

# Infectious Disease Control Manual

## Section V

### Ohio Department of Health Limitations on Movement and Infection Control Practices Version 2.0



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## **Limitations on Movement and Infection Control Practices ACKNOWLEDGEMENTS**

Infection Control Practices including limitations on movement was first developed by the Ohio Department of Health (ODH) Bureau of Infectious Disease Control (BIDC) in 2005 in consultation with a public health multidisciplinary advisory group. The Ohio Department of Health would like to thank those who have so generously contributed their time and expertise in the development and review of this document. Revisions to the document will occur periodically as necessary to reflect changes in recommendations and practice.

# Infection Control Practices Planning Guide

## INTRODUCTION

### **Purpose**

This chapter provides recommendations for infectious disease prevention and control and updated guidance to local health department (LHD) partners, health care providers, and the Ohio Department of Health (ODH) staff. Public health is often synonymous with disease prevention and provides coordination, leadership and guidance for healthcare and private citizens alike. This guidance covers infection control practices, management of infectious patients, and protection of persons in communities. Understanding infectious disease transmission and infection control practice is essential to controlling infectious diseases in Ohio.

The ongoing collaborative relationship between public health professionals and infection preventionists contain many benefits in data collection, prevention and control of infection. Public health and infection control increasingly intersect roles within the healthcare system. Events including the anthrax postal service related outbreak in 2001, the sudden appearance of severe acute respiratory syndrome (SARS) in 2003, and avian influenza have highlighted this interface.

Command and control of incidents that include any limitations of movement will be executed through the ODH Incident Command System (ICS). ODH response roles are detailed in the ICS job action sheets. Information is frequently updated at all levels of operation and revision of the corresponding plan will be essential.

### **Organization of the Planning Guide**

The planning guide is organized as follows:

1. Section I General Recommendations
2. Section II Disease Transmission
3. Section III Limitations on Movement
4. Section IV Legal
5. Section V Appendices

# SECTION I

## General Recommendations

### Background for Infection Control Practices

The development, implementation and management of an effective infection control program include various components. Over the years, infection control procedures have been developed and refined. Attention to updates and revisions are essential in providing good guidance to healthcare workers.

The scope of essential activities for infection control and epidemiology include:

1. Managing critical data and information.
2. Setting and recommending policies and procedures, including compliance with regulations, guidelines and accreditation requirements and maintaining the health of those caring for others who have contracted an infectious disease (e.g. health care workers [HCWs], caregivers).
3. Direct interventions to prevent transmission of infectious diseases include:
  - a. Outbreak investigation and control
  - b. Education and training
  - c. Resources
    - i. Personnel resources
    - ii. Non-personnel resources
4. Education and training of healthcare workers, infected/impacted persons and non-medical caregivers
5. Hand hygiene and “Standard Precautions”

#### I. Managing Critical Data and Information

Surveillance is the ongoing, systematic collection, analysis, interpretation and dissemination of health data, including information on clinical diagnoses, laboratory-based diagnoses, syndromes, health-related behaviors and use of health-related products. Surveillance is conducted to monitor definable events in a specific population. Public health staff and infection preventionists (IPs) use this data to detect outbreaks, characterize disease transmission patterns by time, place and person, evaluate prevention and control programs, and project future health care needs.

Currently, infectious disease reporting in Ohio proceeds as follows:

- Ohio Revised Code Section (ORC) 3701.24 and Ohio Administrative Code (OAC) Sections 3701-3-02 through 3701-3-07 and 3701-3-12 establish the requirements for reporting of infectious disease to the public health system in Ohio.
- The Director of the Ohio Department of Health may add additional diseases, especially during emergency situations by Director’s Journal Entry.
- Anyone having knowledge of a reportable infectious disease must report suspected, probable and confirmed cases to the local health jurisdiction where the patient resides.
- Local health departments (LHDs) investigate reported cases and potential outbreaks. Case reports are entered electronically into the Ohio Disease Reporting System (ODRS), where cases can be viewed by both local and state communicable disease staff.
- ODH reviews case reports on a daily basis, examines the data for disease patterns and forwards nationally notifiable disease data to the Centers for Disease Control and Prevention (CDC) for inclusion in the *Morbidity and Mortality Weekly Report*.

## II. **Setting and Recommending Policies and Procedures**

There are many policies and procedures guiding infection control. Local health jurisdictions provide policies and procedures for their staff related to infectious diseases prevention, investigation and control. Hospitals and long term care have policies and procedures in place to prevent and control infections in the health care facilities. Much guidance is provided by the CDC ([www.cdc.gov](http://www.cdc.gov)) and the Division of Healthcare Quality Promotion (DHQP) Guidelines and Recommendations section <http://www.cdc.gov/ncidod/dhqp/guidelines.html>. Further guidance is provided by the Association for Professionals in Infection Control and Epidemiology (APIC) - <http://www.apic.org/>. This chapter compiles information from all of these sources.

## III. **Education and Training of Healthcare Workers, Infected Persons and Non-Medical Caregivers**

### a. Education Definition:

Development of a system to ensure patients, health care personnel, first responders and any others caring for infected individuals are educated about the use of infection control isolation precautions and their responsibility to adhere to them. This education will be accomplished through a cooperative effort among infection control practitioners, LHDs and ODH.

### b. Education Planning and Implementation

- i. Public health has a primary responsibility to educate the public on basic infection control practices. This includes hand-washing, personal protective equipment, isolation precautions, environmental management and limitations on movement. ODH and LHDs will work cooperatively on this initiative.
- ii. The public health authority at the LHD level, in coordination with ODH if needed, will provide specific information and education about the disease, its spread (if known), the resulting needs for limitations on movement and providing access to additional information (e.g. information line, internet site for travel alerts, press releases).

## IV. **Direct Interventions to Prevent Transmission of Infectious Diseases**

- a. The most common situation in which public health staff must intervene directly is in the control of an outbreak. An outbreak may be defined as an increase in the incidence of a disease, complication, or event above the endemic base rate. Each health care facility must be able to recognize increased rates of infection or healthcare-associated events and act in a methodical way to determine cause.
- b. The public health outbreak team should receive ongoing education in the area of infection control. The proper implementation of new scientific innovations, such as improved personal protection equipment (PPE), demands learning new knowledge and skills. Training programs should be geared towards adult learning styles. Infection control education should be easy to understand and based on the most current scientific information.
- c. Before an outbreak, local public health must identify key individuals who will fulfill the various tasks of the outbreak investigation team. Choosing team members who are familiar with the day-to-day activities of the local health department will facilitate a rapid, efficient response. One of the team members should be designated as the "Team Leader" who will coordinate all the response activities of the team, and who will be the primary point-of-contact for the local health department. The resources for an effective infection control program must be proportional to the size of the district. Coordination and sharing of resources with other programs should be encouraged, but not to the point of risking basic desired outcomes.

- i. Suggested investigation team members include persons who can provide clinical and diagnostic advice, epidemiological support, nursing services, public information, environmental health consultation and inspections, administrator, information technology support, and case investigations.
- ii. It is essential that there be non-personnel support as well. Such as office space, computer and audio/visual equipment and microbiology lab support. Test results from clinical specimens should be made readily available to assist in the surveillance of outbreak-related infections, at no charge to the citizen

V. **Hand Hygiene and Standard Precautions**

a. Hand Hygiene

The term “hand hygiene” refers to both handwashing with either plain or antiseptic-containing soap and water and the use of alcohol-based products (gels, foams, rinses) containing an emollient that does not require water. Scientists have associated a decrease in morbidity and mortality rates with hand hygiene. Numerous studies show that the practice of cleaning hands reduce healthcare associated infection. (Healthcare Infection Control Practices Advisory Committee [HICPAC] Handwashing Guideline) Types and lengths of fingernails and wearing jewelry can affect the quality of hand hygiene.

The decision to wear artificial nails and extenders for the care of high risk groups has not yet been determined and is still at the discretion of infection control departments. The following information is taken from the 2002 CDC *Morbidity and Mortality Weekly Report* “Guideline for Hand Hygiene in Health-Care Settings: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force” (<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm>)

b. Indications for Hand washing and Hand Antisepsis

- a. 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 non-antimicrobial soap and water or an antimicrobial soap and water.
- b. If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in all other clinical situations. Alternatively, wash hands with an antimicrobial soap and water.
- c. Decontaminate hands before having direct contact with persons/patients.
- d. Decontaminate hands before donning sterile gloves when inserting a central intravascular catheter.
- e. Decontaminate hands before inserting indwelling urinary catheters, peripheral vascular catheters or other invasive devices that do not require a surgical procedure.
- f. Decontaminate hands after contact with a person’s/patient’s intact skin (e.g. when taking a pulse or blood pressure and lifting a person/patient).
- g. Decontaminate hands after contact with body fluids or excretions, mucous membranes, non-intact skin and wound dressings if hands are not visibly soiled.
- h. Decontaminate hands if moving from a contaminated-body site to a clean-body site during a person’s/patient’s care.
- i. Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the person/patient.
- j. Decontaminate hands after removing gloves.
- k. Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water.

- l. Antimicrobial-impregnated wipes are not as effective as alcohol-based hand rubs or washing hands with an antimicrobial soap and water for reducing
- m. Wash hands with non-antimicrobial soap and water or with antimicrobial soap and water if exposure to *Bacillus anthracis* or *Clostridium difficile* is suspected or proven. The physical action of washing and rinsing hands under such circumstances is recommended because alcohols, chlorhexidine, iodophors and other antiseptic agents have poor activity against spores.
- c. Hand washing/Hand hygiene techniques
  - a. Handwashing with plain or antimicrobial soap
    - i. Purpose: Physical removal of soil and transient microorganisms, including bacterial spores.
    - ii. Wet hands with water.
    - iii. Apply soap to hands.
    - iv. Rub hands vigorously together for at least 15 seconds.
    - v. Cover all surfaces of hands and fingers.
    - vi. Rinse hands well to remove soap residue.
    - vii. Dry with a paper towel.
    - viii. Use towel to turn off the faucet.
  - b. Hand Hygiene with Alcohol-based Hand Rub
    - i. Purpose: Reduction of bacterial counts on hands when hands are NOT visibly soiled.
    - ii. Apply product to palm of one hand.
    - iii. Rub hands together.
    - iv. Cover all surfaces of hands and fingers.
    - v. Rub until hands are dry. (APIC brochure "Hand Hygiene for Healthcare Workers")
  - c. Hand Hygiene Tips
    - i. Follow manufacturer's recommendations regarding the volume of product to use.
    - ii. Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis.
    - iii. Liquid, bar, leaflet or powdered forms of plain soap are acceptable when washing hands with a non-antimicrobial soap and water. When bar soap is used, soap racks that facilitate drainage and small bars of soap should be used.
    - iv. Multiple-use cloth towels of the hanging or roll type are not recommended for use.
    - v. Choose alcohol hand rubs containing 60-95% isopropyl, ethanol or n-propanol.
    - vi. Choose hand rubs with 1-3% glycerol or other emollients because there is LESS skin irritation and dryness than soaps or antimicrobial detergents tested.
    - vii. Store alcohol hand rubs away from high temperatures, flames, electrical outlets or oxygen receptacles (according to recommendations from the National Fire Protection Agency [NFPA]).
    - viii. It is not necessary, or recommended, to routinely WASH hands after application of alcohol based hand rubs.
    - ix. Provide moisturizing skin care products or barrier creams for employee use. Ensure these products do not compromise glove barrier.

- x. Anti-microbial-impregnated wipes are considered equivalent to handwashing, but not considered a substitute for alcohol hand rubs or antimicrobial soap.

(Reference: "Guideline for Hand Hygiene in Health-care Setting: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force" 2002)

- d. Standard Precautions: Standard precautions combine the major features of Universal Precautions (UP) and Body Substance Isolation and are based on the principle that all blood, body fluids, secretions, excretions except sweat, non-intact skin, and mucous membranes may contain transmissible infectious agents. These precautions are used when walking into an "unknown" situation with a biological agent, as well as when there is the potential for exposure to any blood and body fluids and are designed to protect HCWs and patients from contact with infectious agents. Use Standard Precautions for the care of all persons.
- e. Handwashing and Hand Hygiene: See above.
- f. Personal Protective Equipment (PPE)
  - a. Gloves
    - i. Wear gloves when touching blood, body fluids, secretions, excretions and contaminated items. (Clean, non-sterile gloves are adequate for this.) Put on clean gloves just before touching mucous membranes and non-intact skin.
    - ii. Change gloves between tasks and procedures on the same person (adhering to the principles of working from "clean" to "dirty") and after contact with material that may contain a high concentration of microorganisms.
    - iii. Remove gloves promptly after use, before touching non-contaminated items and environmental surfaces and before touching another person and wash hands immediately to avoid transfer of microorganisms to other persons or environments.
    - iv. Gloves prevent contamination of hands with direct patient contact. Non-latex gloves are required for healthcare personnel sensitive to latex but otherwise various materials can be used (e.g. vinyl, nitrile)
  - b. Mask, Eye Protection, Face Shield
    - i. The mucous membranes of the mouth, nose, and eyes are susceptible portals of entry for infectious agents, as can be other skin surfaces if skin integrity is compromised (e.g. by acne, dermatitis). Therefore, use of PPE to protect these body sites is an important component of Standard Precautions.
    - ii. Wear a mask and eye protection or a face shield to protect mucous membranes of the eyes, nose and mouth during activities likely to generate splashes or sprays of blood, body fluids, secretions and excretions.
    - iii. Removal of a face shield, goggles and mask can be performed safely after gloves have been removed, and hand hygiene performed. The ties, ear pieces and/or headband used to secure the equipment to the head are considered "clean" and therefore safe to touch with bare hands. The front of a mask, goggles and face shield are considered contaminated.
    - iv. Masks should not be confused with particulate respirators that are used to prevent inhalation of small particles that may contain infectious agents transmitted via the airborne route.

- c. Gowns and Other Protective Apparel
  - i. Selection of the appropriate apparel is based on the nature of the patient interaction that is anticipated and the degree of body contact with infectious material. Wearing protective apparel to reduce the risk of exposure to blood borne pathogens is mandated by the Occupational Safety and Health Administration (OSHA) blood borne pathogens standard. If apparel is used as PPE it may include coats, jackets, aprons or gowns.
  - ii. Wear a gown (a clean, non-sterile gown is adequate) to protect skin and to prevent soiling of clothing during procedures and activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions. Select a gown appropriate for the activity and amount of fluid likely to be encountered.
  - iii. Remove a soiled gown as promptly as possible and wash hands to avoid transfer of microorganisms to other persons or environments.
  - iv. Use of gowns may also be indicated for expanded precautions and worn upon entering the patient room, regardless of the level of contact.
  - v. Hand hygiene is again performed as the final step after PPE removal.
- d. Equipment used on a person/patient
  - i. Handle used 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 persons and environments.
  - ii. Ensure reusable equipment is not used for the care of another person until it has been cleaned and reprocessed according to manufacturers' recommendations.
  - iii. Ensure single-use items are discarded properly and according to policy.
- e. Environmental Control
  - i. Ensure the facility has adequate procedures for routine care, cleaning and disinfection of environmental surfaces, beds, bedrails, bedside equipment and other frequently touched surfaces and ensure these procedures are followed.
  - ii. Treat all linen as if it were contaminated. Handle, transport and process used linen in a manner that prevents skin and mucous membrane exposures. Hold linen away from your body as contamination of clothing could occur. Contamination of clothing can transfer microorganisms to other persons and environments. The risk of disease transmission is negligible if handled, transported and laundered in a safe manner. Do not shake linen.
  - iii. Infectious Waste:
    - 1. "Infectious agent" according to the Ohio Environmental Protection Agency (Ohio EPA) means a type of microorganism, helminth, or virus that causes, or significantly contributes to the cause of increased morbidity or mortality of human beings.  
([http://www.epa.state.oh.us/dsiwm/document/currentrule/3745-27-01\\_current.pdf](http://www.epa.state.oh.us/dsiwm/document/currentrule/3745-27-01_current.pdf))
    - 2. "Infectious wastes" includes all of the following substances or categories of substances:

- a. Cultures and stocks of infectious agents and associated biologicals, including, without limitation, specimen cultures, cultures and stocks of infectious agents, wastes from production of biologicals, and discarded live and attenuated vaccines;
  - b. Laboratory wastes that were, or are likely to have been, in contact with infectious agents that may present a substantial threat to public health if improperly managed;
  - c. Pathological wastes, including, without limitation, human and animal tissues, organs, and body parts, and body fluids and excreta that are contaminated with or are likely to be contaminated with infectious agents, removed or obtained during surgery or autopsy or for diagnostic evaluation, provided that, with regard to pathological wastes from animals, the animals have or are likely to have been exposed to a zoonotic or infectious agent;
  - d. And waste materials from the rooms of humans, or the enclosures of animals, that have been isolated because of diagnosed communicable disease that are likely to transmit infectious agents.
  - e. Also included in the category of "infectious wastes" are waste materials from the rooms of patients who have been placed on blood and body fluid precautions under the universal precaution system established by the Centers for Disease Control and Prevention in the Public Health Service of the United States Department of Health and Human Services, if specific wastes generated under the universal precautions system have been identified as infectious wastes by rules referred to in paragraph (l)(6)(h) of the rule.
- iv. Dishware  
No special precautions are needed. The combination of hot water and detergents used in dishwashers is sufficient to decontaminate dishware and eating utensils, even from the rooms of persons in isolation.
- v. Patient Placement
1. Place a person who contaminates the environment or who does not (or cannot be expected to) assist in maintaining appropriate hygiene or environmental control in a private room. If a private room is not available, consult with infection control professionals regarding placement in another room or an alternative facility.
  2. Always try to place patients who are requiring isolation in a private room. If none is available *Cohorting* is an option.
  3. Cohorting is grouping patients with the same infection or colonization together to confine care to one area and prevent their contact with other patients.
  4. Cohorts are determined by clinical diagnosis, with microbiologic confirmation when available, and epidemiology and mode of transmission of the infecting organism.

5. Assigning (cohorting) certain personnel to care for only infectious or colonized patients limits transmission further.
  6. Criteria for cohorting should include
    - a. Patient is not infected with another organism
    - b. Likelihood of re-infection with the same organism is unlikely
    - c. Patient is not severely immunocompromised.
  7. In *ambulatory and outpatient settings* maintain a clear distance between symptomatic and asymptomatic patients. Airborne infections will require additional precautions and may necessitate patients wearing a mask, if tolerated. Whenever possible, placement in an examination room limits the number of exposed individuals in a common waiting area.
  8. Posting signs by the receptionist or registration desk requesting that personnel be promptly informed of symptoms of respiratory infection, influenza or increased respiratory secretions may be helpful.
- g. Respiratory Hygiene and Cough Etiquette
- a. Respiratory hygiene/cough etiquette has been promoted as a strategy to contain respiratory viruses at the first point of contact and to limit their spread in areas where infectious patients might be awaiting medical care (e.g. physician offices, emergency departments).
  - b. Many respiratory agents can be transmitted via large respiratory droplets including influenza virus, adenovirus, *Bordetella pertussis*, severe acute respiratory syndrome (SARS) and tuberculosis.
  - c. Elements of Respiratory hygiene/cough etiquette include 1) education of HCWs, patients and visitors 2) posted signs in an appropriate language 3) source control measures (e.g. covering mouth with tissue when coughing and proper disposal of used tissues, use of surgical masks on the coughing patient if tolerated) 4) hand hygiene after contact with respiratory secretions and 5) spatial separation of > 3 ft. of coughing persons.
  - d. Medical Staff should wear a mask if the patient cannot.
  - e. Patients with other diseases such as asthma, allergic rhinitis, or chronic obstructive lung disease may be coughing and sneezing. While these conditions may not be infectious, cough etiquette measures also apply.
  - f. Healthcare personnel with respiratory infections are advised to avoid patient contact when they are actively coughing and producing respiratory secretions.
- h. Bloodborne Pathogen Environmental Controls
- a. Bloodborne Pathogens are pathogenic microorganisms that are present in human blood and can cause disease in humans. Infectious materials may also include semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid visibly contaminated with blood and all body fluids in situations where it is difficult or impossible to differentiate between body fluids. These pathogens include, but are not limited to, hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV).  
[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10051](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051)

- b. Anyone who can "reasonably expect to come in contact with blood or potentially infectious materials" is covered by the above Occupational Safety and Health Administration (OSHA) standard.
- c. Each employer having an employee(s) with the potential occupational exposure as defined by the Occupational Safety and Health Administration (OSHA) standard for Bloodborne Pathogens shall also establish a written Exposure Control Plan designed to eliminate or minimize employee exposure to blood and other body fluids that contain bloodborne pathogens.
- d. The organisms are transferred through
  - i. Sexual contact
  - ii. Sharing of hypodermic needles
  - iii. From mothers to their babies at/before birth
  - iv. Accidental puncture from contaminated needles, broken glass, or other sharps
  - v. Contact between broken or damaged skin and infected body fluids
  - vi. Contact between mucous membranes and infected body fluids
- e. In most health care work settings transmission is most likely to occur because of accidental puncture. Employees must especially take care to prevent injuries when using needles, scalpels and other sharp instruments or devices; handling sharp instruments after procedures; cleaning used instruments; and when disposing of used needles. Always use a safety needle. Never recap used needles that are not safety needles with both hands or otherwise manipulate them using both hands or use any other technique that involves directing the point of a needle toward any part of the body. Rather, use either a one-handed "scoop" technique or a mechanical device designed for holding the needle sheath. Do not remove used needles from disposable syringes by hand and do not bend, break or otherwise manipulate used needles by hand. Place used disposable syringes, needles, scalpel blades and other sharp items in appropriate puncture-resistant containers which are located as close as practical to the area in which the items were used and place reusable syringes in a puncture-resistant container for transport to the re-processing area.
- f. Use mouthpieces, resuscitation bags or other ventilation devices as an alternative to mouth-to-mouth resuscitation methods in areas where the need for resuscitation is predictable.

## SECTION II

### Disease Transmission

#### I. Introduction

- a. Transmission of infection requires three elements: a source of infecting microorganisms (agent), a susceptible host and a means of transmission for the microorganism.
- b. Source: Human sources of infecting microorganisms may be the person/patient, personnel or family members caring for the person/patient, or, on occasion, visitors to the person/patient, and may include persons with acute disease, persons in the incubation period of a disease, persons who are colonized by an infectious agent but have no apparent disease or persons who are chronic carriers of an infectious agent. Other sources of infecting microorganisms can be the person/patient's own endogenous flora (which may be difficult to control) and inanimate environmental objects that have become contaminated, including equipment and medications. Animals and other vectors can also spread infectious diseases to humans.
- c. Host: Individual susceptibility to infection varies. Some persons may be immune to infection or may be able to resist colonization by an infectious agent, others exposed to the same agent may establish a commensal relationship with the infecting microorganism and become asymptomatic carriers, and still others may develop clinical disease. Host factors such as age, underlying diseases, certain treatments with antimicrobials, corticosteroids, or other immunosuppressive agents, irradiation and breaks in the first line of defense mechanisms caused by such factors as surgical operations, anesthesia, and indwelling catheters may render persons/patients more susceptible to infection.
- d. Means of transmission: Preventing transmission may be the best method of disease control since agent and host factors are difficult to control. Microorganisms are transmitted by several routes, and the same microorganism may be transmitted by more than one route. There are five main routes of transmission: contact, droplet, airborne, common vehicle and vector-borne. For the purpose of this guideline, common vehicle and vector-borne transmission will be discussed only briefly, because neither plays a significant role in typical healthcare associated infections.
- e. Table of the Means of Transmission:
  - (1) *Contact transmission*, the most important and frequent mode of transmission of infections, is divided into two subgroups: direct-contact transmission and indirect-contact transmission.
    - (a) Direct-contact transmission involves a direct body surface-to-body surface contact and physical transfer of microorganisms between a susceptible host and an infected or colonized person, such as occurs when a person turns a patient, gives a patient a bath, or performs other patient-care activities that require direct personal contact. Direct-contact transmission also can occur between two patients, with one serving as the source of the infectious microorganisms and the other as a susceptible host.
    - (b) Indirect-contact transmission involves contact of a susceptible host with a contaminated intermediate object, usually inanimate, such as contaminated instruments, needles, dressings, or contaminated hands that are not washed and gloves that are not changed between patients.
  - (2) *Droplet transmission*, theoretically, is a form of contact transmission. However, the mechanism of transfer of the pathogen to the host is quite distinct from either direct- or indirect-contact transmission. Therefore, droplet transmission will be considered a separate

route of transmission in this guideline. Droplets are generated from the source person primarily during coughing, sneezing and talking, and during the performance of certain procedures such as suctioning and bronchoscopy. Transmission occurs when droplets containing microorganisms generated from the infected person are propelled a short distance through the air and deposited on the host's conjunctivae, nasal mucosa or mouth. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission. Droplet transmission *must not* be confused with airborne transmission.

- (3) *Airborne transmission* occurs by dissemination of either airborne droplet nuclei (small-particle residue [5 µm or smaller in size] of evaporated droplets containing microorganisms that remain suspended in the air for long periods of time) or dust particles containing the infectious agent. Microorganisms carried in this manner can be dispersed widely by air currents and may become inhaled by a susceptible host within the same room or over a longer distance from the source patient, depending on environmental factors. Therefore, special air handling and ventilation are required to prevent airborne transmission. Microorganisms transmitted by airborne transmission include *Mycobacterium tuberculosis* and the rubeola and varicella viruses.
- (4) *Common vehicle transmission* applies to microorganisms transmitted by contaminated items such as food, water, medications, devices and equipment.
- (5) *Vector-borne transmission* occurs when vectors such as mosquitoes, flies, rats, and other vermin transmit microorganisms. This route of transmission is of less significance in hospitals in the United States than in other regions of the world.

## II. The Environment and Infection Control

### a. Healthcare Facility

- i. A reservoir for a variety of microorganisms may be present in the environment but a healthcare facility environment is rarely implicated in disease transmission, except among those who are immunocompromised. Nonetheless, inadvertent exposures to environmental pathogens (e.g. *Aspergillus* species, *Legionella* species) or airborne pathogens (e.g. *Mycobacterium tuberculosis*, varicella-zoster virus) can result in adverse outcomes and cause illness among healthcare workers that contribute to significant morbidity and/or mortality. Adherence to environmental infection control strategies and engineering controls can effectively prevent these infections.
- ii. The incidence of healthcare-associated infections and pseudo-outbreaks can be minimized by the following:
  1. The appropriate use of cleaners and disinfectants;
  2. The appropriate maintenance of medical equipment (e.g. automated endoscope re-processors, hydrotherapy equipment);
  3. Adherence to water-quality standards for hemodialysis and to ventilation standards for specialized care environments (e.g. airborne infection isolation rooms, protective environments, operating rooms); and
  4. Prompt management of water intrusion into the facility.
- iii. Routine environmental sampling is not usually advised, except for water quality determinations in hemodialysis settings and other situations where sampling is directed by epidemiologic principles and results can be applied directly to infection control decisions. (Guidelines for Environmental Infection Control in Health-Care Facilities, 2003, CDC)

- b. Non-Healthcare Facility: The transmission of diseases in the home or a non-facility environment has not been well studied. Adaptations can be made in the home from the information noted above. A home needs to be maintained in a sanitary fashion with potable water. General home disinfectants will protect against infectious diseases. The equipment and supplies used by a person in the home who has an infectious disease should not be shared with others in the home.

**SECTION III**  
**Containment Measures**  
**Limitations on Movement – Public Health Guidance**

I. Goals, Key Public Health Concepts, and Priority Activities

a. Goals

- i. Reduction of the risk of exposure by separating and restricting the movement of those suspected of having a communicable disease.
- ii. Reduction of the risk of transmission of disease by restricting the movement of persons who may have been exposed to infectious patients but are not yet ill.
- iii. Reduction of the overall risk of transmission at the population level by limiting social interactions and preventing inadvertent exposures.

b. Key Public Health Concepts

- i. Tracing and monitoring contacts is resource intensive yet critical for containment and early recognition of illness in persons at greatest risk of becoming infected and transmitting infection to others. Contact for compliance should reach 80% of the persons who are isolated or quarantined each day.
- ii. Isolation and quarantine are standard practices in public health. Both aim to control exposures to infected and potentially infected persons, and both raise legal, social, financial, and logistical challenges that should be anticipated and addressed in advance. 100% of screened positive persons are to be isolated.
- iii. Quarantine is a collective action for the common good. Modern quarantine should be designed not only to prevent disease transmission in the community but also to ensure prompt delivery of medical care and non-medical support to exposed persons while still protecting civil liberties.
- iv. Quarantine can be implemented in various ways depending on specific needs.
- v. Quarantine does not have to be mandatory to be effective.
- vi. Effective implementation requires a clear understanding of the roles and legal authority of public health staff at local, state and federal levels.
- vii. Traditional and non-traditional partner collaboration and cooperation is important.
- viii. Obtaining and maintaining public trust is the key to successful implementation of these measures
- ix. Clear messages about criteria, justification, role, individual support, and duration of quarantine generate public trust.
- x. Cancellation of public events or the implementation of “snow days” can reduce exposure by limiting social interaction and preventing inadvertent exposures.
- xi. Within 24 hours of a person being ordered into isolation or quarantine, the patient’s healthcare information regarding placement in isolation or quarantine should be tracked at the LHD level.
- xii. Contact with the agriculture and/or veterinary community will be coordinated if there is an animal influence.

c. Priority Activities

- i. Isolation of patients and those who are suspected cases in homes, hospitals or designated community-based settings.
- ii. Monitor cases and contacts and consider isolation and quarantine as indicated.

- iii. Implement community-based control measures, such as canceling public events and dismissing students from school, depending on the extent of outbreak and the availability of resources.
- iv. Establish the infrastructure to deliver essential goods and services to persons in isolation and quarantine.

Adapted from Centers for Disease Control and Prevention (CDC) guidance.

## II. Historical Context

Community containment strategies that include isolation and quarantine have been used for centuries to control communicable disease. Isolation and quarantine have been used to lessen morbidity and mortality by reducing transmission of disease. Large scale quarantine was common during epidemics in the 19<sup>th</sup> and early 20<sup>th</sup> centuries but had negative connotations associated with its use. In the early history of the United States ships were quarantined for a certain amount of time to ensure that infectious diseases were not transmitted to those on land. Historically individuals agreed to forego certain rights and liberties, when necessary, to protect others from the risk of disease. The current threat of bioterrorism and pandemic influenza has once again raised issues of implementation by public health. Questions on the context of modern human rights and liberties have been raised. Modern quarantine differs substantially from that used in the past. This substantial change contributed significantly in the containment of the 2003 global SARS outbreaks.

## III. Authority of Public Health

- a. Isolation and quarantine are inherent as measures to prevent contagious individuals from transmitting disease to susceptible individuals. Both are used routinely by public health to control the spread of infectious diseases. Limitations on movement such as quarantine and isolation alone can stop a disease outbreak.
- b. Quarantine does not require 100% compliance in order to be effective. Studies do show that 50% compliance with quarantine can have a benefit and that the maximum benefit from quarantine occurs with 90% compliance. Quarantine and isolation may not be the only control measures. Additional interventions such as vaccination, prophylaxis, and/or education will be used simultaneously. Federal, state and local public health agencies are charged with protecting the health of all citizens. Both legal and regulatory authority already exist to define dangerous diseases, investigate outbreaks and isolate or quarantine people and animals when necessary to control the spread of disease. Public health officials have legal authority to promulgate rules and regulations about conditions that cause concern. Usually isolation and quarantine are voluntary but can be legally compelled if necessary.
- c. Historical precedents suggest that states have the primary authority to invoke and enforce isolation and quarantine in their own jurisdictions. This authority comes from the states' "police power". Activities should be conducted in accordance with Ohio and local jurisdictional statutes. In response to requests from the CDC, the Center for Law and the Public's Health at Georgetown and Johns Hopkins Universities has developed a "Model State Emergency Health Powers Act" to assist in reviewing quarantine laws to ensure they are adequate to respond to modern disease and bioterrorism concerns. The model act can be found at <http://www.publichealthlaw.net/MSEHPA/MSEHPA2.pdf>.
- d. Prior to limiting movement, factors that determine the thresholds for community action should include:
  - i. Number of cases/contacts

- ii. Characteristics of transmission
  - 1. Extent of spread?
  - 2. Is source known?
  - 3. How rapid is the spread?
  - 4. How is the disease spread?
- iii. Morbidity and mortality
- iv. Exposure categories for cases and contacts:
  - 1. Travel
  - 2. Healthcare worker
  - 3. Household contact
  - 4. Other/Unlinked
- v. Movement allowed inside or outside of community
- vi. Local healthcare resources
- vii. Level of trust in the community to cooperate and not risk public panic
- e. ***Local and, if necessary, state and federal authorities will coordinate to institute the least restrictive measures of limitations on movement to contain and control the infectious disease.***

#### IV. Limitations on Movement (LOM)

- a. Isolation, quarantine, and *cordon sanitaire* are temporary restrictions of activities or limitations of freedom of movement of those persons or animals exposed, presumed to be exposed, or having the potential to become exposed to a communicable disease. Limitations on movement are essential activities of infectious disease prevention and control utilized in both hospital and non-hospital settings. The full scope of activities that limit a person's movement will be discussed here and defined under the definitions section to include:
  - i. *Cordon sanitaire*
  - ii. Evacuation
  - iii. Isolation
  - iv. Segregation
  - v. Quarantine
  - vi. Sheltering
- b. In this manual, every infectious disease listed has a number of prevention and control methods recommended. Only a few diseases include provisions to limit movement.

#### V. Enforcement of Community Containment Measures

- a. Alternative arrangements may need to be available for those who cannot or will not comply with voluntary home-based quarantine.
- b. Each health district will need to consider:
  - i. Official, legally binding quarantine orders.
  - ii. Will electronic forms of monitoring be necessary?
  - iii. Are detention facilities necessary?
  - iv. Will a quarantine guard need to be posted?

#### VI. Considerations of Planning Steps for Limiting Movement

- a. The delineation of duties necessary to successfully implement any limitations on movement order should be agreed upon prior. Operation options should be explored before an event as well. Implementing containment measures on a large scale requires jurisdictions to address enormous problems. These problems may include logistics, economics, ethical and psychological challenges beyond the health department's capability and need to include other disciplines.

- b. While local partners should consider several potential levels of an incident to assure that local capacity to address a public health emergency are in place, it is imperative that planning emphasize the most likely chain of events versus all elements reaching the public.
- c. Local Health Departments (LHDs) have the authority to issue quarantine orders and local law enforcement has the authority and responsibility to maintain public order and enforce quarantine orders. LHDs may also have the authority to hire quarantine guards to carry out quarantine orders. It is critical that the efforts of these two entities not be in conflict. Potential items to resolve between public health and law enforcement are:
  - i. Determining capacity and willingness of local law enforcement to enforce quarantine at varied levels of activity.
  - ii. Potential funding authority and sources needed for enforcing quarantine once current law enforcement staffing has reached its capacity.
  - iii. How LHD, local law enforcement and other county/city officials will determine if staff is needed to carry out quarantine orders and if so under whose authority will they operate?
  - iv. How will funds be secured?
  - v. What human resource practices must be in place?
  - vi. What will quarantine guards be instructed to do and what qualifications will they need to possess?
  - vii. What human resource practices need to be in place?
  - viii. Integration of quarantine guards efforts into overall planning.
  - ix. Training and education.
- d. Steps to consider for implementing LOM orders:
  - i. Establish a planning committee made up of all critical agencies, to oversee the planning process.
  - ii. Identify the authority responsible for declaration of a public health emergency and/or the issue of LOM orders necessary for activating your plan.
  - iii. Identify key stakeholders responsible for development and implementation of specific components of the plan, including enforcement of isolation, quarantine, closure and decontamination of premises.
  - iv. Identify services that need to be continued.
  - v. Assure steps are in place for jurisdiction's elected officials, appointed officials and other agency heads to know their respective responsibilities in the event of activation of LOM.
  - vi. Assure the local health jurisdiction has a command system in place (e.g. the Incident Command System) to govern roles and responsibilities during an event.
  - vii. Assure local authorities are familiar with the controlling authority over intrastate and interstate modes of transportation, should these need to be curtailed during an epidemic (e.g. airplanes, trains, ships, highways).
  - viii. Assure that staff has relationships with authorities of adjoining counties and with state agencies to ensure effective communication during a public health emergency.
  - ix. Assure the Health Commissioner personally knows the key individuals (from the state and local authorities) who will assist in maintaining public order and enforcing control measures, if needed, during an epidemic.
  - x. Assure the local health jurisdiction's biological incident plan addresses the mechanics of how isolation and quarantine will be carried out, such as providing support services for people who are isolated or quarantined to their homes or temporary infirmary facilities and protecting the workers providing these services.

- xi. Define scope of authority.
- xii. Pre-identify options/alternatives.
- xiii. Exercise the plans.

## VII. LHD/ODH Policy on Limitations on Movement

- a. General Issues on LHD/ODH Policies for Limitations on Movement
  - i. Limitations on movement may be implemented to protect the health of Ohioans by preventing or limiting the spread of disease. This is a necessary and legitimate action based upon a comprehensive assessment of the situation and in conjunction with the epidemiologic investigation and input from medical professionals. LHDs implement limitations on movement for their jurisdiction and ODH implements limitations on movement when infectious diseases cross multiple local health jurisdictions or impact transportation systems.
  - ii. Access to basic and essential services (e.g. food, water, medical supplies, utilities, garbage) is available for anyone whose movement has been limited.
  - iii. The limitations on movement will be terminated when disease containment and control activities have been successful as determined by surveillance activities.
- b. Definitions Pertaining to Limitations on Movement
  - i. Legal Definitions of Isolation and Quarantine (from the Ohio Administrative Code [OAC] 3701-3-01 – text bolded to distinguish the difference)
    - 1. Isolation: separation of an **infected individual** from others during the period of disease communicability in such a way that prevents, as far as possible, the direct or indirect conveyance of an infectious agent to those who are susceptible to infection or who may spread the agent to others.
    - 2. Quarantine: restriction of the movements or activities of a **well individual** that has been **exposed** to a communicable disease during the period of communicability of that disease and in such a manner that transmission of the disease may have occurred.
  - ii. Functional Definitions of Cordon Sanitaire, Evacuation, Segregation and Sheltering
    - 1. *Cordon Sanitaire*: Limitation of freedom of movement into and out of a demarcated area to prevent the spread of disease outside of the area.
    - 2. Evacuation: Withdrawal from a place in an organized way especially for protection. (<http://dictionary.reference.com/search?q=evacuation>)
    - 3. Segregation: The separation for special treatment or observation of individuals or items from a larger group (<http://www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=segregation&x=10&y=16>)
    - 4. Sheltering: To seek immediate shelter (usually in your own home) and remain there during an emergency rather than evacuate the area. Individuals acting out of their own interest limit their social interaction so they are not exposed to illness. (See Homeland Security site for Sheltering in Place for Chemicals or Radiation) Also see Appendix Q.
- c. Procedures for Limiting Movement at the LHD Level
  - i. After the decision has been made to employ limitations on movement as an infection control measure, the following information should be known:

1. The identity of the individual(s) or groups of individuals subject to isolation or quarantine.
  2. The premises subject to isolation or quarantine.
  3. The date and time at which isolation or quarantine commences.
  4. The suspected contagious disease.
  5. A statement of compliance with the conditions and principles for isolation and quarantine.
  6. A statement of the basis upon which isolation or quarantine is justified.
  7. Determination is made on a continuum. If regularly practiced public health measures will control disease, these are implemented. If a public health emergency is determined, more extensive infection control measures may be required.
  8. Disease (suspected or confirmed) has been reported to the LHD and ODH according to OAC reporting rules.
  9. Order or written directive, as needed, to implement limitations on movement. This is often done in hospitals; however it may be optional at LHD level. Often a notation is made in a medical record of the person(s) requiring the limitation.
- ii. If the Director of Health issues an isolation or quarantine order, it will be in the form of a written order or directive.
- iii. Additional Suggested Pre-Event Infection Control Activities:
1. Anticipate and prepare for challenges of isolation and quarantine by working with community partners to establish and maintain facilities.
  2. Assure local and/or state legal statutes are in place to allow public health intervention and implementation of the isolation and quarantine measures outlined in this section.
  3. Identify personnel responsible for local/state coordination of isolation and quarantine activities.
  4. Identify appropriate facilities to be utilized for isolation and care of patients and contacts as outlined and establish procedures for activating them.
  5. Identify appropriate law enforcement entities to enforce isolation and quarantine orders if necessary.
  6. Identify appropriate personnel (e.g. medical, maintenance) to maintain/staff facilities.
  7. Establish procedures for monitoring and controlling access to facilities.
  8. Establish procedures for appropriate disposal of medical waste when using a non-medical facility.
  9. Establish laundry service arrangements (on-site if possible) and appropriate disposal of medical waste.
  10. Arrange for food service support for facility occupants.
  11. Establish procedures for monitoring health status of facility staff and plans for referral to appropriate care.
  12. Assure that all staff that will care for patients has been appropriately vaccinated if possible.
  13. Establish procedures for medical evaluation and isolation of quarantined persons who become ill and exhibit symptoms of disease.
  14. Provide mental health services to family members, staff and patients.

15. Develop protocols for monitoring and enforcing isolation and quarantine measures.
  16. Establish procedures for compensation and job security for those isolated or quarantined.
  17. Establish information hotline, if needed.
  18. Establish outpatient clinic sites to control and contain disease.
  19. Establish local public health media campaigns explaining benefits of individual and community wide disease control measures, including social distance (e.g. dismissing students from schools, closing malls, maintaining 3 feet between persons).
- iv. Whenever local public health institutes limitations on movement, it is recommended that ODH staff be consulted so that a coordinated effort can be achieved should the limitation cross jurisdictional boundaries.
- d. Procedures for Limiting Movement at the State Level (ODH)  
 ODH first becomes aware of an infectious disease through notification by local health jurisdictions, in accordance with OAC reporting rules. When an infectious disease is identified which requires limitations on movement, ODH will consult with the LHD as needed to determine the extent of disease spread and whether other LHDs are involved or whether transportation routes are involved. If disease crosses jurisdictional boundaries or transportation routes, issuance of an order to limit movement by a local board of health (or the health commissioner acting for the board) will be done in coordination with other LHDs and the Ohio Department of Health. The epidemiology of disease will direct the actions of the LHD and the state (noted above).
- e. Procedures for Limiting Movement at the Federal Level
- i. At the federal level, the U.S. Department of Health and Human Service's (HHS) Secretary has statutory responsibility for preventing the introduction, transmission and spread of communicable diseases from foreign countries into the United States and is expected to set guidelines for international travel.
  - ii. Isolation and quarantine elements included in the federal plan are as follows:
    1. Expanded reporting of ill passengers on board interstate air carriers as well as air and sea carriers arriving from foreign countries.
    2. Requirements that air and sea carriers arriving from foreign countries as well as certain interstate air carriers maintain passenger and crew lists for 60 days and can submit lists electronically to CDC upon request.
    3. Explicit administrative due process provisions for persons subject to quarantine.
    4. Explicit authority to offer vaccination, prophylaxis, and other appropriate medical interventions on a voluntary basis to individuals in quarantine.
    5. The proposed regulations are available at [www.regulations.gov](http://www.regulations.gov).
  - iii. Local authorities may be responsible for quarantine of passengers of incoming flights from designated countries.
- f. Moving Beyond Public Health when Imposing Limitations on Movement

- i. Some policies and procedures will be part of the local response plan to a public health emergency. This includes Memoranda of Understanding (MOUs) with law enforcement and other first responders, roles and responsibilities of first responders and MOUs for services to provide food, water and medications for those whose movement is limited. Example: LHDs may implement limitations on movement by calling a “public health snow day” similar to “school snow days”, in order to limit movement until further information/direction is available.
- ii. The public health authority will **notify** its emergency response partners when limitations on movement declaration will be issued and enforcement by law enforcement entities is needed (state or local law enforcement and emergency responders).
- iii. Movement of individuals into and out of the affected area will be **coordinated** with interagency partners:
  - 1. Clear procedures and delineation of duties with emergency response partners for activating and enforcing limitations on movement declaration will be established by LHDs.
  - 2. Isolation will require keeping the infected person within isolation boundaries and non-infected persons separated or protected by personal protective equipment (standard precautions plus isolation precautions). Isolation is maintained until the person is no longer infectious.
  - 3. Quarantine requires monitoring of the exposed for disease through the incubation period. If the exposed person develops infection, he/she moves into isolation. If the exposed person does not develop infection, he/she is released to resume normal duties.
  - 4. Citizens are expected to comply with limitations on movement order.
- iv. Partner capacity to assist in supporting and enforcing limitations on movement declaration will be determined.
  - 1. Public health will provide food, water, medications and any other personal needs for persons whose movement is limited. This may be done using a contract/MOU with an agency providing these services (e.g. American Red Cross).
  - 2. Law enforcement, in collaboration with public health, will determine the response measures for those violating limitations on movement. These will be written into the local plan for a public health emergency.
- v. Essential personnel (e.g. first responders, rescue workers) will have valid identification.
- vi. Individuals needing specialized medical care outside the limitations of movement area will receive priority for moving out of the area.

## VIII. Definitions and General Information Regarding Certain Limitations on Movement

### a. *Cordon sanitaire*

- i. *Cordon sanitaire* is defined as “a barrier to prevent a disease or other undesirable condition from spreading”. It comes from the French meaning “quarantine line” or literally “sanitary line”.
- ii. In extreme circumstances, public health officials may consider the use of widespread or community-wide quarantine.

- iii. *Cordon sanitaire* is a “do not cross zone” where people are not permitted freely to pass from the quarantine area to the non-quarantine area and vice versa. *Cordon sanitaire* is the erection of a barrier around a geographic area where an outbreak is occurring or may occur with strict enforcement to prohibit movement into and out of the area. *Cordon sanitaire* involves asking everyone to stay home.
  - iv. *Cordon sanitaire* is a legally enforceable order, but is exceptionally difficult to implement and enforce except for small situations.
  - v. It is anticipated that imposition of a *cordon sanitaire* would meet with only limited success as a public health tool and may, in fact, lead to chaos and erosion of public health credibility. Implementation of this measure during a pandemic is unlikely to prevent the introduction or spread of a pandemic disease except in uncommon or unique circumstances. In many cases implementation of snow days alone can slow disease spread or decrease the magnitude of disease in a community.
  - vi. The health commissioner and/or designee will determine whether a *cordon sanitaire* needs to be imposed and will issue an order.
  - vii. *Cordon sanitaire* 1) involves a legally enforceable action, and 2) legally restricts travel into or out of an area except for authorized persons.
- b. Evacuation
- i. **Evacuation Authority** is not formally addressed in the Ohio Revised Code. That is, there is no statute that clearly designates whose authority may be utilized in ordering an evacuation. In practice, the chief executive officer of the jurisdiction, (e.g. the Governor, the Mayor) makes the determination to evacuate a given area or location. That determination then becomes an executive order enforceable by the appropriate law enforcement agency or agencies.
  - ii. In certain emergency circumstances requiring the immediate evacuation of an area or location, the on-scene fire chief may rely on his or her authority (R.C. 3737.80) to order the evacuation of an area. 1987 Ohio Atty. Gen. Op. 87-099. Similarly, a sheriff may rely on his or her authority (R.C. 311.07 and 311.08) to achieve the same results. *Id.* In either case, the orders may be physically enforced. *Id.*
  - iii. Given that most Ohio county governments do not have an elected chief executive official; it appears the county sheriff is the highest ranking county-wide official with recognizable evacuation authority. See *Id.*
  - iv. Additionally, R.C. 5502.21(D) (1) (b) suggests that the Ohio Emergency Management Agency could issue an evacuation order of personnel as part of an act related to civil defense. However, the precise meaning of "personnel" in this circumstance is unclear
- c. Quarantine
- i. Quarantine definition: Separation and restriction of the activities of **well** persons, who are believed to be exposed to a case of communicable disease, during its period of communicability (i.e., contacts), to prevent disease transmission during the incubation period if infection should occur.
  - ii. Absolute Quarantine: Limitation of freedom of movement of those exposed to a communicable disease for a period of time not longer than the longest usual incubation period of that disease, in such manner as to prevent effective contact with those not so exposed.
  - iii. Modified Quarantine: Selective, partial limitation of freedom of movement of contacts, commonly on the basis of known or presumed differences in susceptibility and related to the danger of disease transmission. It includes:

1. Personal Surveillance: Close medical or other supervision of persons who have been exposed to a disease to permit prompt recognition of infection or illness but without restricting their movements; and
  2. Segregation: Separation of some part of a group of persons from the others for special consideration, control or observation, removal of susceptible children to homes of immune persons, or establishment of a sanitary boundary to protect uninfected from infected portions of a population.
- iv. Home Quarantine: During home quarantine, exposed or potentially exposed persons remain at home during the incubation period. This type of quarantine is most suitable for contacts that have a home environment where most of their basic needs are met. The ease and comfort of a familiar location, as well as support from family and friends makes this situation ideal. This also means protection of the other unexposed household members should be undertaken if this can be done. Home quarantine can be implemented on a person-to person basis or a home-by-home basis. The disadvantages may include a greater difficulty monitoring persons, increased risk of exposure for others in the house, difficulty enforcing limitations, increased likelihood of missing a diagnosis, difficulty in transporting sick persons into isolation and lack of immediate medical care. Officials will need to ensure that needs can be met with home quarantine. (Also see Appendix M)
  - v. Quarantine in Designated Facilities: When surge capacity needs to be obtained it may be necessary that other designated community facilities are used. This also would be needed for those who do not have a home environment where basic needs can be met. These facilities are selected within a community and could comfortably house individuals (e.g. schools, hotels, recreation centers, religious establishments, convention centers). Advantages include centralization and consolidation of response efforts. The proximity to potentially infected persons might cause psychological distress and pose a challenge to officials. Transportation of ill people to isolation and transportation to bring people to the quarantine facility are necessary as well as meeting basic needs.
  - vi. Work Quarantine: This type of quarantine applies to essential personnel such as healthcare workers or others considered essential for maintaining the community infrastructure. These persons need to continue working (with appropriate precautions utilized) and symptoms monitored. When off duty either home or designated facilities may be assigned. Transportation requirements (to limit contact with others) need to be addressed.

d. Isolation

Definition: Isolation is the separation and restriction of movement or activities of ill infected persons who have a contagious disease, allowing for the focused delivery of specialized health care to those who have become ill. Healthy individuals are protected from becoming ill in this way.

IX. Quarantine – Specific Details

- a. Objective: To reduce the transmission of disease at the population level by limiting inadvertent exposures and ensure the ability to provide medical care and infection control precautions as soon as symptoms are detected.

- b. General Information: Usually people are quarantined in their homes but they can also be quarantined in community based facilities. Quarantine can be applied to just one individual or to a group of persons who have been exposed. Quarantine can also be applied to a wider population within a geographical area. Quarantining people can be complicated and resource intensive for health departments to implement and steps should be taken to induce voluntary compliance. Quarantine is often inconvenient and difficult for people to endure and adequate care and support are important aspects to consider so that people do not feel abandoned, psychologically isolated or unduly burdened. Quarantine is one of the more politically sensitive tools that can be utilized. A number of legal, ethical and political questions must be weighed carefully before this decision is made. Financial considerations must be taken into account, as well as other interests. Public health will need to balance the interest of the public being protected against disease with the preservation of individual liberty. Ultimately, public health officials have an obligation to restrict certain individual rights to protect the health and well being of the community; and citizens have a duty to comply in order to protect the broader health of the community. Public health will need to inform the public when quarantine is required, the threat to their health, any known risks, full information about the action being taken and a description of how individuals will be supported once movement is restricted. (See Appendix N). This information will be available as soon as possible (goal is 1 hour or less) after declaring any limitations on movement.
- c. Efforts that are made up front may reduce the necessary resources for monitoring and maintenance. However, focusing too narrowly can result in missing more cases. (Community Containment Measures)
- d. Implementation of Quarantine – Standard precautions should always be followed. The successful implementation of individual and population level quarantine measures hinge on numerous factors including the following:
  - i. Prior identification of relevant legal authority, persons, and organizations empowered to invoke and enforce such authorities,
  - ii. Public trust and compliance with government directives,
  - iii. Assured vaccination and other protection of personnel required to implement and enforce quarantine measures, and
  - iv. Identification of exposed individuals may not be easy or even possible.
- e. The board of health, health commissioner and/or designee will determine whether contacts to infected persons require functional quarantine and, if necessary, will institute a functional quarantine for all exposed persons.
- f. Public health practitioners need to educate the public and other health care providers about the potential for utilizing population quarantine measures as a means to decrease or interrupt disease transmission.
- g. The determinants that contribute to reaching the public health threshold for initiating population-wide quarantine measures include the following:
  - i. The number of cases and exposed persons
  - ii. The project morbidity and mortality
  - iii. The expected ease and rapidity of disease transmission
  - iv. The current patterns of movement in and out of the community
  - v. Available resources for implementing measures of treatment and control
  - vi. Perceived or actual need for urgent public health action
  - vii. The risk for public panic
- h. The first approach is to apply concentric levels of quarantine as needed to restrict movement of individuals and conveyances between communities in an effort to control the spread of disease. In addition to enforcement activities, other considerations and strategies that should be taken into account when implementing quarantine measures include the following:

- i. Communication strategies (e.g. issuing travel alerts and press releases, notifying interagency partners).
  - ii. Movement of essential personnel (e.g. rescue workers, first responders) and requirements for the validation of their movement into and out of the quarantined area.
  - iii. Movement of materials (e.g. food, medical supplies, garbage) into and out of the quarantined area and the provision of essential services (e.g. utilities, water) in the quarantined area.
  - iv. Movement of individuals out of the quarantined area for legitimate health and safety reasons (e.g. the need for specialized medical care or a facility not available in the quarantine area).
  - v. Individuals should avoid other public areas if possible (such as grocery stores) if home delivery of goods is available.
  - vi. The use of community-wide intervention strategies (e.g. mass vaccination, canceling large public gatherings).
- i. When implementing the quarantine of an individual or a community or other population, consideration of the requirements needed to determine when the cessation of quarantine measures will occur.
- i. For individuals in quarantine, they need to monitor themselves for illness symptoms for a set period of time (i.e. the incubation period) to determine if they are going to develop disease.
  - ii. For the population in quarantine, continued population-level surveillance is necessary to document decreasing disease incidence in the quarantined area and no spread to contiguous areas.
- j. For an example of quarantine, see Appendix E (Quarantine Measures – Suspected Smallpox).
- k. Key Requirements of Quarantine
- i. Set of basic capabilities
  - ii. Access to public health and healthcare personnel
  - iii. Access to public information and educational resources
  - iv. Communication with relatives and friends
  - v. Monitoring for symptoms
  - vi. Enforcement guidelines
  - vii. Immediate transportation of those with symptoms to an isolation facility
- l. If quarantine is implemented, how will persons be monitored and supported?
- i. Fever logs with call in to LHD?
  - ii. Symptom logs with call-in to LHD?
  - iii. Does LHD call the home quarantined individual? Are there mechanisms for communication if telephones are not available?
  - iv. Does LHD make daily visits?
  - v. Does LHD make weekly visits?
  - vi. Is there a hotline phone number available?
  - vii. If a person develops illness requiring isolation, how will he/she be transported? Where will he/she be transported to? **Individuals who become ill need to move out of quarantine and into isolation.**
  - viii. What are the cleaning procedures for the quarantine facility?
  - ix. What daily living needs for individuals in quarantine are provided?
  - x. Are basic utilities provided?
  - xi. Are there mechanisms for addressing special needs such as prescription medications?
  - xii. How can health care workers be accessed by those in quarantine?
  - xiii. Is there food available and can it be prepared by those in quarantine?

- xiv. How will people receive educational materials? **It is recommended that within one hour of institution of community-level quarantine, education will be offered to the community describing the situation.**
  - xv. Are mental health and other psychological support services available?
  - xvi. How can economic assistance be obtained?
  - xvii. Has a case manager been assigned to assist those in quarantine? **It is recommended that a case manager is assigned from the health department within 6 hours of the institution of community-level quarantine.**
- m. Prior to the institution of quarantine, individuals from the following groups need to meet to discuss issues surrounding the quarantine: law enforcement, public health, facility administration, security, facility law representatives, infection control, and hospital epidemiologist or infectious disease physician. Other groups may also need to be represented.
  - n. Quarantine may be used for close contacts (e.g. household contacts) of an infected patient, small groups (e.g. coworkers, healthcare workers with unprotected exposure) and larger groups (e.g. social groups, congregate settings and communities where exposure is unknown but interventions are deemed necessary). (Also see Appendix L)
  - o. Local Public Health Quarantine Emergency
    - i. A public emergency is defined as an occurrence or imminent threat of an illness or health condition that is believed to be caused by any of the following:
      1. Bioterrorism
      2. The appearance of a novel or previously controlled or eradicated infectious agent or biological toxin
      3. A natural disaster, a chemical attack or accidental release, or a nuclear attack or accident; and poses a high probability of any of the following adverse events due to the above causes
      4. A large number of deaths in the affected population
      5. A large number of serious or long-term disabilities in the affected population; or
      6. Widespread exposure to an infectious or toxic agent that poses a significant risk of substantial future harm to a large number of people in the affected population.
    - ii. A local quarantine involves populations of potentially infected people either as small or large groups or sporadically spaced throughout the health jurisdiction. It may involve a single or multiple health jurisdictions. A local quarantine will nearly always be a public health emergency. The need to implement the measures in a local quarantine will be situation dependent.
    - iii. Procedure: Contact ODH immediately for reporting, guidance and coordination. The use of emergency powers may be necessary depending on the virulence, pathogenicity and communicability of the disease.

- iv. Authority: ORC Section 3707.04 authorizes the Board of Health to make such rules and regulations as are “wise and necessary for the protection of the health of the people of the community and the state” within a local health jurisdiction. All ordinances must be immediately furnished to the director of ODH. It is recommended that local boards of health authorize the health commissioner, through adoption of a regulation, to have limited emergency powers to quarantine groups of people until such time as the board of health can meet and pass an emergency ordinance. See ORC Section 3707.34. It is highly recommended that health personnel familiarize themselves with all of Chapter 3707 of the Revised Code and all the enabling legislation and authorities of the board of health and the health commissioner at times of public health emergencies.
- p. Multi-Jurisdictional Public Health Isolation/Quarantine Emergency
  - i. A multi-jurisdictional quarantine or isolation involves more than one health jurisdiction and travel along transportation routes that cross jurisdictional boundaries. The need to implement the measures in a multi-jurisdictional quarantine and/or isolation is situation-dependent.
  - ii. Authority: ORC Section 3701.13 states that the department of health (ODH) “shall have supervision of all matters relating to the preservation of the life and health of the people and have supreme authority in matters of quarantine, which it may declare and enforce, when none exists and may modify, relax, or abolish, when it has been established. See also ORC Section 3707.05 which provides that local boards of health must secure approval of ODH to close public highways or establish cordon sanitaire.
  - iii. Procedure: Contact ODH for guidance and coordination. A multi-jurisdictional quarantine may involve the local board of health adopting concurrent legislation to control the disease of concern.
- q. National or International Public Health Isolation/Quarantine Emergency
  - i. The Secretary of Health and Human Services (HHS) has statutory responsibility at the federal level for preventing the introduction, transmission and spread of communicable diseases from foreign countries into the United States. Communicable diseases requiring isolation and quarantine are set forth by order of the President at the federal level. By statute, the HHS Secretary may accept state and local assistance in the enforcement of federal quarantine regulations and may assist local and state officials in the control of communicable diseases. The CDC’s Division of Global Migration and Quarantine (DGMQ) has the responsibility to identify known and emerging pathogens and threats to human health coming into the United States. Diseases of concern may involve all of those listed for quarantine by the DGMQ. There are likely to be gaps in the knowledge of pathogenicity, communicability, modes of transmission and etiology. International airports come under the jurisdiction of the federal government.
  - ii. Procedure: Be in constant communication with ODH. Report as required. Assist in epidemiological investigation and prevention and control practices to include limitation of movement. **Do not contact CDC directly.** All communication with CDC must go through ODH unless specifically authorized by ODH to communicate directly with CDC. (See also Appendix C.)

X. Isolation – Specific Details

- a. Definition: Isolation is the separation and restriction of movement or activities of ill infected persons who have a contagious disease, allowing for the focused delivery of specialized health care to those who have become ill. Healthy individuals are protected from becoming ill in this way.
- b. Community Containment Measures: Usually ill people are isolated in a hospital but they may also be isolated at home or a designated community based facility. This will depend on their medical needs. Usually isolation refers to an individual person to ensure appropriate separation and confinement during the period of communicability. In a disaster situation patients should only be admitted to a healthcare facility for isolation if it is clinically indicated or if isolation at home or another community facility cannot be achieved safely and effectively. Healthcare personnel need to be prepared to isolate patients either at home or an approved alternative facility designated for this purpose. Educational information describing the situation to the public will need to be instituted and when isolation is being ordered. This education needs to occur within 1 hour of institution of isolation. A case manager from the local health department is assigned within 6 hours of the institution of isolation. (See appendix H for form). This information will be available as soon as possible (goal is 1 hour or less) after declaring any limitations on movement.
- c. Residential Isolation: Before an isolation patient occupies a residence for home isolation, the residence should be inspected. The purpose of an inspection is to ensure adequate provisions for appropriate patient care and to determine if sufficient infection control measures can be established to protect those caring for the patient and the general population. The residence should meet the following minimum requirements for home isolation: (See Appendix I & K for form)
  - i. Availability of a primary caregiver to assist with basic needs.
  - ii. A functioning telephone, electricity and potable water.
  - iii. A separate bedroom that is only occupied by the infected patient during the isolation period.
  - iv. The bedroom should have a floor-to-ceiling wall with a door that can be kept closed at all times.
  - v. An isolating central air conditioning unit is ideal for respiratory isolation.
  - vi. The bathroom is accessible to the isolated patient and is designated only for patient use.
  - vii. All persons having patient contact should be provided with adequate PPE and instructions for use. Public health authorities should ensure that caregivers understand and adhere to appropriate infection control practices.
  - viii. Hand hygiene practices must be followed.
  - ix. When possible, droplet isolation patients should wear a surgical mask during close contact with uninfected persons to prevent the spread of infectious droplets.
  - x. Household members and other close contacts of patients should be vigilant for symptoms of disease and should seek medical attention immediately if symptoms occur.
  - xi. If possible, the household members should be relocated and patient contact should be minimal. People at risk for severe complications should not have contact with the patient.

- d. Community-based Isolation: When disease transmission in a community becomes significant and sustained, state and local public health departments should consider implementing community based containment measures. And when surge capacity overwhelms existing healthcare capacity or if home isolation is not feasible for individual patients, jurisdictions might need alternative facilities in the community for isolation. Health officials need to decide actions based on involvement of the community. The two main categories are measures that affect groups of people or individuals and measures that affect the entire community. Preparedness planning must address the availability and use of existing or temporary structures for the management of patients, supplies and services. (See also Appendix O)
  - i. Prior to an incident:
    - 1. Identify appropriate locations and resources in the community for isolation of patients and establish procedures of activation. Coordinate activities related to patient management.
    - 2. Consider the following criteria for location of a facility:
      - a. Sufficient space to house a temporary structure (may be a hospital parking lot).
      - b. Sufficient potable water and electricity.
      - c. Space for ancillary equipment and services (e.g. exhaust fans, support housing, security).
      - d. Vehicle parking and access.
    - 3. Consider temporary and existing structures. Options for existing structures may include: community health centers, nursing homes, apartments, schools, dormitories, and hotels. Options for temporary structures include: trailers, barracks, tents, or bubble systems.
    - 4. Determine priorities among existing options such as separate rooms or places amenable to isolation.
    - 5. Independent ventilation for each room is preferable, if this is possible.
    - 6. Consider if it is feasible to modify existing infrastructure as needed for engineering controls.
    - 7. Consider the feasibility of controlling access to the facility and to each room.
    - 8. Assess the availability of potable water, bathroom and shower facilities.
    - 9. Consider facilities for patient evaluation, treatment and monitoring.
    - 10. Make sure the facility has capacity for providing basic needs to patients.
    - 11. Ensure that rooms and corridors amenable to disinfection.
    - 12. Ensure that there are facilities to accommodate staff.
    - 13. Assess facilities for collecting, disinfection or disposal of infectious wastes.
    - 14. Assess facilities for collecting and laundering linens.
    - 15. Determine the ease of access for delivery of supplies or patients.
    - 16. Additional considerations include the following:
      - a. Staffing and administrative support.
      - b. Training for using the facility.
      - c. Ventilation and other engineering controls.
      - d. Appropriate infection control measures.
      - e. Availability of food and supplies.
      - f. An environment that supports social and psychological well being.

- g. Appropriate security and access control are provided.
    - h. Appropriate medical care (including emergency procedures) is supported.
    - i. Adequate communication systems.
    - j. Staff health status monitoring.
  - ii. For information about community containment during an influenza pandemic, refer to the Ohio Department of Health Pandemic Influenza Community Containment Plan.
- e. Isolation (Expanded) Precautions
  - i. There are three categories of expanded precautions (Airborne, Contact and Droplet). When they are used, they are always in addition to Standard Precautions. More than one category may be used in combination with another category if there are multiple routes of transmission. Protective Environment (PE) has been suggested and differs from isolation in that the goal is to place a high risk patient in PE to prevent them from acquiring fungal infections from the environment, rather than protecting others from the infectious agents of infected patients.
  - ii. Airborne Infection Isolation
    - 1. Airborne transmission occurs by dissemination of airborne droplet nuclei (small particle residue [5 µm or smaller in size] of evaporated droplets, sometimes referred to as small droplets that contain infectious microorganisms that remain suspended in the air for long periods of time and can be dispersed widely by air currents within a room or over a long distance).
    - 2. Special air handling and ventilation (meeting the American Institute of Architect/Facility Guidelines Institute) as well as respiratory protection with National Institute for Occupational Safety and Health [NIOSH] approved N-95 or higher respirators or Powered Air Purifying Respirators (PAPRs) are required to prevent airborne transmission. Airborne transmission of smallpox has been documented. All is used less frequently than contact and droplet isolation. Mycobacterium tuberculosis, smallpox, rubeola and varicella-zoster are transmitted by this route. In general non-immune HCWs should not care for patients with vaccine-preventable airborne diseases (e.g. measles, chickenpox, smallpox), regardless of use of personal protective equipment. Immune persons should also wear NIOSH-approved N 95 respirators or PAPRs for complete protection, due to errors in ascertaining immunity, and for consistency of practice.
    - 3. Patient Transport: Limit the movement and transport of the patient from the room to essential purposes only. If transport or movement is necessary, minimize patient dispersal of droplets by masking the patient, if possible, and protect staff during transport.
  - iii. Contact Precautions
    - 1. Contact is the most common mode of transmission. Contact precautions are intended to reduce the risk of transmission of microorganisms by direct or indirect contact. Gloves and gowns are worn for all interactions that may involve contact with the patient or the patient's environment.

2. Patient Placement: Place the person in a private room. In a healthcare setting when a private room is not available, consider cohorting. (Cohorting means placing the patient in a room with another patient who has an active infection with the same microorganism as the patient and who has no other infection.) When a private room is not available and cohorting is not achievable, consider the epidemiology of the microorganism and the patient population when determining patient placement. Consultation with infection control professionals is advised before patient placement in a hospital.
3. Gloves and Handwashing: PPE should be worn before room entry and discarded before exiting the patient's 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, wound drainage). Remove gloves before leaving the patient's room and wash hands immediately (especially when caring for patients with *C. difficile* or when hands are visibly soiled). Wash with an antimicrobial soap and water or use a waterless antiseptic agent. After glove removal and hand hygiene, ensure hands do not touch potentially contaminated environmental surfaces or items in the patient's room, to avoid transfer of microorganisms to other patients or environments.
4. Gown: Wear 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. (A clean, non-sterile gown is considered adequate for this.) Remove the gown before leaving the patient's environment. After gown removal, ensure clothing does not contact potentially contaminated environmental surfaces to avoid transfer of microorganisms to other patients or environments.
5. Patient Transport: Limit the movement and transport of the patient from the room to essential purposes only. If the patient is transported out of the room, ensure precautions are maintained to minimize the risk of transmission of microorganisms to other patients and contamination of environmental surfaces or equipment. Notify personnel in the receiving area of impending arrival and the precautions necessary for personnel and for patient care.
6. Patient Care Equipment
  - a. When possible, dedicate the use of non-critical patient-care equipment to a single patient (or cohort patients infected or colonized with the pathogen requiring precautions) to avoid sharing equipment between patients. If use of common equipment or items is unavoidable, then adequately clean and disinfect them before use for another person. Recommended practices for cleaning and disinfection should be followed.

- b. In the environment, frequently touched areas should be targeted for cleaning and disinfection daily (e.g. doorknobs, sinks, commodes, toilets, bedrails, bedside equipment). The frequency and intensity of cleaning may change based on the level of patient hygiene and the degree of environmental contamination. During a suspected or confirmed outbreak, an environmental reservoir should be considered and routine cleaning technique should be reviewed and reinforced when necessary. Routine manufacturer's recommendations should be followed consistently (e.g. dilution, amount and contact time of disinfectants). Certain infectious agents may be resistant to some hospital disinfectants commonly used prompting some public health disease investigators to recommend the use of a bleach (1-10 dilution) solution.

iv. Droplet Precautions

1. This is a form of isolation intended to reduce the risk of transmission of infections from close respiratory or mucous membrane contact with large droplets. The mechanism of transfer of the pathogen to the host is quite distinct and additional prevention methods are required. Respiratory droplets are generated from the source person primarily during coughing, sneezing, talking and during the performance of certain procedures such as suctioning, intubation and bronchoscopy. Transmission occurs when droplets containing microorganisms generated from the infected person are propelled a short distance through the air and deposited on the host's conjunctivae, nasal mucosa or mouth.
2. The definition of droplet transmission is of current interest and under discussion. Historically the distance has been  $\leq 3$  feet around the patient and is based on epidemiologic and simulated studies of selected infections. A distance of 3 feet is best viewed as an example of what is meant by this recommendation and not as a criterion.
3. Because droplets [ $5 \mu\text{m}$  or greater in size] do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission. Droplet transmission *must not* be confused with airborne transmission. A surgical mask generally is worn to provide protection against the spread of infectious large-particle droplets that are transmitted by close contact and generally travel only short distances (up to 3 ft) from infected patients who are coughing or sneezing. Indirect evidence suggests that masks are effective in preventing transmission. Masks should be changed if they become wet and are considered contaminated at that time.

v. Protective Environment (PE)

This precaution is designed for allogenic human stem cell transplant (HSCT) patients to minimize fungal spore counts in the air. Outbreaks of aspergillosis have demonstrated the need for such controls. Air quality includes 1) HEPA (High Efficiency Particulate Air) filtration of incoming air, 2) directed room air flow, 3) positive room air pressure relative to the corridor, 4) well sealed rooms to prevent air infiltration, 5) ventilation to provide  $\geq 12$  air changes per hour, 6) strategies to lower dust (scrubbable surface rather than carpet and upholstery) and routinely cleaning crevices and sprinkler heads, and 7) prohibiting dried and fresh flowers and potted plants and fresh flowers in the rooms of HSCT patients. The desired quality of air may be achieved without the inconvenience or expense of laminar airflow. Patients may need to wear an N 95 respirator if leaving the PE for diagnostic studies or treatments elsewhere if construction is going on. No published reports support the benefit of placing solid organ transplant patients or other immunocompromised patients in a PE.

#### XI. Emerging Pathogens of Special Concern to the Healthcare Setting

- a. Some groups of microorganisms have become established endemically in healthcare settings or have new and/or epidemiologically important implications. Six groups or types of organisms with important infection control implications include the following: multi-drug-resistant organisms (MDROs), agents of bioterrorism, prions, severe acute respiratory syndrome (SARS-CoV), monkeypox and avian influenza A (H5N1) viruses. Only multi-drug resistant organisms are mentioned here.
- b. Multi-drug Resistant Organisms: Emergence and transmission of multi-drug resistant organisms occur in all healthcare settings, although transmission is well documented in all settings. MDROs are usually defined as bacteria that are resistant to one or more classes of antimicrobial agents. These agents cause concern because they limit treatment options. Hand transmission has been a major factor in the increase of MDRO incidence and prevalence, especially methicillin-resistant *staphylococcus aureus* (MRSA) and vancomycin-resistant enterococcus (VRE).

#### XII. Management of Contacts

- a. The objective is to monitor and evaluate contacts to ensure there is early identification of illness and rapid institution of infection control precautions to prevent further spread. In order to do this, there must be vigilant monitoring for symptoms and notification of exposure to health care providers in health facilities.
- b. Contacts should be vigilant of symptoms and immediately contact a healthcare professional for evaluation if symptoms occur. The healthcare professional should be notified of the exposure in advance of evaluating the contact.
- c. During an influenza pandemic, contact tracing, contact monitoring and quarantine of close contacts may be effective only in special situations during the earliest stages. Please refer to current version of the Ohio Department of Health Pandemic Influenza Community Containment Plan for specifics regarding isolation, quarantine and other community mitigation activities during an influenza pandemic.

XIII. Isolation Table: Type and Duration of Precautions Needed for Selected Infections and Conditions

Infection/Condition	Precautions		
	Type	Duration	Comments
Abscess			
Draining, major	C	DI	No dressing or containment of drainage; until discharge stops or is contained by dressing
Draining, minor or limited	S		Dressing covers and contains drainage.
Acquired immunodeficiency syndrome	S		
Actinomycosis	S		
Adenovirus infection, in infants and young children	D,C	DI	Use Contact precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks
Amebiasis	S		
Anthrax			Post-exposure chemoprophylaxis; consider post-exposure vaccine
Cutaneous	S		Contact precautions if large amount of drainage that cannot be contained.
Pulmonary	S		
Aerosolizable spore containing powder	A, C	DE	Until decontamination of environment is complete.
Antibiotic-associated colitis (see <i>Clostridium difficile</i> )			
Arthropodborne viral encephalitides (eastern, western, Venezuelan equine encephalomyelitis; St. Louis, California encephalitis)	S		Not transmitted from person-to-person except rarely by transfusion, and for West Nile Virus by organ transplantation, by breast milk or transplacentally. Use DEET containing mosquito repellants and clothing to cover extremities.
Arthropodborne viral fevers (dengue, yellow fever, Colorado tick fever)	S		Not transmitted person-to-person except rarely by transfusion. Use DEET.
Ascariasis	S		Not transmitted person-to-person.
Aspergillosis	S		Contact Precautions and Airborne if massive soft tissue infection with copious drainage and repeat irrigations required
Avian Influenza	A, D, C	Until 14 days after onset of symptoms.	Airborne is preferred (D if negative pressure rooms are unavailable); N95 respiratory protection (surgical mask if N95 unavailable); eye protection (goggles, face shield within 3 foot of patient); 14 days after onset of symptoms or until alternative diagnosis is established or until diagnostic tests indicate that the patient is not infected with influenza A H5N1. Human-to-

Infection/Condition	Precautions		
	Type	Duration	Comments
			human transmission is inefficient and rare, but risks of re-assortment with human influenza strains and emergence of a pandemic strain are a serious concern.
Babesiosis	S		Not transmitted person-to-person except by rare transfusion.
Blastomycosis, North American, cutaneous or pulmonary	S		Not transmitted person-to-person.
Botulism	S		Not transmitted person-to-person.
Bronchiolitis (see respiratory infections in infants and young children)	C	DI	Use mask according to Standard Precautions and until influenza and adenovirus ruled out as etiologic agents.
Brucellosis (undulant, Malta, Mediterranean fever)	S		Not transmitted person-to-person.
<i>Campylobacter</i> gastroenteritis (see gastroenteritis)			
Candidiasis, all forms including mucocutaneous	S		
Cat-scratch fever (benign inoculation lymphoreticulosis)	S		Not transmitted person-to-person.
Cellulitis	S		
Chancroid (soft chancre)	S		
Chickenpox (see varicella)			
<i>Chlamydia trachomatis</i>	S		
Conjunctivitis	S		
Genital	S		
Respiratory	S		
Cholera (see gastroenteritis)			
Closed-cavity infection			
Open drain in place; limited or minor drainage	S		Contact Precautions if there is copious or uncontrolled drainage.
No drain or closed drainage system in place; Not draining	S		
<i>Clostridium</i>			
<i>C botulinum</i>	S		Not transmitted person-to-person.
<i>C difficile</i>	C	DI	Assess need to discontinue antibiotics; avoid use of shared electronic thermometers.
<i>C perfringens</i>			
Food poisoning	S		Not transmitted person-to-person.
Gas gangrene	S		Not transmitted person-to-person.
Coccidiomycosis (valley fever)			Not transmitted person-to-person.
Draining lesions	S		Not transmitted person-to-person.
Pneumonia	S		Not transmitted person-to-person.
Colorado tick fever	S		Not transmitted person-to-person.
Congenital rubella	C	Until 1 year of age.	Standard Precautions if nasopharyngeal and urine cultures negative after 3 months of age.
Conjunctivitis			

Infection/Condition	Precautions		
	Type	Duration	Comments
Acute bacterial	S		
<i>Chlamydia</i>	S		
Gonococcal	S		
Acute viral (acute hemorrhagic)	C	DI	
Corona Virus associated with SARS (SARS CoV) see severe acute respiratory syndrome			
Coxsackievirus disease (see enteroviral infection)			
Creutzfeldt-Jakob disease (CJD, vCJD)	S		Use disposable instruments or special sterilization/disinfection for surfaces, objects contaminated with neural tissue if CJD or vCJD suspected and has not been R/O; No special burial procedures.
Croup (see respiratory infections in infants and young children)			
Cryptococcosis	S		Not transmitted person-to-person.
Cryptosporidiosis (see gastroenteritis)			
Cysticercosis	S		Not transmitted person-to-person.
Cytomegalovirus infection, neonatal or immunosuppressed	S		No additional precautions for pregnant HCWs.
Decubitus ulcer, infected			
Major	C	DI	If no dressing or containment of drainage; until drainage stops or can be contained by a dressing.
Minor or limited	S		If dressing covers and contains drainage.
Dengue	S		Not transmitted person-to-person.
Diarrhea, acute-infective etiology suspected (see gastroenteritis)			
Diphtheria			
Cutaneous	C	CN	Until 2 cultures taken 24 hours apart are negative.
Pharyngeal	D	CN	Until 2 cultures taken 24 hours apart are negative.
Ebola viral hemorrhagic fever (see viral hemorrhagic fevers)			
Echinococcosis (hydatidosis)	S		Not transmitted person-to-person.
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> (See <i>C difficile</i> , gastroenteritis)			
Enteroviral infections	S		Use Contact Precautions for diapered or incontinent children for duration of illness and to control institutional outbreaks.
Epiglottitis, due to <i>Haemophilus influenzae</i>	D	U (24 hours)	
Epstein-Barr virus infection, including infectious mononucleosis	S		
Erythema infectiosum (also see Parvovirus B19)	S		
<i>Escherichia coli</i> gastroenteritis (see gastroenteritis)			

Infection/Condition	Precautions		
	Type	Duration	Comments
Food poisoning			
Botulism	S		Not transmitted person-to-person.
<i>Clostridium perfringens or welchii</i>	S		Not transmitted person-to-person.
Staphylococcal	S		Not transmitted person-to-person.
Furunculosis-staphylococcal	S		
Infants and young children	C	DI	
Gangrene (gas gangrene)	S		Not transmitted person-to-person.
Gastroenteritis	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks for gastroenteritis caused by all of the agents below.
<i>Campylobacter</i> species	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
Cholera	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
<i>Clostridium difficile</i>	C	DI	Assess need to discontinue antibiotics. Avoid the use of share electronic thermometers. Use consistent environmental cleaning and disinfection.
<i>Cryptosporidium</i> species	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
<i>Escherichia coli</i>			
Enterohemorrhagic O157:H7	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
Other species	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
<i>Giardia lamblia</i>	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
<i>Noroviruses</i>	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks. Persons who clean areas heavily contaminated with feces or vomitus should wear masks; ensure consistent environmental cleaning and disinfection.
<i>Rotavirus</i>	C	DI	Ensure consistent environmental cleaning and disinfection; prolonged shedding may occur in the

Infection/Condition	Precautions		
	Type	Duration	Comments
			immunocompromised
<i>Salmonella</i> species (including <i>S typhi</i> )	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
<i>Shigella</i> species	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
<i>Vibrio parahaemolyticus</i>	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
Viral (if not covered elsewhere)	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
<i>Yersinia enterocolitica</i>	S		Use Contact Precautions for diapered or incontinent persons for the duration of illness or to control institutional outbreaks.
German measles (see rubella)			
Giardiasis (see gastroenteritis)			
Gonococcal ophthalmia neonatorum (gonorrheal ophthalmia, acute conjunctivitis of newborn)	S		
Gonorrhea	S		
Granuloma inguinale (donovanosis, granuloma venereum)	S		
Guillain-Barré, syndrome	S		Not an infectious condition.
Hand, foot, and mouth disease (see enteroviral infection)			
<i>Hantavirus</i> pulmonary syndrome	S		Not transmitted person-to-person.
<i>Helicobacter pylori</i>	S		
Hemorrhagic fevers (for example, Lassa and Ebola)	C	DI	
Hepatitis, viral			
Type A	S		Provide Hepatitis A vaccine postexposure as recommended.
Diapered or incontinent patients	C		Maintain Contact Precautions in infants and children, 3 years of age for duration of hospitalization; for children 3-14 years of age for 2 weeks after onset of symptoms; >14 years of age for 1 week after onset of symptoms.
Type B-HBsAg positive	S		See specific recommendations for dialysis centers
Type C and other unspecified non-A, non-B	S		See specific recommendations for dialysis centers
Type E	S		Use Contact Precautions for diapered or incontinent individuals for the duration of illness or to control institutional outbreaks.
Type G	S		
Herpangina (see enteroviral infection)			
Herpes simplex ( <i>Herpesvirus hominis</i> )			
Encephalitis	S		
Neonatal	C	Until lesions	Also, for asymptomatic, exposed

Infection/Condition	Precautions		
	Type	Duration	Comments
		crusted and dry.	infants delivered vaginally or by C-section and if mother has active infection and membranes have been ruptured for more than 4-6 hours, until infant surface cultures obtained at 24-36 hours of age are negative after 48 hours incubation.
Mucocutaneous, disseminated or primary, severe	C	Until lesions crusted and dry.	
Mucocutaneous, recurrent (skin, oral, genital)	S		
Herpes zoster (varicella-zoster)			
Localized in immunocompromised patient, or disseminated	A,C	DI	Susceptible HCWs should not enter room if immune caregivers are available; if entry is required, susceptibles must wear nose/mouth protection; once disseminated disease has been ruled out discontinue isolation. Provide exposed susceptibles post exposure vaccine within 5 days or place unvaccinated exposed susceptibles on administrative leave from 10 <sup>th</sup> to 24 <sup>th</sup> day
Localized in normal patient	S	DI	Susceptible HCWs should not enter room if immune caregivers are available.
Histoplasmosis	S		Not transmitted person-to-person.
HIV (see human immunodeficiency virus)	S		Post-exposure chemoprophylaxis for high risk exposures.
Hookworm disease (ancylostomiasis, uncinariasis)	S		
Human immunodeficiency virus (HIV) infection	S		
Impetigo	C	U (24 hours)	
Infectious mononucleosis	S		
Influenza	D	5 days except DI in immunocompromised persons.	Private room when available or cohort; avoid placement with high risk patients; keep doors closed; mask patient when transported out of room; chemoprophylaxis/vaccine to control/prevent outbreaks.
Avian influenza (see Avian Influenza)			
Kawasaki syndrome	S		Not an infectious condition.
Lassa fever (see viral hemorrhagic fevers)			
Legionnaires' disease	S		
Leprosy	S		
Leptospirosis	S		
Lice (head [pediculosis], body pubic)	C	U (24 hours)	
Listeriosis	S		Person-to-person transmission rare
Lyme disease	S		Not transmitted person-to-person.
Lymphocytic choriomeningitis	S		Not transmitted person-to-person.
Lymphogranuloma venereum	S		
Malaria	S		Not transmitted person-to-person except rarely through transfusion. Use DEET containing mosquito repellants and clothing to cover

Infection/Condition	Precautions		
	Type	Duration	Comments
			extremities.
Marburg virus disease (see hemorrhagic fevers)			
Measles (rubeola)	A	DI	Susceptible HCWs should not enter the room if immune care providers are available; wear nose/mouth protection regardless of immune status; no recommendation for type of protection (e.g. surgical mask, respirator); post-exposure vaccine within 72 hours or immune globulin within 6 days.
Melioidosis, all forms	S		Not transmitted person-to-person.
Meningitis			
Aseptic (nonbacterial or viral meningitis; also see enteroviral infections)	S		Contact for infants and young children.
Bacterial, gram-negative enteric, in neonates	S		
Fungal	S		
<i>Haemophilus influenzae</i> , known or suspected	D	U (24 hours)	
<i>Listeria monocytogenes</i>	S		Not transmitted person-to-person.
<i>Neisseria meningitidis</i> (meningococcal) known or suspected	D	U (24 hours)	
Pneumococcal	S		
Tuberculosis	S		Concurrent, active pulmonary disease or draining cutaneous lesions necessitate additional airborne precautions.
Other diagnosed bacterial	S		
Meningococcal disease; pneumonia, sepsis, meningitis	D	U (24 hours)	Postexposure chemoprophylaxis for household contacts, HCWs exposed to respiratory secretions; postexposure vaccine only if outbreak.
<i>Molluscum contagiosum</i>	S		
<i>Monkeypox</i>	A,C	Until lesions crusted.	See <a href="http://www.cdc.gov/ncidod/monkeypox">www.cdc.gov/ncidod/monkeypox</a> for current recommendations. Pre- and post-exposure smallpox vaccine recommended for exposed healthcare workers and close household contacts
Mucormycosis	S		
Multidrug-resistant organisms (MDROs), infection or colonization (e.g. MRSA, VRE, VISA)	S/C		MDROs judged by the infection control program, based on local, state, regional or national recommendations, to be of clinical and epidemiologic significance. Contact Precautions required in settings with evidence of ongoing transmission, acute care setting with increased risk for transmission or wounds that cannot be contained by dressings; Criteria for discontinuing precautions not established. Contact state health department for guidance regarding new or emerging MDRO
Mumps (infectious parotitis)	D	Until 9 days.	After onset of swelling; susceptible HCWs should not provide care if immune caregivers are available.
Mycobacteria, nontuberculosis (atypical)			
Pulmonary	S		

Infection/Condition	Precautions		
	Type	Duration	Comments
Wound	S		
<i>Mycoplasma pneumoniae</i>	D	DI	
Necrotizing enterocolitis	S		Contact Precautions when cases temporally clustered.
Nocardiosis, draining lesions or other presentations	S		
Norovirus (see gastroenteritis)			
Norwalk agent gastroenteritis (see viral gastroenteritis)			
Orf	S		
Parainfluenza virus infection, respiratory in infants and young children	C	DI	
Parvovirus B19	D		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. Duration of precautions for immunosuppressed patients with persistently positive PCR is not defined.
Pediculosis (lice)	C	U (24 hours) after treatment.	
Pertussis (whooping cough)	D	Until 5 days.	Private room preferred. Cohorting an option. Post-exposure chemoprophylaxis for household contacts and HCWs with prolonged exposure to respiratory secretions.
Pinworm infection	S		
Plague			
Bubonic	S		
Pneumonic	D	U (72 hours)	Antimicrobial prophylaxis for exposed.
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	C	Unknown	Avoid exposure to other persons with CF; private room preferred. Criteria for D/C precautions not established. See CF Foundation guideline.
<i>Chlamydia</i>	S		
Fungal	S		
<i>Haemophilus influenzae</i>			
Adults	S		
Infants and children (any age)	D	U (24 hours)	
<i>Legionella</i>	S		
Meningococcal	D	U (24 hours)	
Multidrug-resistant bacterial (see multidrug-resistant organisms)			
<i>Mycoplasma</i> (primary atypical pneumonia)	D	DI	
Pneumococcal	S		
<i>Pneumocystis carinii</i>	S		Avoid placement in the same room with an immunocompromised patient
<i>Pseudomonas cepacia</i> (see <i>Burkholderia cepacia</i> )			
<i>Staphylococcus aureus</i>	S		

Infection/Condition	Precautions		
	Type	Duration	Comments
<i>Streptococcus</i> , group A			
Adults	S		
Infants and young children	D	U (24hrs)	
Varicella Zoster	A	DI	Contact precautions if lesions present.
Viral			
Adults	S		
Infants and young children (see respiratory infectious disease, acute)			
Poliomyelitis	C		
Prion Disease (See Creutzfeld-Jacob Disease)			
Psittacosis (ornithosis)	S		Not transmitted person-to-person.
Q fever	S		
Rabies	S	DI	If patient has bitten another individual or saliva has contaminated an open wound or mucous membrane, wash the exposed area thoroughly and administer post-exposure prophylaxis.
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	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		Not transmitted person-to-person except rarely by transfusion.
Roseola infantum (exanthem subitum)	S		
Rotavirus infection (see gastroenteritis)			
Rubella (German measles; also see congenital rubella)	D	Until 7 days after onset of rash.	Susceptible HCWs should not enter room if immune caregiver is available. Wear nose/mouth protection (e.g. surgical mask) regardless of immune status.
Rubeola (see Measles)			
Severe Acute Respiratory Syndrome (SARS)	A,D, C	DI plus 10 days after resolution of fever, provided respiratory symptoms are absent or improving.	Airborne precautions preferred. D if negative pressure rooms are not available. N95 or higher respiratory protection; surgical mask if N95 unavailable; eye protection (goggles and face shield); aerosol-producing procedures and "super shedders" highest risk of transmission; vigilant

Infection/Condition	Precautions		
	Type	Duration	Comments
			environmental disinfection. See <a href="http://www.cdc.gov/ncidod/sars">www.cdc.gov/ncidod/sars</a>
Salmonellosis (see gastroenteritis)			
Scabies	C	U (24 hours)	
Scalded skin syndrome, staphylococcal (Ritter's disease)	S		Contact Precautions for 24 hours after initiation of effective therapy if outbreak within a unit.
Schistosomiasis (bilharziasis)	S		
Shigellosis (see gastroenteritis)			
Smallpox (variola; see vaccinia for management of vaccinated persons)	A,C	DI	Until all scabs have crusted and separated (3-4 weeks). Non-vaccinated HCWs should not provide care when immune HCWs are available; N95 or higher respiratory protection required for susceptible and successfully vaccinated individuals; postexposure vaccine within 4 days of exposure protective.
Sporotrichosis	S		
<i>Spirillum minus</i> disease (rat-bite fever)	S		
Staphylococcal disease ( <i>S aureus</i> )			
Skin, wound, or burn			
Major	C	DI	Dressing covers and contains drainage adequately.
Minor or limited	S		Dressing covers and contains drainage adequately.
Enterocolitis	S		Use Contact Precautions for diapered or incontinent children for duration of illness.
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		Not transmitted person-to-person.
Streptococcal disease (group A streptococcus)			
Skin, wound, or burn			
Major	C	U (24 hours)	Dressing covers and contains drainage adequately.
Minor or limited	S		
Endometritis (puerperal sepsis)	S		
Pharyngitis in infants and young children	D	U (24 hours)	
Pneumonia in infants and young children	D	U (24 hours)	
Scarlet fever in infants and young children	D	U (24 hours)	
Serious invasive disease, e.g. necrotizing fasciitis, toxic shock syndrome	D	U (24 hours)	Contact Precautions for draining wound as above; follow recommendations for antimicrobial prophylaxis in selected conditions.
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		

Infection/Condition	Precautions		
	Type	Duration	Comments
Syphilis			
Skin and mucous membrane, including congenital, primary, secondary	S		
Latent (tertiary) and seropositivity without lesions	S		
Tapeworm disease			
<i>Hymenolepis nana</i>	S		Not transmitted person-to-person.
<i>Taenia solium</i> (pork)	S		Not transmitted person-to-person.
Other	S		Not transmitted person-to-person.
Tetanus	S		Not transmitted person-to-person.
Tinea (fungus infection dermatophytosis, dermatomycosis, ringworm)	S		
Toxoplasmosis	S		
Toxic shock syndrome (staphylococcal disease, streptococcal 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)	A,C		Discontinue precautions only when patient is improving clinically, and drainage has ceased or there are three consecutive negative cultures of continued drainage. Examine for evidence of active pulmonary tuberculosis.
Extrapulmonary, no draining lesion, meningitis	S		Examine for evidence of active pulmonary tuberculosis.
Pulmonary, or laryngeal disease confirmed	A		Discontinue precautions only when patient on effective therapy is improving clinically and has three consecutive sputum smears negative for acid fast bacilli collected on separate days.
Pulmonary, or laryngeal disease suspected	A		Discontinue precautions only when the likelihood of infectious TB disease is deemed negligible, and either 1) there is another diagnosis that explains the clinical syndrome or 2) the results of three sputum smears for AFB are negative. Each of the three sputum specimens should be collected 8-24 hours apart, and at least one should be an early morning specimen.
Skin-test positive with no evidence of current pulmonary disease	S		
Tularemia			BioSafety Level 2 (BSL-2) laboratory only for processing cultures.
Draining lesion	S		Not transmitted person-to-person.
Pulmonary	S		Not transmitted person-to-person.
Typhoid ( <i>Salmonella typhi</i> ) fever (see gastroenteritis)			
Typhus, endemic and epidemic	S		Not transmitted person-to-person.
Urinary tract infection (including pyelonephritis), with or	S		

Infection/Condition	Precautions		
	Type	Duration	Comments
without urinary catheter			
Vaccinia (vaccination site, adverse events following vaccination)			Only vaccinated HCWs have contact with active vaccination sites and care for persons with adverse vaccinia events; if unvaccinated, only HCWs without contraindications to vaccine may provide care.
Vaccination site care (including autoinoculated areas)	S		Vaccination recommended for vaccinators, for newly vaccinated HCWs: semi-permeable dressing over gauze until scab separates, with dressing change as fluid accumulates, ~3-5 days; gloves, hand hygiene for dressing change; vaccinated HCW or HCW without contraindications to vaccine for dressing changes.
Eczema vaccinatum	C	Until lesions dry and crusted, scabs separated.	For contact with virus-containing lesions and exudative material.
Fetal vaccinia	C		
Generalized vaccinia	C		
Progressive vaccinia			
Postvaccinia encephalitis	S		
Blepharitis or conjunctivitis	S/C		Use Contact Precautions if there is copious drainage
Iritis or keratitis	S		
Vaccinia associated erythema multiforme (Stevens Johnson Syndrome)	S		Not an infectious condition
Secondary bacterial infection (e.g., <i>S. aureus</i> , group A beta hemolytic streptococcus)	S/C		Follow organism-specific (strep, staph most frequent) recommendations and consider magnitude of drainage.
Varicella (chickenpox)	A,C	Until lesions dry and crusted.	Susceptible HCWs should not enter room if immune caregivers are available. Wear nose/mouth protection regardless of immune status; no recommendation for type of protection (e.g. surgical mask, respirator); in immunocompromised host with varicella pneumonia, prolong duration of precautions after lesions crusted; post-exposure vaccine within 120 hours; VZIG within 96 hours for post-exposure prophylaxis for a susceptible exposed persons for whom vaccine is contraindicated, including immunocompromised persons, pregnant women, newborns whose mother's varicella onset is $\leq 5$ days before delivery or within 48 hrs. after delivery.
Variola (see smallpox)			
<i>Vibrio parahaemolyticus</i> (see gastroenteritis)			
Vincent's angina (trench mouth)	S		
Viral hemorrhagic fevers due to Lassa, Ebola, Marburg, Crimean-Congo Fever	A,C	DI	Add eye protection, double gloves, leg and shoe coverings, and

Infection/Condition	Precautions		
	Type	Duration	Comments
			impermeable gowns, according to hemorrhagic fever specific base precautions. Notify public health officials immediately ( <a href="http://www.bt.cdc.gov">www.bt.cdc.gov</a> )
Viral respiratory diseases (not covered elsewhere)			
Adults	S		
Infants and young children (see respiratory infectious disease, acute)			
Whooping cough (see pertussis)			
Wound infections			
Major	C	DI	No dressing or dressing does not contain drainage adequately
Minor or limited	S		Dressing covers and contains drainage adequately
<i>Yersinia enterocolitica</i> gastroenteritis (see gastroenteritis)			
Zoster (varicella-zoster) (see herpes zoster)			
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 after initiation of effective therapy; F, see footnote.*

*Updated: September 8, 2005*

**XIV. Sheltering**

There are occasions when the option to evacuate an area is not considered (e.g. a time constraint, evacuation would subject people to greater risk) and sheltering is. Sheltering usually lasts no more than 1-2 hours in chemical emergencies but would be much longer in the presence of infectious diseases. Sheltering is different than isolation and quarantine as those who shelter may have never been exposed to a communicable disease. Sheltering may also be used during an influenza pandemic or any epidemic, when the necessary aim is to keep well people who have not been exposed at home. Sheltering could be recommended when community transmission has become so widespread that it is neither possible nor feasible to trace contacts. Positive aspects of sheltering include that it is a voluntary action and that it provides individuals with choice thus giving people a positive psychological effect. In addition, by encouraging people to stay in one place and not flee, the spread of disease to new places may not occur. Sheltering provides a way for individuals to protect themselves, but affords them the flexibility to act according to their own needs. (Center for Strategic and International Studies: <http://www.csis.org/hs/>)

## SECTION IV

### Legal

#### I. Authority

All governmental acts must arise from and be supported by legal authority. States, localities and tribes have primary responsibility for all public health matters that occur within their borders. This responsibility extends to isolation and quarantine. While state government is a government of general jurisdiction (the federal government is one of limited jurisdiction), the authority of state government is not unlimited. An official act may be authorized by law, but the act cannot violate an individual right without a compelling state interest. When considering quarantine or isolation, it is important for the government official to carefully weigh the situation to ensure the data indicating a need for quarantine or isolation are “clear and convincing.”<sup>1</sup> The state official needs to ensure the quarantine or isolation utilizes the least restrictive means of achieving the public good. Similarly, the government official needs to ensure the quarantine or isolation order is sustainable and logistically supportable. To this end, the government official should be familiar with the appropriate scope of authority and fully engage the appropriate legal counsel early in the process.

#### II. Federal Constitutional Provisions

- United States Constitution, Amendment I - Right of Assembly.  
<http://caselaw.lp.findlaw.com/data/constitution/amendment01/>
- United States Constitution, Amendment IV - Right Against Unreasonable Searches and Seizures.  
[http://en.wikipedia.org/wiki/Fourth\\_Amendment\\_to\\_the\\_United\\_States\\_Constitution](http://en.wikipedia.org/wiki/Fourth_Amendment_to_the_United_States_Constitution)
- United States Constitution, Amendment XIV - No State shall make or enforce any laws which shall abridge the privileges and immunities of citizens of the United States.  
<http://www.law.cornell.edu/constitution/constitution.amendmentxiv.html>
- United States Constitution, Amendment XIV - No State shall deprive any person of life, liberty, or property, without due process of law.  
<http://www.law.cornell.edu/constitution/constitution.amendmentxiv.html>
- United States Constitution, Amendment XIV - No State shall deny to any person within its jurisdiction the equal protection of the laws.  
<http://www.law.cornell.edu/constitution/constitution.amendmentxiv.html>

#### III. Federal Authority

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<sup>1</sup> The United States Supreme Court has long held that a state is permitted to involuntarily quarantine (limit the movement of) a person with a communicable disease. Compagnie Francaise de Navigation a Vapeur v. Louisiana Bd. of Health, 186 U.S. 380 (1902). However, the Supreme Court has also indicated that the Due Process Clause of the 14<sup>th</sup> Amendment to the United States Constitution requires at least a clear and convincing standard of evidence when the state chooses to limit the movement of or confine an individual (for other than a criminal act) in order to protect the health and safety of the individual or others. Addington v. Texas, 441 U.S. 418 (1979). To this end, the treatability of or recoverability from the illness is not a factor in determining the appropriateness of the limitation of movement or confinement order. Kansas v. Hendricks, 521 U.S. 346 (1997).

Under the authority of Section 361 of the Public Health Service Act (42 USC 264), the Health and Human Services (HHS) Secretary may make and enforce regulations as necessary to prevent the introduction, transmission or spread of communicable diseases from foreign countries into the United States or from one state or possession into another. The CDC (under authority delegated by the HHS Secretary) Director may isolate and quarantine persons who have been exposed to or are infected with certain specified communicable diseases and are arriving in the United States from a foreign country or traveling from one state or possession into another.

- CFR Title 42, Chapter 1, Part 70 - Interstate Control of Communicable Disease.  
[http://www.access.gpo.gov/nara/cfr/waisidx\\_03/42cfr70\\_03.html](http://www.access.gpo.gov/nara/cfr/waisidx_03/42cfr70_03.html)
- CFR Title 42, Chapter 1, Part 71 - Foreign Quarantine.  
[http://www.access.gpo.gov/nara/cfr/waisidx\\_03/42cfr71\\_03.html](http://www.access.gpo.gov/nara/cfr/waisidx_03/42cfr71_03.html)

#### IV. International

New International Health Regulations (IHR) were recently adopted by the World Health Assembly requiring all members to report cases of human infections that are caused by a new subtype. When the World Health Organization (WHO) has determined that a particular event constitutes a public health emergency, the IHR will require WHO to make a “real-time” response to the emergency. The Director General of WHO then makes recommendations for implementation measures to the affected member states. Subsequently the recommendations are made public and based on evidence the recommended measures can be modified or ended. (HHS Pandemic Influenza Plan: <http://www.hhs.gov/pandemicflu/plan>)

#### V. State Constitutional Provisions: <http://www.constitution.org/cons/usohcons.txt>

- Ohio Constitution, Article I, Section 1 - Inalienable Rights recognized.
- Ohio Constitution, Article I, Section 2 - Equal Protection and Benefit.
- Ohio Constitution, Article I, Section 3 - Rights of Assembly and Petition.
- Ohio Constitution, Article I, Section 8 - Right of Habeas Corpus shall not be suspended.
- Ohio Constitution, Article I, Section 14 - Right Against Unreasonable Searches and Seizures.
- Ohio Constitution, Article I, Section 16 - All courts shall be open and everyone shall have an opportunity for redress of injuries in the due course of law.
- Ohio Constitution, Article I, Section 18 - Only the General Assembly may suspend laws.
- Ohio Constitution, Article I, Section 19 - The State may not exercise Eminent Domain without due process of law or just compensation.
- Ohio Constitution, Article II, Section 42 - The General Assembly has the power and duty to pass such laws as may be necessary and proper for insuring the continuity of governmental operations in periods of emergency resulting from disasters caused by enemy attack.

#### VI. State Authority: <http://codes.ohio.gov/orc/3701>

- ORC § 3701.13 - ODH has ultimate authority in matters of quarantine.
- ORC § 3701.56 - Provides for law enforcement and public health officials to enforce isolation and quarantine orders.
- ORC § 3701.14 - General powers of the Director.
- ORC § 3701.81- Requiring persons to limit spread and inform the health authorities of known contagions.
- ORC § 5923.21 - Governor may call-up Ohio National Guard (ONG) to enforce the laws of Ohio.
- ORC § 5923.27 - ONG called up by Governor is considered a law enforcement officer.
- ORC § 5923.27 - Arrest and detention by ONG is for purposes of escorting to civil authorities.

VII. Local Authority: <http://codes.ohio.gov/orc/3707>

- ORC § 3707.04 - Authority to promulgate quarantine regulations.
- ORC § 3707.05 - Local health department (LHD) may not close highway without ODH permission and in compliance with regulations.
- ORC § 3707.08 - Isolation of persons exposed to communicable diseases; placarding of premises.
- ORC § 3707.09 - Establishment of quarantine guard.
- ORC § 3707.16 - Attendance at gatherings by quarantined persons prohibited.
- ORC § 3707.17 - Quarantine in place other than that of legal settlement.
- ORC § 3707.21 - Isolation of affected persons in institutions.
- ORC § 3707.23 - Examination of common carriers by board of health during quarantine.
- ORC § 3709.20 & 3709.21 LHD and Boards of Health may make such orders as necessary to protect public health.
- Ohio Attorney General Opinion 926 (1949) - A LHD may impose a quarantine if reasonable.

VIII. State of Ohio Attorney General – Memorandum 2-15-06

- a. Summary: Isolation and quarantine orders may be issued by either local departments of health, or by the Ohio Department of Health. These orders may include restrictions on individuals, places, transportation, and gatherings. A local board of health of a city or general health district may employ persons sworn as quarantine guards with police powers, who may enforce all orders of the board. Separately, local and state law enforcement officers must enforce the terms of an order of isolation or quarantine, but are not under the command or supervision of the health authorities. Local and state officers may also enforce criminal statutes against persons violating isolation or quarantine orders, and may transport these persons to isolation within jails, prisons or other secure facilities, or in hospitals or other health facilities, as necessary.
- b. Analysis:
  - i. Scope: This analysis is focused on the interaction between law enforcement officers, and orders of quarantine and isolation entered by health agencies. It does not detail the standards and procedures preceding issuance of such orders, or the enforcement, modification, or abolishment of such orders, other than as these affect law enforcement officers.
  - ii. The Ohio Department of Health has independent authority to declare, enforce, modify, relax or abolish quarantine and isolation for the purpose of preserving life and health. Although the statute anticipates that duties including isolation and quarantine will be carried out in cooperation with the health commissioner of a general or city health district, the department may make and enforce orders in local matters when an emergency exists, or when the local board has neglected to act quickly enough.
  - iii. LHDs have authority to declare, enforce, modify, relax or abolish quarantine and isolation for the purpose of preserving the life and health of people of the community or the state...
  - iv. The governor may declare a state of emergency, at the request of the Director of the Department of Health. The Governor may also order the Ohio State Highway Patrol to enforce the criminal law within an area threatened by riot, civil disorder, or insurrection, upon the request of the sheriff or mayor.

## Resource Documents

**The following resources were used in preparation for this guide. Please reference these documents:**

American Bar Association, State and Local Government Law Section. "Draft Checklist for State and Local Government Attorneys to Prepare for Possible Disasters." Compiled by the Task Force on Emergency Management and Homeland Security, March 2003.

APIC brochure "Hand Hygiene for Healthcare Workers".

APIC/CDC Bioterrorism Template "Bioterrorism Readiness Plan: A Template for Healthcare Facilities." Available at <http://www.apic.org> or <http://www.cdc.gov>.

California Department of Health Services Severe Acute Respiratory Syndrome Infection Control Recommendations Home Settings, June 3, 2003.

Centers for Disease Control and Prevention: <http://www.cdc.gov>.

Centers for Disease Control and Prevention: Fact Sheet on Legal Authorities for Isolation/Quarantine, May 3, 2005. <http://www.cdc.gov/ncidod/sars/factsheetlegal.htm>

Centers for Disease Control and Prevention Fact Sheet on Isolation and Quarantine (Severe Acute Respiratory Syndrome), May 3, 2005:  
<http://www.cdc.gov/ncidod/sars/isolationquarantine.htm>.

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## **SECTION V Appendices**

### **Decision Analysis for Infection Control Practices Implementation**

Deciding to implement infection control measures requires an assessment. Several appendices are provided to help with this assessment.

**Appendix A: Infection Control Measures**

**Appendix B: Non-Emergency Detention Order – Tuberculosis (TB) Model**

**Appendix C: Executive Order 13295: Revised List of Quarantinable Communicable Diseases (April 4, 2003) – U.S. President**

**Appendix D: Decision Path for Infection Control Measures**

**Appendix E: Quarantine Measures in Response to a Suspected Smallpox Outbreak**

**Appendix F: Emergency Detention Order – Tuberculosis Model**

**Appendix G: List of Abbreviations**

**Appendix H: Preparedness Checklist for Community Containment Measures**

**Appendix I: Sample Home Isolation Agreement/Order  
Sample Order of Quarantine  
Ohio Health Commissioner’s Isolation/Quarantine Draft**

**Appendix J: Sample Fever and Symptom Log**

**Appendix K: Home Isolation Assessment Tool**

**Appendix L: Principles of Modern Quarantine**

**Appendix M: Frequently Asked Questions about Quarantine  
Where Can I Get More Information about Quarantine?**

**Appendix N: Recommendations for Quarantine**

**Appendix O: Isolation in a Community-Based Facility**

**Appendix P: Terms and Definitions of Containment Measures**

**Appendix Q: CDC Explanation of Sheltering in Place**

## **APPENDIX A**

### **Infection Control Measures**

#### **The Agent and Host**

Refer to Control of Communicable Diseases Manual, 18th Ed., Heymann, David L. Ed., American Public Health Association, Washington, D.C., 2004.

The communicability of an infectious agent would be determined by the epidemiologic investigation. LHDs may conduct their own investigation; however ODH is available for technical assistance.

- 1) Is the organism/disease communicable?
  - a. What is the infectivity of the organism/disease?
  - b. Is it vaccine-preventable and is/are the person(s) vaccinated?
  - c. Is case mortality and/or morbidity significant (above expected)?
  - d. What is the mode of transmission?
  - e. What social behaviors allow or promote transmission?
  - f. Are there significant differences in infectivity given the target host?
  - g. What is the period of communicability?
  - h. What is the incubation period?
  
- 2) What is the distribution of the disease?
  - a. How many are infected?
  - b. How many are exposed?
  - c. Can those exposed be identified?
  - d. Can those infected be identified?
  - e. Can those infectious be identified?

#### **The Environment**

LHDs, ODH, and the CDC (as necessary) would determine whether the environmental conditions met the necessary requirements for disease transmission.

- 1) Are the environmental conditions conducive for disease transmission?
- 2) Are the environmental conditions stable or changing?

#### **Infection Control Measures including Treatment/Prophylaxis, PPE, Environmental Management/Controls, and Limitations on Movement.**

LHDs would ensure the institution of appropriate infection control measures for the interruption of disease transmission. ODH is available for consultation. Infection control measures available are noted above. Questions to ask:

- 1) What infection control measures are necessary? PPE? Vaccination? Isolation? Quarantine?
- 2) Are infection control measures available? Do you have masks, gloves, etc.?
- 3) Can the environment be kept clean?
- 4) Can linens and other personal items be cleaned? How?

#### **Prophylaxis and Treatment**

- 1) Is prophylaxis available?
- 2) Is treatment available?
- 3) Are resources for treatment/prophylaxis limited?

- 4) How will persons be triaged for treatment vs. prophylaxis?
- 5) What are the contraindications of treatment or prophylaxis?
- 6) Are there alternative choices for treatment/prophylaxis?
- 7) What is/are the choice(s) for treatment/prophylaxis for children?
- 8) What is/are the choice(s) for treatment/prophylaxis for pregnant women?
- 9) What is/are the choice(s) for treatment/prophylaxis for special needs populations?
- 10) Are there other barriers to dispensing treatment/prophylaxis?

**Can you implement infection control practices in the home?**

- 1) Can care be provided appropriately in the home?
- 2) Is PPE available for standard precautions? Is PPE available for other types of precautions?
- 3) Is running water available for handwashing?
- 4) Is the sewage system functional?
- 5) If there isn't any running water, can alcohol-based hand disinfectants be provided?
- 6) Can the home be kept clean with household disinfectants?
- 7) Are there other at-risk individuals in the home that would be compromised?
- 8) \*\*Airborne isolation in the home does not require a special air system in the house. Household members, however, need to use N-95 or N-100 masks for airborne precautions.

**If isolation cannot be accomplished in the home, what alternative will be used for isolation?**

- 1) Hospital?
  - 2) Field hospital?
  - 3) School or other public facility?
  - 4) What cleaning procedures are in place?
- \*\* The needs of persons isolated and quarantined are addressed in a systematic and competent fashion, including, but not limited to, providing adequate food, clothing, shelter, means of communication with those in isolation or quarantine and outside these settings, medication, and competent medical care. Premises used for isolation and quarantine are maintained in a safe and hygienic manner and are designed to minimize the likelihood of further transmission of infection or other harms to persons isolated and quarantined. When cohorting sick persons, some precautions may not be required, as long as the facility is dedicated to specific infection control precautions and the healthcare workers are protected. For example, using a dedicated facility for a disease spread in the air does not require negative airflow rooms.

**Further Concerns:**

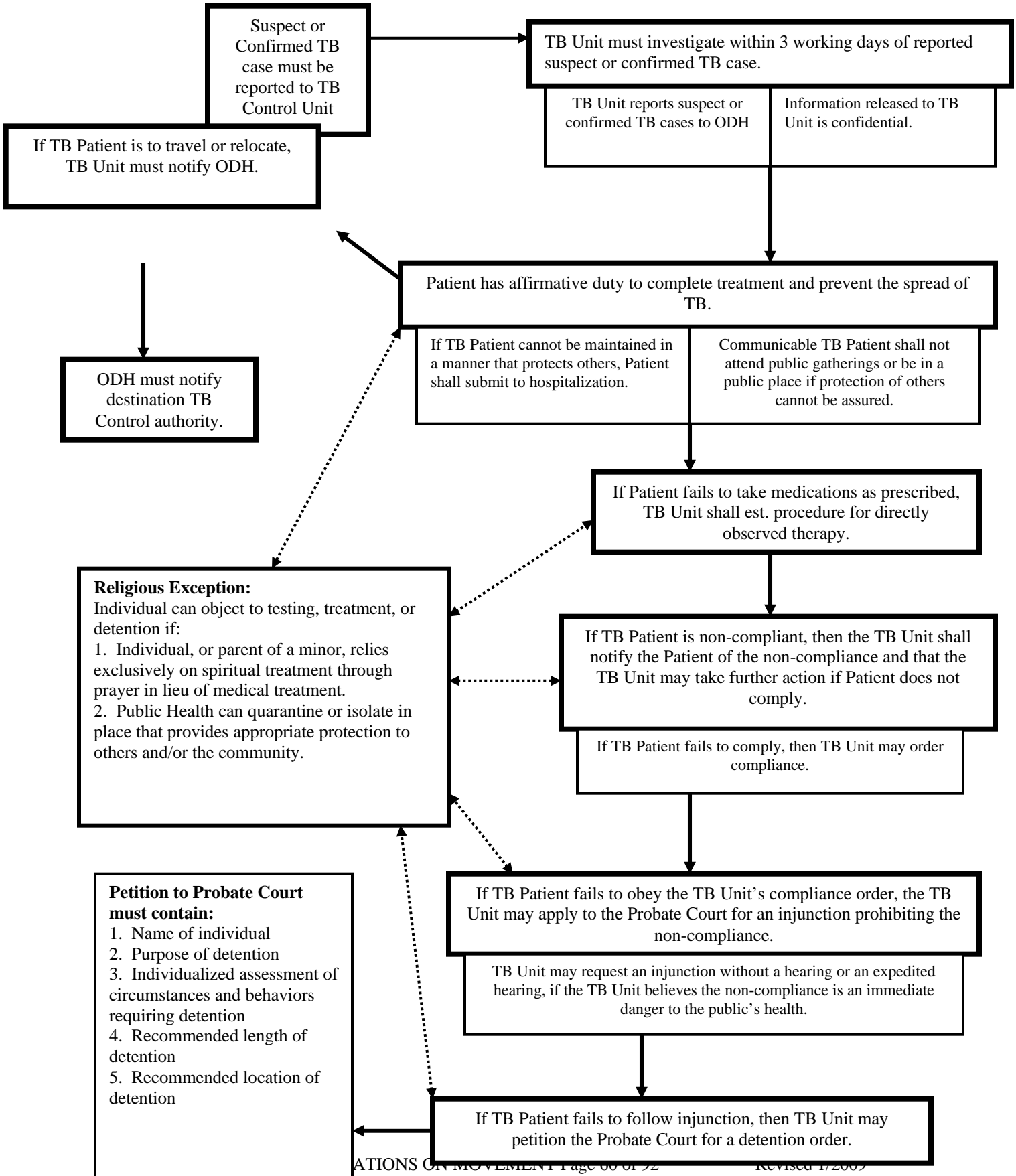
**Public Safety**

- 1) Can law enforcement effect the limitations on movement?
- 2) Can those limited receive basic needs (e.g. food, water, power, EMS, fire, medical care)?
- 3) Can law enforcement transition people from different limitations on movement?
- 4) Will limitations lead to panic and social disorder? How can you prepare for this ahead of time?
- 5) Will the imposition of limitations inhibit relief?
- 6) What force is allowed to affect limitations on movement?
- 7) \*\* A plan needs to be written with local law enforcement by each LHD or region to determine how limitations on movement will be implemented when it is required and someone is not following it.

### **Public Policy Considerations**

- 1) What stigma will be attached to those limited?
- 2) What panic may occur from limitations on movement?
- 3) What is the social impact on those limited?
- 4) What is the economic impact on those limited?
- 5) What is the health and safety impact on those limited?
- 6) Can legal due process be appropriately provided?

**APPENDIX B**  
**Non-Emergency Detention Order: Tuberculosis (TB) Model**



**APPENDIX C**  
**Executive Order 13295: Revised List of Quarantinable Communicable Diseases (April 4, 2003)**

[Download PDF version formatted for print](#)  (54 KB/1 page)

By the authority vested in me as President by the Constitution and the laws of the United States of America, including section 361(b) of the Public Health Service Act (42 U.S.C. 264(b)), it is hereby ordered as follows:

Section 1. Based upon the recommendation of the Secretary of Health and Human Services (the "Secretary"), in consultation with the Surgeon General, and for the purpose of specifying certain communicable diseases for regulations providing for the apprehension, detention, or conditional release of individuals to prevent the introduction, transmission, or spread of suspected communicable diseases, the following communicable diseases are hereby specified pursuant to section 361(b) of the Public Health Service Act:

(a) Cholera; Diphtheria; infectious Tuberculosis; Plague; Smallpox; Yellow Fever; and Viral Hemorrhagic Fevers (Lassa, Marburg, Ebola, Crimean-Congo, South American, and others not yet isolated or named).

(b) Severe Acute Respiratory Syndrome (SARS), which is a disease associated with fever and signs and symptoms of pneumonia or other respiratory illness, is transmitted from person-to-person predominantly by the aerosolized or droplet route, and, if spread in the population, would have severe public health consequences.

Sec. 2. The Secretary, in the Secretary's discretion, shall determine whether a particular condition constitutes a communicable disease of the type specified in section 1 of this order.

Sec. 3. The functions of the President under sections 362 and 364(a) of the Public Health Service Act (42 U.S.C. 265 and 267(a)) are assigned to the Secretary.

Sec. 4. This order is not intended to, and does not, create any right or benefit enforceable at law or equity by any party against the United States, its departments, agencies, entities, officers, employees or agents, or any other person.

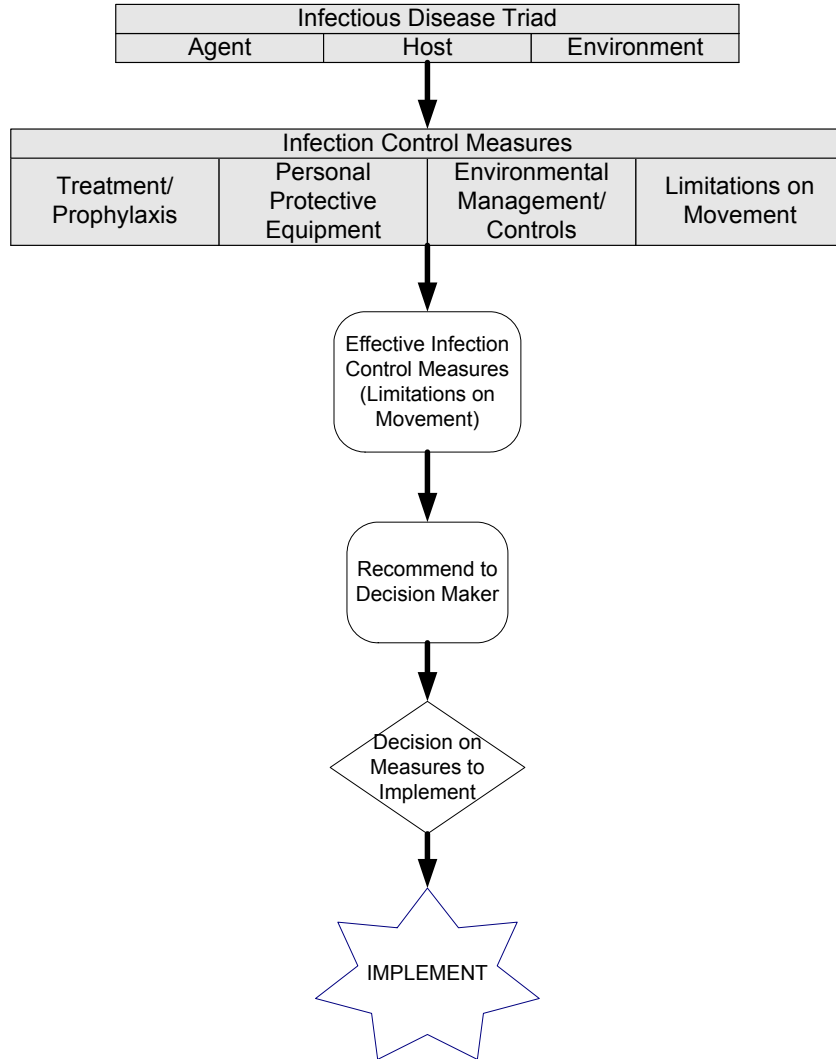
Sec. 5. Executive Order 12452 of December 22, 1983, is hereby revoked.

GEORGE W. BUSH

## APPENDIX D Decision Path for Infection Control Measures

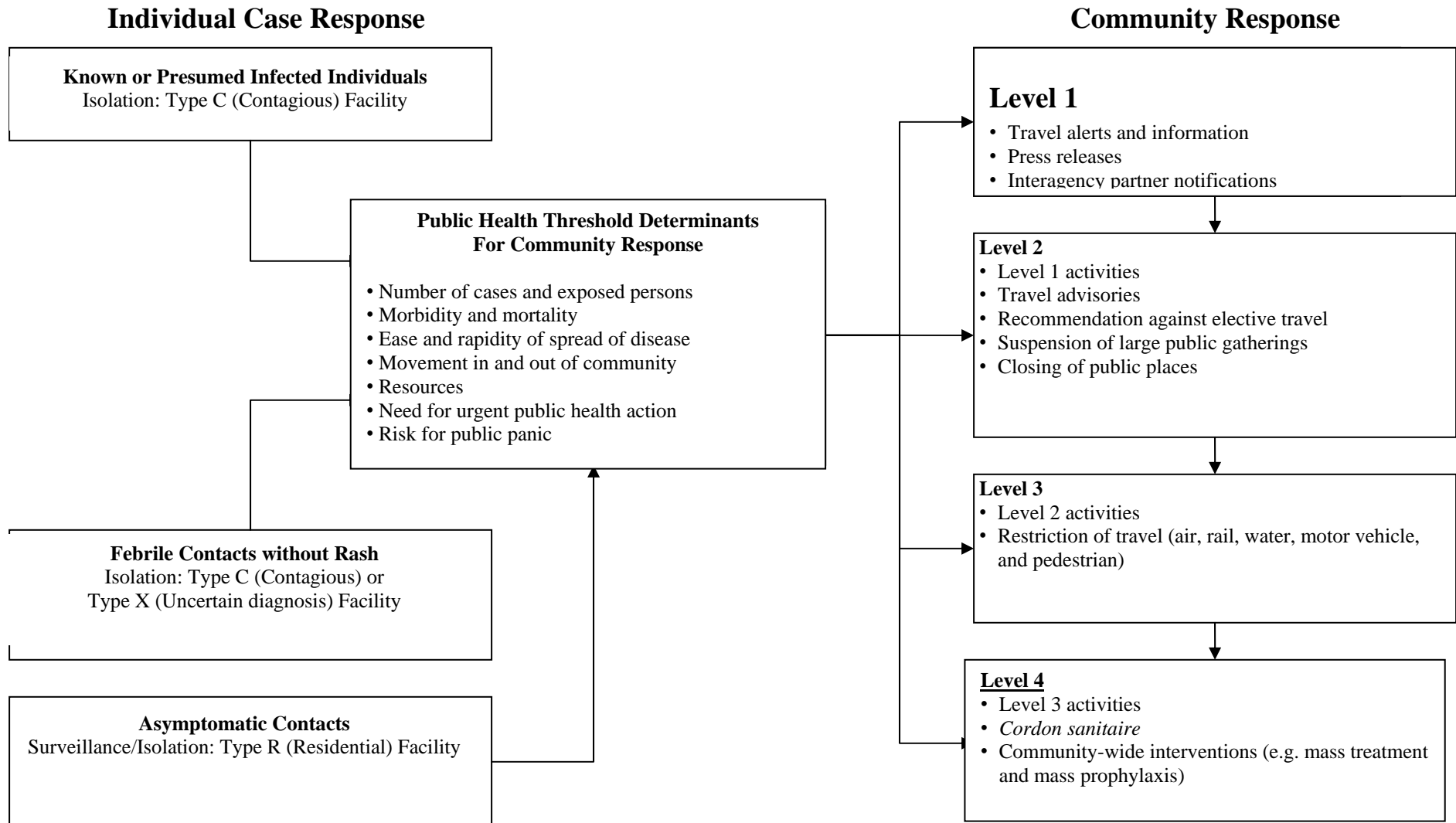


### Decision Path For Infection Control Measures

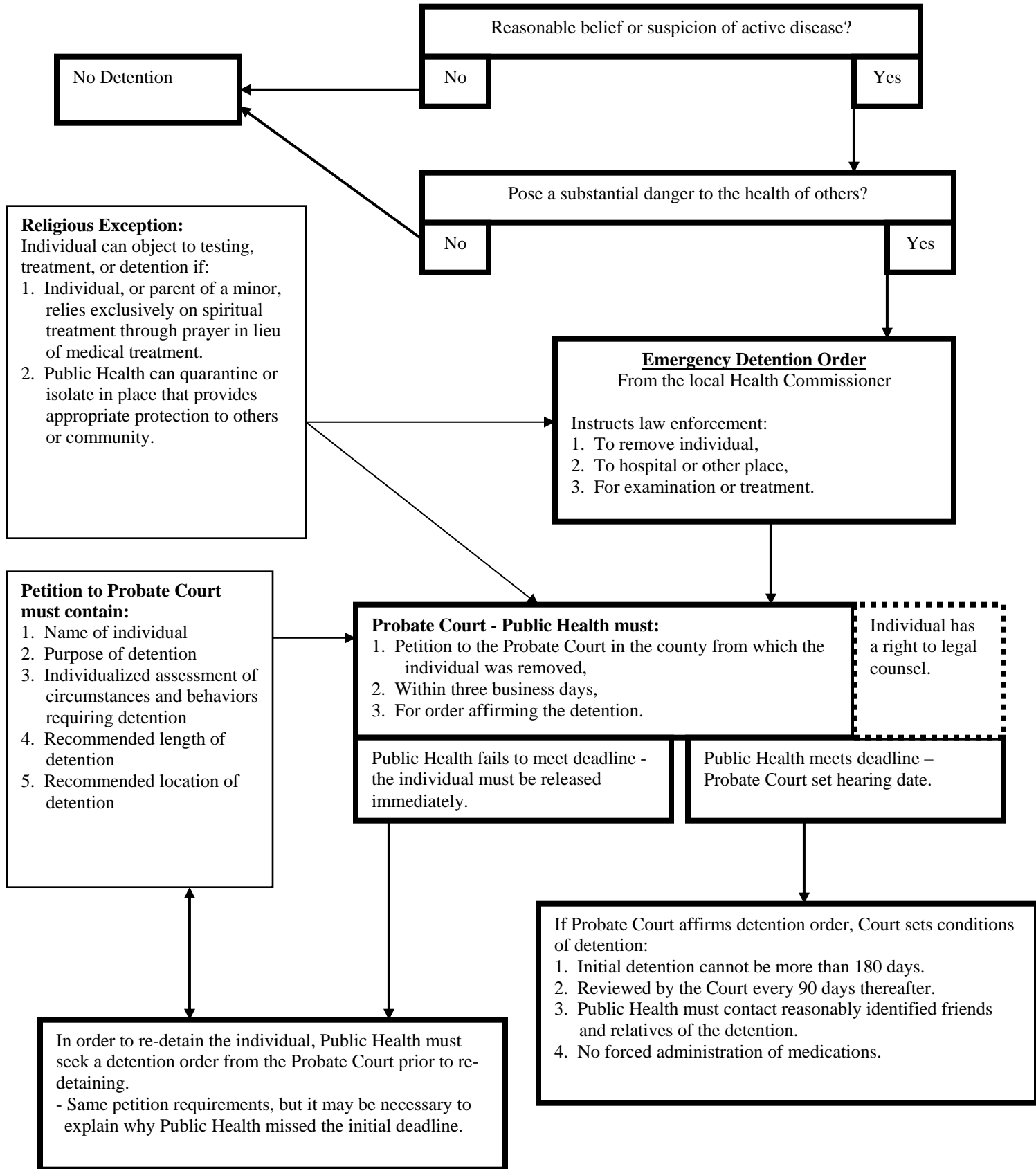


**APPENDIX E**  
**Quarantine Measures in Response to a Suspected Smallpox Outbreak**

<http://emergency.cdc.gov/agent/smallpox/response-plan/files/guide-c-part-2.pdf>



## APPENDIX F Emergency Detention Order: Tuberculosis Model



## APPENDIX G List of Abbreviations

APIC	Association for Professionals in Infection Control and Epidemiology
BT	Bioterrorism
CDC	Centers for Disease Control and Prevention
CFR	Combined Federal Register
DGMQ	Division of Global Migration and Quarantine
DHQP	Division of Healthcare Quality Promotion
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
HCW	Health Care Worker
HEPA	High Efficiency Particulate Air
HHS	Health and Human Services
HICPAC	Healthcare Infection Control Practices Advisory Committee
HSCT	Human Stem Cell Transplant
IP	Infection Preventionist
ICS	Incident Command System
IDSA	Infectious Diseases Society of America
LHD	Local Health Department
LOM	Limitations on Movement
MDRO	Multi-drug Resistant Organism
MOU	Memoranda of Understanding
MRSA	Methicillin-Resistant <i>Staphylococcus aureus</i>
NFPA	National Fire Protection Agency
NIOSH	National Institute for Occupational Safety and Health
OAC	Ohio Administrative Code
ODH	Ohio Department of Health
ODRS	Ohio Disease Reporting System
ONG	Ohio National Guard
ORC	Ohio Revised Code
OSHA	Occupational Safety and Health Administration
PAPR	Powered Air Purifying Respirator
PE	Protective Environment
PPE	Personal Protective Equipment
SARS	Severe Acute Respiratory Syndrome
SHEA	Society for Healthcare Epidemiology of America
TB	Tuberculosis
VISA	Vancomycin Intermediate <i>Staphylococcus aureus</i>
VRE	Vancomycin-Resistant <i>Enterococcus</i>

## **APPENDIX H**

### **Preparedness Checklist for Community Containment Measures**

#### **General**

- Establish an incident command structure.
- Establish a legal preparedness plan.
- Establish relationships with partners, such as law enforcement, first responders, healthcare facilities, and the legal community.
- Plan to monitor and assess factors that will determine the types and levels of response, including the epidemiologic profile of the outbreak, available local resources and level of public acceptance and participation.
- Develop communication strategies for the public, government decision makers, healthcare and emergency response providers, and the law enforcement community.

#### **Management of Cases and Contacts (including quarantine)**

- Develop protocols, tools, and databases for:
  - Case surveillance
  - Clinical evaluation and management
  - Contact tracing, monitoring, and management
  - Reporting criteria
- Develop standards and tools for home and non-hospital isolation and quarantine.
- Establish supplies for non-hospital management of cases and contacts.
- Establish a telecommunication plan for “hotlines” or other services for:
  - Case and contact monitoring and response
  - Fever/symptom triage
  - Public information
  - Provider information
- Plan to ensure provision of essential services and supplies to persons in isolation and quarantine, including:
  - Food and water
  - Shelter
  - Medicines and medical consultations
  - Mental health and psychological support services
  - Other supportive services (e.g. day care)
  - Transportation to medical treatment, if required
- Plan to address issues of financial support, job security, and prevention of stigmatization.

#### **Non-hospital Based Isolation Cases**

- Identify appropriate community based facilities for isolation of patients who have no substantial healthcare requirements.
- Develop policies related to use of these facilities.
- Identify facilities for persons for whom home isolation is indicated but who do not have access to an appropriate home setting, such as travelers and homeless populations.
- Ensure that required procedures for assessment of potential isolation or quarantine sites are available and up-to-date.

#### **Community Containment Measures**

- Ensure that legal authorities and procedures are in place to implement the various levels of movement restrictions as necessary.

- Identify key partners and personnel for the implementation of movement restrictions, including quarantine, and the provision of essential services and supplies:
  - Law Enforcement
  - First Responders
  - Other government service workers
  - Utilities
  - Transportation industry
  - Local businesses
  - Schools and School Boards
- Develop training programs and drills.
- Ensure fit-testing and training in PPE for responders and providers as necessary.
- Develop plans for the mobilization and deployment of public health and other community service personnel.

From: [www.cdc.gov/ncidod/sars](http://www.cdc.gov/ncidod/sars)

**APPENDIX I**  
**Sample Home Isolation Agreement/Order**

To: \_\_\_\_\_ Address: \_\_\_\_\_

The Ohio Department of Health ("the Department") has clear and convincing reason to suspect that you are infected with the contagious disease of \_\_\_\_\_. If in fact you are infected with this disease you pose a substantial threat to the health of the public. In order to prevent transmission of this contagious disease, the Department orders that you be placed in isolation in accordance with section 3701.13 of the Ohio Revised Code. Unless these precautions are taken, others may contract this infection.

Realizing this danger you must hereby agree to the following:

- Remain in home isolation for a period of \_\_\_\_ days after symptoms have resolved.
- You shall be isolated at the following location:

Street address: \_\_\_\_\_

City: \_\_\_\_\_ County: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ Date \_\_\_\_\_

Further isolation instructions:

- You have been educated about the disease, the reasons for isolation in the home, and the length of time you can expect to be confined to the home.
- You shall limit all activities and interactions with persons living outside of your home. You shall not go to school, church, work, out-of-home day care, stores or other public areas. Friends and relatives shall be informed not to visit you home until further notice.
- You shall have a separate bed and, if possible, a separate bedroom.
- You shall wear a surgical mask when in the same room with non-infected persons. If you cannot wear a surgical mask, others in the same room will be asked to wear a surgical mask. This mask will be changed if it becomes damp. (Healthcare workers will cross out this action if the disease is not spread by the respiratory route).
- You shall cover your nose and mouth with a disposable tissue when coughing or sneezing. Disposable tissues will be disposed of in a plastic or paper bag.
- You and others living in the same household will wash your hands with soap and water after contact with respiratory secretions (lung and nasal), blood and all other body fluids (e.g., urine, feces, wound drainage, etc.).
- All members of the household will wear gloves on both hands when they have contact with any secretions. Alcohol based hand hygiene products may be substituted for hand washing with soap and water, after removing gloves, **IF** the hands are not visibly soiled with material. Gloves will not be reused.
- Eating and drinking utensils will be washed with hot soapy water, and allowed to dry by air (dishwashers are acceptable). You will not share utensils while eating or drinking.

- Environmental surfaces in the kitchen, bathroom and the infected patient's bedroom will be cleaned and disinfected with a household disinfectant, such as household bleach, while wearing gloves, at least daily and when soiled with any secretions or body fluids. Use manufacturer recommendations.
- Bed linens, towels and personal clothing shall not be shared with other members of the household. Clothes and linens will be washed in a washing machine with appropriate laundry products and dried in the dryer. Keep linen away from your body while carrying the linen. Either warm or cool water can be used.
- Household waste, including surgical masks and disposable tissues can be disposed of as normal household waste.
- Household members or other close contacts that develop symptoms must seek medical attention to prevent transmission. This contact can be the physician office, clinic or hospital emergency department and the department should be contacted prior to arrival.
- You must adhere to any additional recommendations and instructions from the local health department that may be listed below:

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You or your legal guardian may contact the following local health department representative to seek relief from, or seek clarification of, any part of this agreement.

\_\_\_\_\_  
(Name of Local Health Department contact person)

\_\_\_\_\_  
(Daytime Telephone)

**Agreement:**

\_\_\_\_\_  
(Last) (First)  
(Signature of Case/Suspected Case or legal guardian)

\_\_\_\_\_  
(Date)

If you leave the place of isolation designated above without the prior consent of the Department, action will be taken as authorized under section 3701.56 of the Ohio Revised Code to have you taken into custody by law enforcement officials and returned to the place of isolation. If you object to this order of isolation you may request a hearing in the court of common pleas, probate division, of the county in which you reside.

**Witness:**

I hereby certify that this order was served in-hand to the above named individual on \_\_\_\_\_, at \_\_\_\_\_ a.m./p.m.

\_\_\_\_\_  
(Signature of Local Health Department Representative)

\_\_\_\_\_  
(Date)

(Adapted from the California Dept. of Health Services)

## SAMPLE ORDER OF QUARANTINE

To: \_\_\_\_\_ Address: \_\_\_\_\_

Date \_\_\_\_\_

The Ohio Department of Health ("the Department") has Clear and convincing reason to suspect that you have come in contact with a person who has a contagious disease and, hence, that you may have or develop this disease. Specifically, you are suspected of having come into contact with a person who has \_\_\_\_\_. If you were to have this disease you would pose a substantial threat to the health of the citizenry. In order to prevent transmission of this contagious disease, the Department orders that you be placed in quarantine in accordance with section 3701.13 of the Ohio Revised Code. The location where you are to be quarantined is \_\_\_\_\_. The Department considers this the least restrictive clinically appropriate place of quarantine given the nature of the disease with which you may have come into contact. During this period you may be required to undergo a medical exam and bodily specimens may be required for analysis.

This order will be in effect until you are deemed non-contagious by the Department and therefore do not pose a substantial threat to the health of the public. It is anticipated that you will need to be quarantined for at least \_\_\_\_\_ days to verify whether or not you have a contagious disease.

If you leave the place of quarantine designated above without the prior consent of the Department, action will be taken as authorized under section 3701.56 of the Ohio Revised Code, to have you taken into custody by law enforcement officials and returned to the place of quarantine.

If you object to this order of quarantine you may request a hearing in the court of common pleas, probate division, of the county in which you reside. Any questions regarding this order may be directed to \_\_\_\_\_.

I hereby certify that this order was served in-hand to the above-named individual on (date) \_\_\_\_\_ at \_\_\_\_\_ a.m./p.m.

\_\_\_\_\_  
Signature of Commissioner or Designee

(Adapted from New Hampshire document)

**Ohio Health Commissioner's Isolation/Quarantine Draft**  
[Draft Local Board of Health Regulation Relating to Delegation of Authority  
to Isolate or Quarantine]

**PREAMBLE: {The September 11, 2001, terrorist attacks and the anthrax incidents following in the wake of those terrorist events indicate that local, state, and federal personnel, including local public health officials, are often required to respond quickly and in a coordinated manner to emergency situations. This is especially true for local public health officials in the case of a bioterrorism event since they are expected to provide initial leadership and direction to the local community until state and federal resources can be mobilized. In a bioterrorism event, the ability of local public health officials to act in a swift and decisive manner, without delay, can quite literally be the difference between life and death. If circumstances have rendered a meeting of the Board of Health impractical or impossible, and/or delaying action until a meeting of the Board would compromise the public health, the Health Commissioner must be authorized to act on the Board's behalf. With this in mind, the Board of Health has determined that this Regulation is necessary to protect the public health and to ensure a swift and timely response to a bioterrorism or other emergency public health event.}**

Whereas, **the Board of Health has primary authority to enforce the provisions of sections 3707.04 to 3707.32 of the Revised Code regarding quarantine and isolation; and**

Whereas, section 3707.34 of the Revised Code authorizes the Health Commissioner to act on behalf of the Board of Health in administering the provisions of sections 3707.04 to 3707.32 of the Revised Code regarding quarantine and isolation, if the Health Commissioner acts pursuant to a policy adopted by the Board of Health; and

Whereas, by enacting this Regulation, it is the intent of the Board of Health to adopt such a policy; and

Whereas, **the Board of Health specifically finds that this Regulation is necessary for the protection of the health of the people of the community in the event of a bioterrorism or other emergency public health event; and**

Whereas, **the Health Commissioner is the executive officer of the Board of Health and is authorized and required to carry out all orders of the Board, including the enforcement of all local regulations enacted by the Board.**

Now Therefore it is Hereby Enacted by the Board of Health That:

- a. Definition of Public Health Emergency. As used in this Regulation, the term “public health emergency” shall mean an occurrence or imminent threat of an illness or health condition that (a) is believed to be caused by any of the following: (1) bioterrorism; (2) any of the reportable diseases classified as “Class A diseases” by Section 3701-3-02 (A)(1) of the Ohio Administrative Code; (3) the appearance of a novel or previously controlled or eradicated infectious agent or biological toxin; or (4) a natural disaster, a chemical attack or accidental release, or a nuclear attack or accident; and (b) poses a high probability of any of the following harms: (1) a large number of deaths in the affected population; (2) a large number of serious or long-term disabilities in the affected population; or (3) widespread exposure to an infectious or toxic agent that poses a significant risk of substantial future harm to a large number of people in the affected population.
- b. Necessary Findings of Health Commissioner. In order for the provisions of this Regulation to take effect, the Health Commissioner must make a finding that: (a) an immediate threat to the public health exists; (b) circumstances have rendered a meeting of the Board of Health to be impractical or impossible; and/or (c) delaying action until a meeting of the Board of Health would compromise the public health. The Health Commissioner may, but is not required to, make a further finding that a public health emergency exists. The Health Commissioner shall immediately notify the President of the Board of Health and the Director of the Ohio Department of Health that the Health Commissioner has made such findings. The Health Commissioner may also notify other individuals and/or entities that he deems appropriate.
- c. Scope of Delegation. Upon the Health Commissioner making the necessary findings enumerated in Section II of this Regulation, the provisions of this Regulation shall become effective immediately. In such a case, the Health Commissioner is hereby delegated all the authority possessed by the Board of Health in enforcing the provisions of sections 3707.04 to 3707.32 of the Revised Code regarding quarantine and isolation. The Health Commissioner is hereby authorized to act on behalf of the Board of Health in these matters, and any actions taken by the Health Commissioner in accordance with this Regulation shall be considered actions taken by the Board until the Board votes either to ratify or nullify the Health Commissioner’s actions.
- d. Protection of Persons. Where an immediate threat to the public health exists, or, during the declared state of public health emergency, the Health Commissioner shall use every available means to prevent the transmission of infectious disease and to ensure that all cases of contagious disease are subject to proper control and treatment including, but not limited to the following: (a) physical examinations and/or tests as necessary for the diagnosis or treatment of individuals; (b) vaccinations of persons as protection against infectious disease and to prevent the spread of contagious or possibly contagious disease; and/or (c) treatment of persons exposed to or infected with disease. The refusal of any person to submit to a physical examination, or to be vaccinated, or to be treated, shall be grounds for quarantine or isolation of that person pursuant to the provisions of this Regulation.

- e. Authorization to Isolate and Quarantine. Where an immediate threat to the public health exists, or, a declared **state of public health emergency, the Health Commissioner may isolate or quarantine an individual or groups of individuals. This authorization includes the isolation or quarantine of individuals or groups who have not been vaccinated, treated, tested, or examined pursuant to section IV of this Regulation. The Health Commissioner may also establish and maintain places of isolation and quarantine, and set rules and make orders.**
- f. Quarantine/Isolation Procedures. – **The Health Commissioner shall use the following procedures in isolating or quarantining individuals or groups of individuals:**
  - a. When, in the opinion of the Health Commissioner, it is necessary to isolate or quarantine an individual or group of individuals, the Health Commissioner shall inform the individual or group of individuals of his/her determination, and may issue an order compelling the individual or group to comply with the isolation or quarantine.
  - b. If the Health Commissioner determines that delay in imposing the isolation or quarantine would significantly jeopardize his/her ability to prevent or limit the transmission of a contagious or possibly contagious disease to others, the isolation or quarantine order may provide for the immediate removal of the individual or group of individuals to a place of isolation or quarantine. Such order shall automatically expire 72-hours after service of the order unless specifically extended or renewed by the Board of Health, the Director of the Ohio Department of Health, or a court of law.
  - c. If the individual or group of individuals fails to comply with any isolation or quarantine order of the Health Commissioner, the Health Commissioner may apply to the appropriate court for an injunction to mandate compliance with the order. If the Health Commissioner has determined that delay in imposing the isolation or quarantine would significantly jeopardize his/her ability to prevent or limit the transmission of a contagious or possibly contagious disease to others, the Health Commissioner may request that the court issue an injunction without granting the individual or group of individuals an opportunity for a prior hearing, or that the court hold an expedited hearing on the matter.
  - d. **If an individual or group of individuals fails to comply with the court's injunction, the Health Commissioner may request that the court issue an order under which the Health Commissioner is granted the authority to isolate or quarantine the individual or group of individuals in a place of quarantine or isolation until such a time as the individual or group no longer poses a threat to the public health.**

VII. Expiration/Renewal of Authority Granted by Regulation. The authority delegated to the Health Commissioner under this Regulation shall continue until the earlier of: **(a) a finding by the Health Commissioner that such delegation of authority is no longer necessary;** or (b) the holding of a regular or special meeting of the Board of Health; or (c) upon the specific determination of the Director of the Ohio Department of Health that such delegation of authority is no longer necessary. The Board of Health may elect to renew or extend the authority delegated to the Health Commissioner pursuant to this Regulation, for as long as the Board deems necessary in order to protect the public health.

**VIII. Penalties.** Section 3707.48 of the Ohio Revised Code states that no person shall violate sections 3707.01 to 3707.53, inclusive, of the Revised Code, or any order or regulation of the board of health of a city or general health district made in pursuance thereof, obstruct or interfere with the execution of such order, or willfully or illegally omit to obey such order. Section 3707.99(B) of the Ohio Revised Code states that whoever violates section 3707.48 of the Revised Code is guilty of a minor misdemeanor on a first offense; and on each subsequent offense such person is guilty of a misdemeanor of the fourth degree

**APPENDIX J**

**(logo or stationery)**

**Sample Fever & Symptom Log – Daily**

Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_

Since you may have had an exposure to \_\_\_\_\_, you need to monitor your temperature twice a day and symptoms for \_\_\_\_\_ days after your last exposure. The exact dates are \_\_\_\_\_. You have been provided this chart and a mask.

The attached chart is to record your temperature daily and any symptoms, should they occur. If you develop a fever greater than 100.4°F, or any symptoms:

- You will be referred for medical examination
- You may be asked to wear a mask over your face

You will be contacted daily to monitor your temperature and symptoms. If you have any questions, please contact \_\_\_\_\_ at \_\_\_\_\_.

You may wish to enter your health care provider's name and telephone below for easy reference should you become ill.

Health Care Provider: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

### Sample Fever & Symptom Log – Daily

You will be asked daily if you have experienced the following symptoms in the last 24 hours. Indicate “Y” for Yes and “N” for No

Date	_/_/_	_/_/_	_/_/_	_/_/_	_/_/_	_/_/_	_/_/_	_/_/_	_/_/_	_/_/_
Medications taken today*	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
If yes, list:										
Muscle Aches	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Malaise**	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Headache	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Diarrhea	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Cough	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Shortness of Breath	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Sore Throat	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Morning Temperature	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F
Evening Temperature	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F	_ °F
Other Symptoms/Comments										

\*List “medications taken today.” Be sure to include aspirin, Tylenol, Advil, etc. or steroids.

\*\*“Malaise” is described as general feeling of being unwell, tired, fatigued, low appetite, &/or lack of energy

## APPENDIX K Home Isolation Assessment Tool

Person Conducting Assessment:		Date of Assessment:
Patient Name	DOB:	Case ID #
Home Address:		E-mail:
Phone: home	Cell:	Other:
Case Classification	Language	Interpreter Needed? <input type="checkbox"/>

### Section A. Minimum Requirements for Home Isolation

- |   | Y                        | N                        |
|---|--------------------------|--------------------------|
| 1. Is the patient able to understand and adhere to the following infection control measures?  |                          |                          |
| a. Hand washing?  | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Use of mask and gloves?  | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Method to take temperature and read thermometer?   | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Proper handling of soiled laundry & contaminated wastes?   | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Proper laundering of clothes?  | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Cleaning of environment?   | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Proper cleaning of dishes?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Does the patient's home have the following features?   |                          |                          |
| a. Telephone?   | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Electricity?   | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Potable water (including hot water)?   | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Heat?  | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Separate bedroom for use by infected patient only?   | <input type="checkbox"/> | <input type="checkbox"/> |
| f. In a multiple family dwelling, is there separate air handling?   | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Accessible bathroom with sink and commode?   | <input type="checkbox"/> | <input type="checkbox"/> |
| h. Waste and sewage disposal (septic tank, community sewage line)?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Does the patient have a means for washing clothes (i.e., washer in home or another individual to take laundry to an outside facility)? | <input type="checkbox"/> | <input type="checkbox"/> |

4. Is there a person (inside or outside the home) or service that will supply the patient with needed supplies and services such as grocery delivery, banking, medications and other personal supplies? Name of person or service □ □
5. Does the patient have household members who are unable to independently care for them (e.g., children, disabled)? □ □
6. If the answer to #5 is yes is there someone, other than the patient, who is available to provide care for those individuals? □ □
7. Does the patient require a caregiver while in home isolation? □ □
8. If the answer to #7 is YES, is the available caregiver someone who does not have high risk complications (e.g., chronic heart or lung conditions, diabetes, immunosuppressed)? □ □
9. Caregiver contact information: Phone home: \_\_\_\_\_ Cell \_\_\_\_\_  
 Pager \_\_\_\_\_ E-mail \_\_\_\_\_

**Section B. Other Needs to Consider:** (evaluate and respond to these factors on a case-by-case basis)

- |  | <b>Y</b> | <b>N</b> |
|--|----------|----------|
| 1. Does the patient have a 2-day supply of the following items?  |          |          |
| a. Dishwashing soap?   | □        | □        |
| b. Plastic garbage bags?   | □        | □        |
| c. Laundry soap?   | □        | □        |
| d. Household disinfectants for cleaning?   | □        | □        |
| 2. Does the patient have access to mental health support & social resources  | □        | □        |
| 3. Does the patient have social diversions (e.g., TV, radio, reading materials?) to occupy them while isolated at home?          | □        | □        |
| 4. Has the caregiver and other household members been given isolation information and has it been reviewed by these individuals? | □        | □        |
| 5. Has the patient received educational material on disease process and isolation?   | □        | □        |

**Section C. Household Contacts:**

The number of household members remaining in the home during isolation should be limited to those needed for support of the patient whenever possible. If household members cannot be relocated, the suitability of the home environment for isolating patients depends on several factors, and should be made on a case-by-case basis. Those persons remaining in the home should limit patient contact and be able to follow infection control precautions. Persons with compromised immune systems and persons who require/cannot avoid close contact with the infected patient are at higher risk of acquiring infection. Some persons (i.e., those with diabetes or chronic heart or lung conditions) are at higher risk of complications if they develop infection.

Name/relationship	Age (yrs)	Will contact remain in same home as patient?	Is contact immunosuppressed, have DM, heart or lung condition?	Special needs/comments
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

**Section D. Final Steps**

**Check when provided/done**

- 1.) Home infection control starter kit (7 day supply of thermometers, gloves, masks, alcohol-based hand gel, soap for washing, facial tissues)
- 2. Voluntary isolation order/letter given

**Section E. Public Health Assessment and Recommendation**

Home Isolation      Name and relationship of caregiver \_\_\_\_\_  NA

Isolation in an alternative facility

Name of Facility \_\_\_\_\_ phone # \_\_\_\_\_

Reasons for not recommending home isolation

**Disposition:**

- Patient agrees to adhere to isolation recommendation
- Patient refuses to adhere

Date of next follow-up assessment:

(Adapted from Seattle & King County)

## **APPENDIX L**

### **Principles of Modern Quarantine**

A quarantine would be utilized when a person or group of people have been exposed to a highly dangerous and contagious disease. Whatever degree of restriction of movement is put into place, the local health district must be able to provide both essential services and care to those in quarantine.

#### **Suggested Strategies of Quarantine:**

- Short term, voluntary home curfew.
- Suspension or restriction on group assembly.
- Cancellation of public events.
- Closure of mass public transit.
- Restriction of Travel.
- “Snow days” or “shelter in place”.
- Cordon sanitaire (sanitary barrier erected around the area).

#### **Ways to Increase Effective Social Distance**

- Implement “Snow Day” restrictions.
  - Close schools, daycare centers, etc.
  - Cancel large public gatherings.
  - Minimize other exposures (markets, churches, public transportation).
- Encourage non-essential workers to stay home.
  - Telecommuting can minimize economic impact.
- Consider additional measures.
  - Distribution of surgical masks.
  - Scaling back transportation services (holiday schedule).

#### **Advantages of “Snow Day” Approach**

- It’s intuitive.
- Leverages the public’s instinct for self preservation.
  - Cordon sanitaire conflicts with this interest.
- Can be implemented instantaneously.
- Does not require similar level of dedicated resources as full-scale quarantine.

#### **Modern Quarantine is used in combination with other interventions.**

- Enhanced disease surveillance and symptom monitoring.
- Rapid diagnosis and treatment for those who become ill.
- Preventive interventions, including vaccination or prophylactic antibiotics.
- Quarantined persons must be the first to receive all available disease-preventing interventions.

#### **Modern quarantine lasts only as long as necessary to ensure that quarantined persons do not become ill.**

- Maximum quarantine duration is related to the incubation period of the disease.
- Due process rights must be afforded to those subjected to quarantine restrictions.

#### **Modern quarantine does not have to be absolute to be effective.**

- Even partial or “leaky” quarantine can reduce disease spread
- Partial quarantine can be an effective supplement to vaccination

#### **Modern quarantine is more likely to involve small numbers of exposed persons in small areas.**

- Exposed persons on conveyance containing ill passengers
- Exposed persons in a theater where an intentional release has been announced
- Close contact to a person with smallpox whose source of exposure is unknown

**Implementation of quarantine requires coordinated planning by many partners:**

- Public health practitioners
- Health care providers
- Transportation authorities
- Emergency response teams
- Law enforcement
- Security/Credentials for personnel

Implementation of modern quarantine requires trust and participation of the general public. The public must be informed of the dangers or quarantinable diseases before a bioterrorist event occurs. They must also be informed of the justifications for quarantine when an event is in progress. (Simone, Patricia 2003)

## **APPENDIX M**

### **Frequently Asked Questions about Quarantine**

#### **If an influenza pandemic occurs, will my community be quarantined?**

Community-wide quarantine is only one of a spectrum of actions that may be considered during an influenza pandemic in the United States. Although rapid control is likely to require bold and swift action, measures that are less drastic than legally enforced quarantine may suffice, depending on the epidemiologic characteristics of the pandemic. For example, active monitoring without activity restrictions may be adequate when most cases are either imported or have clear epidemiologic linkages at the time of initial evaluation. When the epidemiology of the outbreak indicates a need for stronger measures, jurisdictions can adopt a voluntary quarantine approach and reserve compulsory measures for only extreme situations. When an outbreak progresses to include large numbers of cases for which no epidemiologic linkages can be identified, community level interventions may become necessary. Even at this stage, however, measures designed to increase social distance, such as snow days, may be preferred alternatives to quarantine. Wider use of quarantine is generally reserved for situations in which all other control measures are believed to be ineffective. The choice of containment measures requires frequent and ongoing assessment of an outbreak and evaluation of the effectiveness of existing control measures. Officials must be prepared to make decisions based on limited information and then modify those decisions as additional information becomes available.

#### **Does the effectiveness of containment measures require 100% compliance?**

No. Containment measures, including quarantine, are effective even if compliance is less than 100%. Although health officials should strive for high compliance, even partial or “leaky” quarantine can reduce transmission. Therefore, strict enforcement is not always needed; in most cases, jurisdictions can rely on voluntary cooperation. The incremental benefit of quarantine approaches a maximum at a compliance rate of approximately 90%, with little additional benefit from higher rates of compliance. Therefore, containment measures can be important components of the response to a communicable disease outbreak even when compliance is not 100%.

#### **Does “quarantine” always mean using a legal order to restrict someone’s activity?**

No. The term “quarantine” is often defined narrowly to refer to the legally mandated separation of well persons who have been exposed to a communicable disease from those who have not been exposed. Although the precise legal definition of quarantine may differ from jurisdiction to jurisdiction, when used clinically or programmatically, quarantine may be defined more broadly to include all interventions, both mandatory and voluntary, that restrict the activities of persons exposed to a communicable disease. Therefore, whenever an exposed person is placed under a regimen of monitoring that includes an activity restriction, even when those restrictions are voluntary, the person is said to be under quarantine.

#### **Must quarantine be mandatory to be effective?**

Although the federal government and nearly all states have the basic legal authority to place persons exposed to certain communicable diseases under quarantine and enforce the required restrictions on activity, use of this authority may not always be necessary or practical. Previous experiences with the use of quarantine, including those during the 2003 SARS outbreak, suggest that the majority of persons comply voluntarily with requests from health authorities to remain in quarantine and observe the recommended activity restrictions. In the event voluntary measures are not successful, it may be necessary to implement mandatory containment measures. The choice of containment measures requires frequent and ongoing assessment of an outbreak and evaluation of the effectiveness of existing control measures. Officials must be prepared to make decisions based on limited information and then modify those decisions as additional information becomes available.

#### **Does being placed in quarantine increase a person’s risk for acquiring disease?**

One of the fundamental principles of modern quarantine is that persons in quarantine are to be closely monitored so that those who become ill are efficiently separated from those who are well. A second principle is that persons in quarantine should be among the very first to receive any available disease-prevention interventions. Adherence to these two principles of modern quarantine should prevent an increase in risk for acquiring disease while in quarantine.

**Is quarantine really necessary if everyone who develops symptoms is rapidly placed in isolation?**

Although theoretically true, it would be unrealistic to believe that even the most efficient system for initiation of isolation will minimize delays to the extent required to prevent transmission. Among the factors contributing to delays in recognition of symptoms are the insidious nature of disease onset and denial that symptoms have developed. Early in the 2003 SARS outbreak in Singapore, the average delay from onset of symptoms to initiation of isolation was 7 days. Officials were able to reduce this delay only to 3 days, even with an aggressive public awareness campaign on the importance of symptom recognition and isolation. Quarantine helps to reduce transmission associated with delays in isolation in two ways. First, quarantine enables health officials to quickly locate symptomatic persons who should be placed in isolation. Second, although quarantine locations may not be as efficient as isolation facilities in preventing transmission, quarantine reduces the number of persons who might be exposed while awaiting transfer to an isolation facility. If quarantine was not used, symptomatic and infectious persons could move about freely in public places, potentially exposing large numbers of additional persons and thereby fueling the outbreak.

**Is quarantine useful only for diseases that are spread by the airborne route?**

No. Quarantine simply refers to the separation and restriction of activity of persons exposed to a communicable disease who are not ill. It is designed to minimize interactions between those exposed to a disease and those not yet exposed. As such, quarantine can be used for any disease that is spread from person-to-person. In practice, however, because of the activity restrictions associated with quarantine, the intervention is generally reserved for diseases like SARS or pandemic influenza that are easily and rapidly spread from person-to-person. The indication for quarantine for diseases purely transmitted by the airborne route is clear. However, this tool can also be useful where transmission can occur through close personal contact with secretions or objects contaminated by an ill person. Smallpox is an excellent example of a disease where quarantine can be effective in controlling spread although transmission may occur by means other than the airborne route.

**Will the public accept the use of quarantine?**

Yes. The negative connotations associated with quarantine likely stem from its misuse or abuse in the past. Although inappropriate use of quarantine, either voluntary or mandatory, would not and should not be accepted by the public, efforts should be made to gain public acceptance when use of this measure is indicated. Experiences with the use of quarantine during the SARS outbreaks of 2003 suggest that public acceptance of quarantine may be greater than previously thought. For example, during the 2003 SARS outbreak in Canada, almost all persons asked to observe quarantine restrictions did so willingly, with only a small number requiring a legal order to gain cooperation. In all cases, cooperation and acceptance was achieved through clear and comprehensive communication with the public about the rationale for use of quarantine.

<http://www.hhs.gov/pandemicflu/plan/pdf/s08.pdf>

## **Where can I get further information about isolation and quarantine?**

Barbara, Joseph. "Large Scale Quarantine Following Biological Terrorism in the United States. Scientific Examination, Logistic and Legal Limits, and Possible Consequences." *JAMA*. December 5, 2001, 28(21): 2711-2717.

Centers for Disease Control and Prevention (CDC website): [www.cdc.gov/ncidod/dq/](http://www.cdc.gov/ncidod/dq/).

Centers for Disease Control and Prevention Interim Guidance for Managing Patients with Suspected Viral Hemorrhagic Fever in U.S. Hospitals, May 19, 2005.

PBS documentary on Typhoid Mary: [www.pbs.org/wgbh/nova/typhoid/](http://www.pbs.org/wgbh/nova/typhoid/).

## **APPENDIX N**

### **Recommendations for Quarantine**

#### **General considerations**

- Monitor each quarantined person daily, or more frequently if feasible, for fever, respiratory symptoms, and other symptoms of early influenza disease.
- Monitor compliance with quarantine through daily visits or telephone calls.
- Provide a hotline number for quarantined persons to call if they develop symptoms or have other immediate needs.
- If a quarantined person develops symptoms suggestive of influenza, arrangements should be in place for separating that person from others in quarantine and ensuring immediate medical evaluation.
- Provide persons in quarantine with all needed support services, including 1) psychological support, 2) food and water, 3) household and medical supplies, and 4) care for family members who are not in quarantine. Financial issues, such as medical leave, may also need to be considered.
- Collect data related to quarantine activities to guide ongoing decision-making including information on each person quarantined:
  - Relationship to the case-patient
  - Nature and time of exposure
  - Whether the contact was using PPE or was vaccinated or on antiviral prophylaxis (if applicable)
  - Underlying medical conditions
  - Number of days in quarantine
  - Symptom log
  - Basic demographics
  - Compliance with quarantine
- Based on current available data, the recommended duration of quarantine for influenza is generally 7 days from the time of exposure. (This period may be adjusted based on available information during a pandemic.) At the end of the designated quarantine period, contacts should have a final assessment for fever and respiratory symptoms. Persons without fever or respiratory symptoms may return to normal activities.

#### **Home quarantine**

Whenever possible, contacts should be quarantined at home. Home quarantine requires the fewest additional resources, although arrangements must still be made for monitoring patients, reporting symptoms, transporting patients for medical evaluation if necessary, and providing essential supplies and services. Home quarantine is most suitable for contacts with a home environment that can meet their basic needs and in which unexposed household members can be protected from exposure. Other considerations include:

- Persons in home quarantine must be able to monitor their own symptoms (or have them monitored by a caregiver).
- The person's home should be evaluated for suitability before being used for quarantine, using a questionnaire administered to the quarantined person or the caregiver. Quarantined persons should minimize interactions with other household members to prevent exposure during the interval between the development and recognition of symptoms. Precautions may include 1) sleeping and eating in a separate room, 2) using a separate bathroom, and 3) appropriate use of personal protective equipment.
- Persons in quarantine may be assessed for symptoms by either active or passive monitoring. Active monitoring of contacts in quarantine may overcome delays resulting from the insidious onset of symptoms or denial among those in quarantine.

- Household members may go to school, work, etc., without restrictions unless the quarantined person develops symptoms. If the quarantined person develops symptoms, household members should remain at home in a room separate from the symptomatic person and await additional instructions from health authorities.
- Household members can provide valuable support to quarantined persons by helping them feel less isolated and ensuring that essential needs are met.
- Immediate and ongoing psychological support services should be provided to minimize psychological distress.
- Quarantined persons should be able to maintain regular communication with their loved ones and healthcare providers.

### **Quarantine in designated facilities**

In some cases, affected persons may not have access to an appropriate home environment for quarantine. Examples include travelers; persons living in dormitories, homeless shelters, or other group facilities; and persons whose homes do not meet the minimum requirements for quarantine. In other instances, contacts may have an appropriate home environment but may not wish to put family members at risk. In these situations, health officials should identify an appropriate community-based quarantine facility. Monitoring of quarantined persons may be either passive or active, although active monitoring may be more appropriate in a facility setting. Facilities designated for quarantine of persons who cannot or choose not to be quarantined at home should meet the same criteria listed for home quarantine. Evaluation of potential sites for facility-based quarantine is an important part of preparedness planning

### **Working quarantine**

This type of quarantine applies to healthcare workers or other essential personnel who are at occupational risk of influenza infection. These groups may be subject to quarantine either at home or in a designated facility during off-duty hours. When off duty, contacts on working quarantine should be managed in the same way as persons in quarantine at home or in a designated facility. Local officials should:

- Monitor persons in working quarantine for symptoms during work shifts
- Promptly evaluate anyone who develops symptoms
- Provide transportation to and from work, if needed
- Develop mechanisms for immediate and ongoing psychological support

At the end of the designated quarantine period, contacts should receive physical (fever and respiratory symptoms) and psychological health assessments. Persons without fever or respiratory symptoms may return to normal activities. Persons who exhibit psychological distress should be referred to mental health professionals for additional support services.

(United States Department of Health and Human Services Pandemic Influenza Plan, November 2005: [http://www.hhs.gov/pandemicflu/plan/.](http://www.hhs.gov/pandemicflu/plan/))

## **APPENDIX O**

### **Isolation in a Community-Based Facility**

When persons requiring isolation cannot be accommodated either at home or in a healthcare facility, a community-based isolation facility will be required. The availability of a community-based facility will be particularly important during a large outbreak (See also <http://www.ahrq.gov/research/altsites.htm> ).

Much of the work in identifying and evaluating potential sites for isolation should be conducted in advance of an outbreak as part of preparedness planning. Each jurisdiction should assemble a team (including infection control specialists, public health authorities, engineers, sanitation experts, and mental health specialists) to identify appropriate locations and resources for community influenza isolation facilities, establish procedures for activating them, and coordinate activities related to patient management. The team should consider the use of both existing and temporary structures. Options for existing structures include community health centers, nursing homes, apartments, schools, dormitories, and hotels. Options for temporary structures include trailers, barracks, and tents. Considerations include:

Basic infrastructure requirements:

- Meets all local code requirements for a public facility
- Functioning telephone system
- Electricity
- Heating, ventilating, and air conditioning (HVAC)
- Potable water
- Bathroom with commode and sink
- Waste and sewage disposal (septic tank, community sewage line)
- Multiple rooms for housing ill patients (individual rooms are preferred)

Access considerations:

- Proximity to hospital
- Parking space
- Ease of access for delivery of food and medical and other supplies
- Handicap accessibility
- Basic security

Space requirements:

- Administrative offices
- Offices/areas for clinical staff
- Holding area for contaminated waste and laundry
- Laundry facilities (on- or off-site)
- Meal preparation (on- or off-site)

Social support resources:

- Television and radio
- Reading materials

To determine priorities among available facilities, consider these features:

- Separate rooms for patients or areas amenable to isolation of patients with minimal Construction
- Feasibility of controlling access to the facility and to each room
- Availability of potable water, bathroom, and shower facilities
- Facilities for patient evaluation, treatment, and monitoring
- Capacity for providing basic needs to patients
- Rooms and corridors that are amenable to disinfection
- Facilities for accommodating staff
- Facilities for collecting, disinfecting, and disposing of infectious waste
- Facilities for collecting and laundering infectious linens and clothing

- Ease of access for delivery of patients and supplies
- Legal/property considerations

Additional considerations include:

- Staffing and administrative support
- Training
- Ventilation and other engineering controls
- Ability to support appropriate infection control measures
- Availability of food services and supplies
- Ability to provide an environment that supports the social and psychological well-being of patients
- Security and access control
- Ability to support appropriate medical care, including emergency procedures
- Access to communication systems that allow for dependable communication within and outside the facility
- Ability to adequately monitor the health status of facility staff

## **QUARANTINE FACILITIES**

### **Home quarantine**

A person's residence is generally the preferred setting for quarantine. As with isolation, home quarantine is often least disruptive to a person's routine. Because persons who have been exposed to influenza may need to stay in quarantine for as long as 10 days (may be modified based on information about the virus), it is important to ensure that the home environment meets the individual's ongoing physical, mental, and medical needs. An evaluation of the home for its suitability for quarantine may be performed on site by a health official or designee.

However, from a practical standpoint, it may be more convenient to evaluate the residence through the administration of a questionnaire to the individual and/or the caregiver. Factors to be considered in the evaluation include:

- Basic utilities (water, electricity, garbage collection, and heating or air-conditioning as appropriate)
- Basic supplies (clothing, food, hand-hygiene supplies, laundry services)
- Mechanism for addressing special needs (e.g., filling prescriptions)
- Mechanism for communication, including telephone (for monitoring by health staff, reporting of symptoms, gaining access to support services and communicating with family)
- Accessibility to healthcare workers or ambulance personnel
- Access to food and food preparation
- Access to supplies such as thermometers, fever logs, phone numbers for reporting symptoms or accessing services and emergency numbers (these can be supplied by health authorities if necessary)
- Access to mental health and other psychological support services.

### **Quarantine in a community-based facility**

Although the home is generally the preferred setting for quarantine, alternative sites for quarantine may be necessary in certain situations. For example, persons who do not have a home situation suitable for this purpose or those who require quarantine away from home (e.g., during travel) will need to be housed in an alternative location. Because persons who have been exposed to influenza may require quarantine for as long as 10 days, it is important to ensure that the environment is conducive to meeting the individual's ongoing physical, mental and medical needs. Ideally, one or more community-based facilities that could be used for quarantine should be identified and evaluated as part of influenza preparedness planning. The evaluation should be performed on site by a public health official or designee. Additional considerations, beyond those listed above for home quarantine, include:

- Adequate rooms and bathrooms for each contact

- Delivery systems for food and other needs
- Staff to monitor contacts at least daily for fever and respiratory symptoms
- Transportation for medical evaluation for persons who develop symptoms
- Mechanisms for communication, including telephone (for monitoring by health staff, reporting symptoms, gaining access to support services and communicating with family)
- Adequate security for those in the facility

**Services for removal of waste.** No special precautions for removal of waste are required as long as persons remain asymptomatic.

(United States Department of Health and Human Services Pandemic Influenza Plan, November 2005: <http://www.hhs.gov/pandemicflu/plan/>.)

## APPENDIX P

### Terms and Definitions of Containment Measures

Community Based Measures to Increase Social Distance includes measures applied to whole neighborhoods, towns or cities (e.g. snow days, fever clinics, and community quarantine).

Containment Measures that Apply to Use of Specific Sites or Buildings include cancellation of public events (e.g., concerts, sports events, movies and plays), closure of office buildings, apartment complexes, or schools; and closure of subways or bus lines. These measures may also involve restricting entrance to buildings or other sites (e.g. requiring fever screening or use of face masks before entry to schools, work sites or airplanes).

Focused Measures to Increase Social Distance (or Decrease Social Contact) include measures applied to groups rather than individuals or whole communities (e.g. quarantine of groups of exposed persons and measures that apply to use of specific sites or buildings).

Individual-level Containment Measures include isolation of patients and management of their close contacts.

Influenza Clinics are special facilities that may be established during a pandemic to provide rapid medical assessment of potentially infected persons. Ill persons would be encouraged to call influenza hotlines that provide advice on whether to stay at home or seek help at an influenza clinic. Persons who come to an influenza clinic will be advised on whether they may be best served by hospital or home care.

Isolation is the separation and restriction of movement or activities of ill infected persons (patients) who have a contagious disease, for the purpose of preventing transmission to others.

Quarantine is the separation and restriction of movement or activities of persons who are not ill but who are believed to have been exposed to infection, for the purpose of preventing transmission of disease. Individuals may be quarantined at home or in designated facilities; healthcare providers and other response workers may be subject to quarantine when they are off duty.

Quarantine of Close Contacts refers to the quarantine of individuals exposed to patients with communicable diseases (e.g. family members, work or school mates, healthcare workers).

Quarantine of Groups of Exposed Individuals refers to quarantine of people who have been exposed to the same source of illness (e.g. a case of influenza at a public gathering, on an airline, train, or cruise ship, at a school or workplace or apartment complex, or at a recently visited store or office).

Self Shielding refers to self imposed exclusion from infected persons or those perceived to be infected (e.g., by staying home from work or school during an epidemic).

Snow Days are days on which offices, schools, transportation systems are closed or cancelled, as if there were a major snow storm.

Widespread or Community Wide Quarantine refers to the closing of community borders or the erection of a real or virtual barrier around a geographic area (i.e. *cordon sanitaire*) with prohibition of travel into or outside of the area.

## **APPENDIX Q**

### **CDC Explanation of Sheltering in Place**

#### **What “sheltering in place” means**

“Shelter in place” means to make a shelter out of the place you are in. It is a way for you to make the building as safe as possible to protect yourself until help arrives. You should not try to shelter in a vehicle unless you have no other choice. Vehicles are not airtight enough to give you adequate protection from chemicals.

Every emergency is different and during any emergency people may have to evacuate or to shelter in place depending on where they live.

#### **How to prepare to shelter in place**

Choose a room in your house or apartment for the shelter. The best room to use for the shelter is a room with as few windows and doors as possible. A large room with a water supply is best—something like a master bedroom that is connected to a bathroom. For chemical events, this room should be as high in the structure as possible to avoid vapors (gases) that sink. This guideline is different from the sheltering-in-place technique used in tornadoes and other severe weather and for nuclear or radiological events, when the shelter should be low in the home.

You might not be at home if the need to shelter in place ever arises, but if you are at home, the following items, many of which you may already have, would be good to have in your shelter room:

- First aid kit.
- Flashlight, battery-powered radio, and extra batteries for both.
- A working telephone.
- Food and bottled water. Store 1 gallon of water per person in plastic bottles as well as ready-to-eat foods that will keep without refrigeration in the shelter-in-place room. If you do not have bottled water, or if you run out, you can drink water from a toilet tank (not from a toilet bowl). Do not drink water from the tap.
- Duct tape and scissors.
- Towels and plastic sheeting. You may wish to cut your plastic sheeting to fit your windows and doors before any emergency occurs.

#### **How to know if you need to shelter in place**

Most likely you will only need to shelter for a few hours.

- If there is a “code red” or “severe” terror alert, you should pay attention to radio and television broadcasts to know right away whether a shelter-in-place alert is announced for your area.
- You will hear from the local police, emergency coordinators, or government on the radio and on television emergency broadcast system if you need to shelter in place.

#### **What to do**

Act quickly and follow the instructions of your local emergency coordinators such as law enforcement personnel, fire departments, or local elected leaders. Every situation can be different, so local emergency coordinators might have special instructions for you to follow. In general, do the following:

- Go inside as quickly as possible. Bring any outdoor pets indoors.

- If there is time, shut and lock all outside doors and windows. Locking them may pull the door or window tighter and make a better seal against the chemical. Turn off the air conditioner or heater. Turn off all fans, too. Close the fireplace damper and any other place that air can come in from outside.
- Go in the shelter-in-place room and shut the door.
- Turn on the radio. Keep a telephone close at hand, but don't use it unless there is a serious emergency.
- Sink and toilet drain traps should have water in them (you can use the sink and toilet as you normally would). If it is necessary to drink water, drink stored water, not water from the tap.
- Tape plastic over any windows in the room. Use duct tape around the windows and doors and make an unbroken seal. Use the tape over any vents into the room and seal any electrical outlets or other openings.
- If you are away from your shelter-in-place location when a chemical event occurs, follow the instructions of emergency coordinators to find the nearest shelter. If your children are at school, they will be sheltered there. Unless you are instructed to do so, do not try to get to the school to bring your children home. Transporting them from the school will put them, and you, at increased risk.
- Listen to the radio for an announcement indicating that it is safe to leave the shelter.
- When you leave the shelter, follow instructions from local emergency coordinators to avoid any contaminants outside. After you come out of the shelter, emergency coordinators may have additional instructions on how to make the rest of the building safe again.

### **How you can get more information about sheltering in place**

You can contact one of the following:

- ODH and local health jurisdictions in Ohio
- CDC's Bioterrorism Preparedness and Response Planning
  - Public Response Hotline
  - 800-CDC-INFO
  - 888-232-6348 (TTY)
  - Emergency Preparedness and Response Website
  - E-mail inquiries: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov)
  - Mail inquiries: Public Inquiry c/o Bioterrorism Preparedness and Response Planning, Centers for Disease Control and Prevention, Mailstop C-18, 1600 Clifton Road, Atlanta, GA 30333
- CDC's Agency for Toxic Substances and Disease Registry (ATSDR)
  - E-mail inquiries: [atsdric@cdc.gov](mailto:atsdric@cdc.gov)
  - Mail inquiries: Agency for Toxic Substances and Disease Registry, Division of Toxicology, Centers for Disease Control and Prevention, Mailstop E-29, 1600 Clifton Road NE, Atlanta, GA 30333

*This fact sheet is based on CDC's best current information. It may be updated as new information becomes available.*

*Last reviewed on 11/8/2004.*