Tufts University/Tufts Medical Center

Exposure Response Plan for the Laboratories Handling

*Klebsiella pneumoniae*

**Background Information**

*Klebsiella pneumoniae* is a Gram-negative, non-motile, encapsulated, lactose fermenting, facultative anaerobic, rod shaped bacterium belonging to the family Enterobacteriaceae and found in the normal flora of the mouth, skin, and intestines. The infectious dose for humans is unknown.

*Klebsiella pneumonia* must enter the respiratory tract to cause pneumonia, the blood to cause a bloodstream infection and end-organ damage (such as liver abscess or CNS infection), or must enter devitalized tissues to cause infection of burns and wounds.

*K. pneumoniae* associated pneumonia is typically caused by aspiration of oropharyngeal microbes into the lower respiratory tract. The pneumonia caused by this organism is sometimes associated with thick, bloody, mucoid sputum called “currant jelly” sputum, but can also cause lung abscesses and pneumonia that can be difficult to distinguish from those caused by other pathogens. Klebsiella infections are more likely in immunosuppressed patients, such as diabetics, alcoholics, patients who are intubated, and others.

*Klebsiella pneumoniae* bacteria can be spread through person-to-person contact (for example, from patient to patient via the contaminated hands of healthcare personnel, or other persons) or, less commonly, by contamination of the environment. The bacteria are not spread through the air.

**Exposure Incident:** 1 case of laboratory-acquired infection with *K. pneumoniae*.

**Reporting Exposure Incidents:** Report all exposures to the Principal Investigator/lab supervisor and seek immediate medical evaluation. If help is needed with injuries or clean up, members of the University will contact the Police at 6-6911 and members of the Medical Center will contact Security at 6-5100. Whenever there is an accident involving *K. pneumoniae*, the Biosafety Officer must be notified.

**Pre-exposure Health Screening:**

Prior to beginning work with or around *K. pneumoniae*, the PI or an Employee Health Professional will inform each person of the risks s/he takes and of the symptoms s/he may experience following exposure.

**Before an Exposure Incident Occurs:**

A FDA approved vaccine for *K. pneumoniae* is not available.
All immunocompromised employees who might potentially be exposed to *K. pneumoniae* during routine work should be advised to self identify to Employee Health Clinic (Boston) or Occupational Medical Clinics (Grafton/Medford) for further evaluation and discussion of the specific risks associated with immunodeficiency and exposure to *K. pneumoniae*.

**After an Exposure Incident Occurs: Immediate Action by Route of Exposure**

**Needlestick, Animal Bite or Laceration:** Wash the area with soap and running water.

**Mucous membranes (eye, nose, mouth):** If contaminated material is splashed or sprayed contaminating the eyes, nose or mouth: Flush the eyes for 10-15 minutes. Rinse mouth out with clean water and do not swallow.

**Inhalation:** If contaminated materials are aerosolized outside of primary containment and potentially inhaled, rinse mouth twice expelling the rinsate. Do not swallow.

**After an exposure incident occurs: medical evaluation and follow-up:**

Following immediate post exposure actions, contact the TMC Employee Health Clinic (Boston), TCSVM Occupational Medical Clinic (Grafton) or the Mt. Auburn Occupational Health Services (Medford) and arrange for medical evaluation, diagnosis and treatment if needed. During this appointment, the exposed individual will be informed of the signs and symptoms of *K. pneumonia*, and will be instructed to watch for the development of these signs and symptoms. Diagnosis of an infection can be made by microscopic examination and/or tissues or bodily fluids. The incubation period is unknown. The agent can colonize the respiratory tract for months to years without causing clinical symptoms.

**Signs and Symptoms of *K. pneumonia* include:**

- Pneumonia like illness (shortness of breath, cough and fever)
- Meningitis (persistent headache, nausea, dizziness, impaired memory and judgment)
- Liver abscess (fever, right upper quadrant pain, nausea, vomiting, diarrhea, weight loss, and/or night sweats)

**Post-exposure prophylaxis:**

Pre-symptom prophylaxis for *K. pneumonia* is not routinely given to immunocompetent persons.

Massachusetts Department of Public Health does not classify *K. pneumonia* as a reportable disease.

If an employee develops signs and symptoms associated with *K. pneumoniae* exposure in the absence of an exposure incident, the PI and Biosafety Officer shall be notified immediately. Infection will not be considered laboratory-acquired until proven otherwise.