan** to manage potential employee exposures to bloodborne pathogens. Copies of the plan are available from the Office of Environmental Health & Safety at 135 College Street or their web-site at <http://www.yale.edu/oehs/>. For further information regarding the plan or it’s contents, please contact the Occupational Health and Safety Section at 785-3550.

While there are many bloodborne pathogens, those of greatest concern to employees are HIV and bloodborne hepatitis viruses (Hepatitis B, C and D). Specific information regarding HIV and bloodborne hepatitis viruses is available in Yale’s Bloodborne Pathogen Training Manual for clinical and laboratory personnel. Possible exposure routes are puncture wounds from a sharp (such as needles, lancets or broken glass) contaminated with human blood, tissue or body fluid. Direct (person to person) and indirect (handling specimens) contact with bloodborne pathogens enables them to enter the body through broken skin (parenteral entry) and through the mucous membrane of the eyes, nose, mouth and urogenital tract.

Identification of potentially infectious materials

Potentially infectious materials must be identified by using either the **international biohazard symbol** (fluorescent orange-red) and the word “**biohazard**”, or using **red bags** or **red containers**.



Handling of specimens

Human blood and other potential infectious materials must be placed in containers that prevent leakage during collection, handling, processing, storage, transport or shipping. **Specimen transport bags** may be useful when specimen containers are packaged and sent to another facility. These bags must be marked with the biohazard symbol and the word “biohazard”. Specimen transport bags are available in all sites where specimen collection takes place. The specimen is placed in the ziplock transport bag, and the bag is sealed. A second bag is placed over the first and contains any associated paperwork to decrease the likelihood of contamination. After the specimen is double bagged, it is placed in the designated refrigerator for pick up. The refrigerator must also be marked with the biohazard symbol, and should contain nothing but specimens.

Waste Containers

Potentially infectious material is treated as if it was infectious and appropriate disposal methods are available. **Sharps disposal containers** are used to contain and discard used and unused sharps waste. These are puncture resistant, closable, and leak proof from the sides and bottom. Proper use of sharps containers eliminates the need to recap, bend, break or manipulate sharps waste by hand. A contaminated sharp is any object contaminated with human blood, blood products, or other potentially infectious material that is also capable of puncturing the skin. Sharps containers are available in all treatment rooms. A red container, red bag or biohazard bag is used for non-sharp items and blood soaked or caked items. All sharps are to be placed into a sharps container promptly after use. Safety needle devices should be used, if available, to avoid needlestick incidents when injections are needed to take place in areas other than the treatment room.

Sharps containers are replaced when they are 3/4 full. Contact the designated member of the housekeeping staff for removal. Red sharps buckets are available through the housekeeping department or contacting the Office of Environmental Health and Safety at 785-3551. Needles/sharps disposal containers (beige sharps containers) are available through the Yale Stock Rooms.

Other potentially infectious waste is disposed in red bags within boxes marked with the biohazard symbol and the word “biohazard”. Other waste includes but is not limited to dressings and other items that have been soiled with blood and body fluids. The item is placed in the designated container. Containers should be removed when they are 3/4 full. Contact the designated housekeeping person for removal and replacement.

Work practices

Safety is a shared responsibility. Your attitude and work practices are critical for your health and safety as well as those around you. The practice of **Standard Precautions**, whereby all human blood and certain fluids are treated as if infectious, is the essential first step to safe work.

Before you begin your work, be sure safety materials are accessible. Know where these items are and how to obtain disinfectants should a spill occur. Tuberculocidal disinfectants or “Mess Kits” should be used for any spills; alternatively, a fresh 10% bleach (sodium hypochlorite) solution may also be used. Never keep food or drinks in refrigerators or freezers where potentially infectious material may be present.

Handwashing is very important to infection control. Wash your hands after the removal of any personal protective gear and immediately after any contact with potentially infectious material.

Disposable needles and syringes must be disposed of promptly into needles/sharps waste disposable containers. Do not shear, bend, recap, break or otherwise manipulate sharps. For further information regarding sharps disposable, contact your Infection Control Coordinator or the Office of Environmental Health and Safety

Personal protective equipment (PPE), also known as barrier precautions, is used to prevent direct contact with potentially infectious materials. **PPE** must be available at your facility, and includes masks, gloves, gowns, and eye protections (goggles, safety glasses or face shield). Reusable PPE must be disinfected with a tuberculocidal disinfectant or 10% hypochlorite solution if visibly soiled. If an employee is or develops an allergy to latex gloves or the powder used in them, other non-latex or powder free gloves must be provided. Latex and other allergies can cause significant discomfort and, with time, serious health conditions in some individuals. Notify your supervisor or the Infection Control Coordinator if you have an allergy to the PPE normally provided.

PPE must be available in treatment/exam rooms, and emergency ventilation devices available either in treatment rooms, emergency crash cart or other designated area.

Vaccinations

An important component of OSHA’s Bloodborne Pathogen standard is the employer’s responsibility to offer Hepatitis B vaccination to all occupationally exposed employees. Those with occupational exposure are strongly encouraged to receive the vaccine unless allergy or other health issues make it inappropriate. The vaccine may be obtained from Employee Health (17 Hillhouse Avenue, 432-0071). Please call Employee Health with any questions about the vaccine and to make an appointment (432-0071).

Spill Response

Spills of potentially hazardous material must be decontaminated and cleaned up immediately. Inform others of the spill and begin clean up procedure immediately. Wear appropriate PPE for cleaning up spills. For smaller spills (for example, drops of blood) the area should be cleaned and disinfected. Use a tuberculocidal disinfectant or a 10% household bleach solution. The household bleach solution must be freshly made before use. Clean area of spill and spray the area with the disinfectant and allow to air dry for 15 minutes. For larger spills, a “Mess Kit” should be used. Mark the area off limits until the area can be cleaned. Follow the instructions on the Mess Kit and dispose of waste properly.

Remember to treat all blood and potentially hazardous body fluids as if they are contaminated.

Exposure Incidents

Exposure incidents are defined as specific contact with blood or other potentially infectious material during work. If an exposure incident occurs, immediately remove any PPE and wash the area with soap and water (skin) or flush mucous membranes with water. Notify your supervisor or Infection Control Coordinator immediately, and report to Employee Health or Urgent Visit at 17 Hillhouse Avenue as soon as possible for treatment and counseling.

The complete text of the bloodborne pathogen manual is available in the office of the Infection Control Coordinator. Please contact the Infection Control Coordinator, Employee Health or the Office of Environmental Health and Safety if you have any questions.

All occupationally exposed employees must take the Bloodborne Pathogen Training session. Contact the Office of Environmental Health and Safety (785-3550) for information on training schedule, or complete the bloodborne pathogen training through the web at <http://info.med.yale.edu/bbp>.

Bloodborne Pathogens Practice Quiz

- 1) Potentially infectious material is identified by using:
 - a) red bags or red containers
 - b) placement in clear bags
 - c) coded number system
 - d) verbal notification.

- 2) Ways to identify potentially infectious material include:
 - a) the international biohazard symbol
 - b) red bags
 - c) red containers
 - d) all of the above.

- 3) Clinical specimens must be kept in:
 - a) any cool place
 - b) a refrigerator designated for specimens only
 - c) the medication room
 - d) with equipment to obtain specimens.

- 4) Sharps and biohazardous waste containers should be replaced:
 - a) when 3/4 full
 - b) monthly
 - c) when full
 - d) when containing more than 10 items.

- 5) Spills and body fluids should be cleaned with:
 - a) soap and water
 - b) Mess Kits
 - c) 10% hypochlorite
 - d) b and c.

- 6) The bloodborne pathogens of most concern to health care workers are:
 - a) hepatitis and varicella
 - b) salmonella and listeria
 - c) HIV and shigella
 - d) HIV and hepatitis.

Infection Control Self-Learning Packet

The infectious process

- ◆ Infections begin with a *causative agent or invading organism* that may be bacterial, viral, rickettsial, parasitic, or fungal.
- ◆ The organism lives in a *reservoir* where it can survive and multiply. A reservoir may be human, plant, soil, water or inanimate objects.
- ◆ To spread infection, the organism must have a *mode of escape* to leave the reservoir. The organism is then *transmitted* by one of several routes: contact, droplet, airborne, common vehicle and vector borne.
- ◆ *Contact transmission* is the most important and frequent mode of transmission. *Direct contact transmission* involves direct body surface to body surface contact and physical transfer of organisms. *Indirect contact transmission* involves contact with a contaminated intermediate object.
- ◆ *Droplet transmission* occurs when droplets containing microorganisms are propelled a short distance to a susceptible host's conjunctiva, nasal mucosa or mouth. As droplets do not remain suspended in the air, droplet transmission differs from airborne transmission.
- ◆ *Airborne transmission* occurs by dissemination of either airborne droplet nuclei or dust particles containing an infectious agent to a susceptible host's respiratory system.
- ◆ *Common vehicle transmission* applies to transmission by contaminated items such as food, water, medications, devices, and equipment.
- ◆ *Vector-borne transmission* occurs when vectors, (e.g., vermin, mosquitoes, ticks) transmit a microorganism. The organism must then have a mode of entry into the body. This may be through mucosa, breaks in the skin, respiratory, gastrointestinal or genitourinary tracts.
- ◆ The final link is a *susceptible host*. An infectious agent may not cause infectious disease unless the organism is transmitted to a susceptible host. There are multiple factors involved in susceptibility, including number of organisms, duration of exposure, immune status, and the health of the person.
- ◆ Break one or more steps in the infectious process and disease transmission will not occur.

Fundamentals of isolation precautions

Handwashing is the single most important measure to reduce the risk of transmitting microorganisms. Prompt handwashing between patient contacts is essential. Proper gloving is also a necessary part of reducing the risk of transmission. Gloves must be used whenever there is a possibility of contact with blood, body fluids, excretions or secretions, and changed between each patient contact.

- ◆ *Patient placement* is an important part of isolation. A private room is important to prevent direct or indirect contact transmission when the patient has poor hygiene, contaminates the environment, or is unable to assist in maintaining infection control procedures.
- ◆ *Transporting patients with infectious disease* is done in accordance to proper infection control procedure. Please see policy regarding transport of patients with infectious disease.
- ◆ *Personal protective equipment* is used when there is a possibility of splatter or splash of blood, body fluid, excretions or secretions. Protective equipment includes masks, gloves, gowns, shoe covers, mask and goggles or face shield.
- ◆ *Patient care equipment* is handled in a manner to avoid transmission of microorganisms.
- ◆ *Linen and laundry* is handled in a manner to avoid transmission of microorganisms.

Types of Precautions:

Standard Precautions

General information

Standard precautions apply to all patients, regardless of diagnosis or presumed infection status. Standard precautions apply to blood, all body fluids, secretions, and excretions (except sweat) regardless of whether they contain visible blood, non-intact skin and mucous membranes.

The following is to be used with all patients:

- ◆ *Handwashing* is done after contacting blood, body fluids, secretions, excretions or contaminated items, regardless of whether gloves are worn. Hands are to be washed immediately after removing gloves. Soap and water is used for handwashing. Waterless antiseptic agents may be used if soap and water are not readily available.
- ◆ *Gloves* are to be worn when contacting blood, body fluids, secretions, excretions, contaminated items and when touching mucous membranes and non-intact skin. Gloves are to be removed promptly after use, and handwashing is to be done immediately.
- ◆ *Masks, eye protection and face shields* are worn for procedures when splashes or sprays of blood, body fluids, secretions or excretions are likely.
- ◆ *Gowns* are worn to protect the skin and prevent soiling of clothing during procedures when splashes or sprays of blood, body fluids, secretions or excretions are likely.
- ◆ *Patient care equipment* is handled in a manner to avoid transmission of organisms.
- ◆ *Patient placement* takes into account those patients who are unable to maintain appropriate hygiene. Such patients may require a private room. The Infection Control Coordinator (ICC) is to be contacted with any questions in this area.

Airborne precautions

If your facility is not equipped with a negative pressure room; all patients who require airborne precautions are to be transferred via ambulance to the Yale-New Haven Hospital for appropriate treatment. The ambulance and hospital must be informed of the airborne precautions prior to patient transport by the primary care provider. The patient is to wear a surgical mask covering the nose and mouth prior to, and during, transport. The attending physician or his/her designee will contact the appropriate physician at YNHH and provide him/her with necessary information.

Droplet precautions

In addition to standard precautions, the following is implemented:

- ◆ *Patient placement:* The patient is placed in a private room or with a cohort who has the same infectious disease and no other infections. The door to the room may remain open.
- ◆ *Masks* are to be worn when entering the room.
- ◆ *Transportation of the patient:* The patient is to wear a mask if transportation is necessary.

Contact precautions

In addition to standard precautions, the following is implemented:

- ◆ *Patient placement:* The patient is placed in a private room or with a cohort who has the same infectious disease and no other infections. The door to the room may remain open.
- ◆ *Gloves* are worn when entering the patient's room. While providing care, gloves are to be changed after having contact with highly infectious material. Gloves are removed before leaving the patient room, and hands are washed immediately.
- ◆ *Gowns* are worn when entering the room if there is substantial contact with the patient, the environment, the patient is incontinent or an ostomate(surgical construction of an artificial excretory opening, as a colostomy or ileostomy.), or wound drainage is not contained by a dressing.
- ◆ *Transport of the patient* is limited to essential purposes only. Precautions are maintained during transport.

If you are exposed to blood or body fluids:

Remove personal protective gear immediately and wash the area with soap and water. Notify your supervisor immediately of the exposure. In the inpatient units, the nurse manager or charge nurse is to be notified. Report to Employee Health, Urgent Visit, YNHH Employee Health or the YNHH Emergency Department as soon as possible for follow-up.

Immunization

Active immunization is produced by natural or acquired stimulation so that the body produces its own antibodies. This may

occur through infection with the organism or through vaccination.

Yearly TB testing is required and is done at Employee Health 17 Hillhouse Avenue, or if scheduled on-site through employee health. Other vaccines, such as tetanus, varicella, Hepatitis B, and measles are also available. Testing and vaccines are also available throughout the year at the Employee Health clinic.

Please review the information regarding bloodborne pathogens for further information regarding procedures for handling possibly contaminated material, spills, and handling of specimens.

If you have any questions regarding infection control, please contact your supervisor, Nurse Manager, Infection Control Coordinator (ICC), or the Employee Health (432-0071).

Name _____ Net ID# _____

Date _____ Trainer _____

Infection Control Self Learning Packet Practice quiz

1. Organisms that may cause infection include:
 - a. bacteria
 - b. viruses
 - c. protozoa
 - d. all of the above
2. The most frequent mode of transmission is:
 - a. airborne
 - b. contact
 - c. droplet
 - d. vector-borne.
3. _____ is the most important measure to reduce the risk of transmitting organisms.
 - a. Handwashing
 - b. Personal protective gear
 - c. Isolation
 - d. Bleach.
4. _____ Precautions apply to all patients.
 - a. Airborne
 - b. Standard
 - c. Droplet
 - d. Contact.
5. Handwashing is done regardless of whether gloves are worn when:
 - a. contacting blood
 - b. contacting body fluids
 - c. contacting secretions and excretions
 - d. all of the above.
6. Transport an infectious patient:
 - a. without precautions
 - b. on a stretcher
 - c. only as necessary
 - d. to the dining room.
7. If you are exposed to blood or body fluids, the first step is to:
 - a. notify your supervisor
 - b. remove personal protective gear and wash the area with soap and water
 - c. complete an incident report
 - d. go to Employee Health.
8. Vaccines are used to provide:
 - a. active immunization
 - b. health records
 - c. testing for TB
 - d. Employee Health clinics

