Infection Control: Fatality Report

PREAMBLE

Pathogens

- Infection is caused by pathogens (‘bugs’) such as bacteria, viruses, protozoa or fungi getting into or onto the body.
- It can take some time before the microbes multiply enough to trigger symptoms of illness, which means an infected person may unwittingly be spreading the disease during this incubation period.

Infection Control

- Infection control in the workplace aims to prevent pathogens from coming into contact with a person in the first place.
- Employers are to provide a safe workplace for their employees, including the provision of adequate infection control procedures and the right equipment and training.

Transmission of infection

Infectious agents can be spread in a variety of ways, including:

- breathing in airborne germs – coughs or sneezes release airborne pathogens, which are then inhaled by others
- touching contaminated objects or eating contaminated food – the pathogens in a person’s faces may be spread to food or other objects, if their hands are dirty
- skin-to-skin contact – the transfer of some pathogens can occur through touch, or by sharing personal items, clothing or objects
- contact with body fluids – pathogens in saliva, urine, faces or blood can be passed to another person’s body via cuts or abrasions, or through the mucus membranes of the mouth and eyes.

Assumption of risk

The basis of good infection control in the workplace is to assume that everyone is potentially infectious. Proper procedures have to be followed at all times. Every workplace should have an appropriate first aid kit, with at least one staff member trained in first aid. Equipment such as gloves, gowns, eye goggles and face shields should be provided if necessary.

INCIDENT

Johns Hopkins School of Medicine researchers recommend that funeral home workers take the same precautions as medical workers to prevent transmission of the sometimes-fatal disease.

The 35-year-old dead man had AIDS as well as an active infection of tuberculosis, which is transmitted by tiny particles of respiratory secretions that can hang in the air for hours.

DNA fingerprinting established that the embalmer's TB came from the dead man, said researcher Dr. Timothy Sterling.

During embalming, the blood is drained and preservative fluids are injected into the body under pressure.

Secretions sometimes become airborne when fluids gurgle through the corpse's mouth and nose or when embalming fluids are dumped down a drain.

The embalmer reportedly had 15 years of experience, always wore gloves, and usually wore a mask.

He was treated with antibiotics for six months and is now tuberculosis-free.

Around the world, 2 million people die of TB annually, and up to 8 million new cases of it are diagnosed each year, according to John Hopkins University.

OSHA recommends only that hospital workers and those performing autopsies wear gloves and masks when handling patients or bodies.

BUSINESS / REGULATION

The healthcare and social assistance sector is among the largest of the industrial sectors in the U.S. As of 2013, there were 18.6 million employees in this sector, 11.7 million of those are classified as healthcare workers (HCWs). HCWs work in a great variety of settings. A large proportion of these HCWs provide direct patient care (i.e., they provide healthcare services with face-to-face or hands-on contact with patients) and have occupational exposure to infectious agents during the performance of their duties. Depending on the workplace setting and the job tasks, workers performing ancillary tasks (e.g., laboratorians, medical examiners, medical waste handlers) also have occupational exposure to infectious agents.

Employees in health care and other high-risk environments face long-standing infectious disease hazards such as TB, influenza and MRSA, as well as new and emerging infectious disease threats. **OSHA is considering the need for a standard to ensure that employers establish a comprehensive infection control program and control measures to protect employees from exposures to infectious agents that can cause significant disease. Although the Bloodborne Pathogens standard has been very effective in protecting workers, it does not address infectious diseases transmitted by other routes (e.g., contact, droplet and airborne).** In addition, OSHA believes that a standard is needed because transmission-based infection control guidelines, though readily available, are not consistently followed.

The Agency has thus far published an Infectious Diseases Request for Information (RFI), held stakeholder meetings, conducted site visits, and completed the SBREFA process. Feedback from these sources helped the Agency to further refine its development of a Notice of Proposed Rulemaking (NPRM) regarding an Infectious Diseases standard. In the Spring, 2017 Regulatory Agenda the ID NPRM has been placed under long term action.

STATISTICS

TB in the United States:

- **9,025**: number of reported cases of TB in the United States in 2018 (a rate of 2.8 cases per 100,000 persons)
- **Up to 13 million**: estimated number of people in the United States living with latent TB infection
- In 2017, the most recent data available, 515 deaths in the United States were attributed to TB. This is a decrease from 528 deaths attributed to TB in 2016.

· TB disease in the United States is most common among people who were born in countries with high rates of TB.

- In 2018, a total of 70.2% of reported TB cases in the United States occurred among non-U.S.-born people.

The percentage of TB cases that are drug resistant has remained stable for the last 20 years.

TB bacteria may become resistant to the drugs used to treat TB. This is called drug-resistant TB and means that the drug can no longer kill the bacteria. Drug-resistant TB poses a serious threat to our ability to treat and control TB.

- In 2018, the most common form of primary resistance was isoniazid (INH) resistance. INH resistance occurred in 605 cases (9.4% of cases with drug susceptibility results).
- Multidrug-resistant TB (MDR TB) is resistant to at least isoniazid (INH) and rifampin (RIF). There were 98 MDR TB cases (1.5% of cases with drug susceptibility results) in 2018.
- Extensively drug-resistant TB (XDR TB) is resistant to INH and RIF, any fluoroquinolone, and at least three of the injectable second-line anti-TB drugs. There was 1 case of XDR TB in the United States in 2018.
- The number of drug-resistant cases in 2018 decreased by 30 cases from 2017. However, the percentage of TB cases that are drug resistant has remained stable for the last 20 years.

Approximately half of all TB cases were reported from four states.

In 2018, among U.S. states, the majority of TB cases continued to be reported from 4 states: California (23.2%), Texas (12.5%), New York (8.3%), and Florida (6.5%).

A total of 9,421 TB cases (a rate of 2.96 cases per 100,000 persons) were reported in the United States in 2014. Both the number of TB cases reported and the case rate decreased; this represents a 1.5% and 2.2% decline, respectively, compared to 2013. The most recent State by State surveillance report, Reported Tuberculosis in the United States, 2014, includes data from 60 reporting areas (the 50 states, the District of Columbia, New York City, Puerto Rico, and seven other U.S. jurisdictions in the Pacific and Caribbean). Since the 1992 peak of TB resurgence in the United States, the number of TB cases reported each year has decreased, however, according to the National TB Controllers Association, TB cases have become more complex to manage, with more medical complications and associated conditions, including diabetes. A significant number of cases are resistant to one of the major first line medications, INH, making treatment more complicated.

Public health investigators have estimated that greater than 90% of persons reported to have clinically apparent disease are those who have harbored tuberculosis (TB) infection for at least a year or more; the remaining 10% have an immediate progression of a recently acquired infection (Centers for Disease Control (CDC),

unpublished data). The number of persons with latent infection in the United States is estimated to range from 10 million to 15 million (CDC, unpublished data).

As of this writing, the Coronavirus is estimated to have caused the deaths of 600 people in China, and over 24,000 have been infected with it in more than a dozen countries. So far, 10 individuals in the U.S. have been found to have contracted it, while hundreds were being tested for the disease in 26 states. On Jan. 30, the World Health Organization (WHO) declared the coronavirus outbreak a global health emergency,

By contrast, more than 8,200 Americans have died of the flu so far this winter, and 34,000 died of the flu last year, which was not considered to have been a particularly severe year for that illness. WHO has estimated the flu kills up to 650,000 people per year worldwide?

PREVENTION

Infection control procedures relating to cleanliness in the workplace include:

- regularly washing the floors, bathrooms and surfaces (such as tables and bench tops) with hot water and detergent.
- periodically washing the walls and ceilings
- thoroughly washing and drying mops, brushes and cloths after every use – drying mops and cloths is particularly important, since many pathogens rely on moisture to thrive
- using disinfectants to clean up blood and other spills of bodily fluids
- when using disinfectants – always wearing gloves, cleaning the surfaces before using the disinfectant, and always following the manufacturer’s instructions exactly
- spot cleaning when necessary.

Body fluid/spills

Examples of body fluids include blood, saliva, urine and faeces. When dealing with spills of body fluids, infection control procedures need to be followed carefully. Always:

- Isolate the area.
- Wear gloves, a plastic apron and eye protection, such as goggles.
- Soak up the fluid with disposable paper towels, or cover the spill with a granular chlorine-releasing agent for a minimum of 10 minutes. Scoop up granules and waste using a piece of cardboard (or similar), place in a plastic bag and dispose of appropriately.
- Mix one part bleach to 10 parts water and apply to the area for 10 minutes.
- Wash the area with hot water and detergent.
- Dry the area.
- Dispose of paper towelling and gloves appropriately.
- Wash your hands.
- Rinse any contaminated clothing in cold running water, soak in bleach solution for half an hour, then wash separately from other clothing or linen with hot water and detergent.

To dispose of infectious waste that has been contaminated with blood or other body fluids:

- Wear heavy duty gloves.
- Place waste in plastic bags marked ‘infectious waste’.

- Dispose of waste in accordance with **EPA guidance**.

Infection control procedures when handling needles and other sharp contaminated objects include:

- Never attempt to re-cap or bend used needles.
- Handle by the barrel.
- Place in an appropriate puncture-proof container (that meets the Australian and New Zealand Standards AS 4031:1992 and AS/NZS 4261:1994) – this will be yellow, labelled ‘Danger contaminated sharps’ and marked with a black biohazard symbol.

If you come in contact with blood or body fluids:

- Flush the area with running water.
- Wash the area with plenty of warm water and soap.
- Report the incident to the appropriate staff member.
- Record the incident via the Disease/Injury/Near Miss/Accident (DINMA) reporting procedure.
- Seek medical advice.