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Population and Public Health Branch (PPHB)

Office of Laboratory Security

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## MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

### SECTION I - INFECTIOUS AGENT

**NAME:** *Adenovirus types 1, 2, 3, 4, 5 and 7*

**SYNONYM OR CROSS REFERENCE:** ARD, acute respiratory disease, pharyngoconjunctival fever

**CHARACTERISTICS:** *Adenoviridae*; non-enveloped, icosahedral virions, 70-90 nm diameter, doubled-stranded, linear DNA genome.

### SECTION II - HEALTH HAZARD

**PATHOGENICITY:** Varies in clinical manifestation and severity; symptoms include fever, rhinitis, pharyngitis, tonsillitis, cough and conjunctivitis; common cause of nonstreptococcal exudative pharyngitis among children under 3 years; more severe diseases include laryngitis, croup, bronchiolitis, or severe pneumonia; a syndrome of pharyngitis and conjunctivitis (pharyngoconjunctival fever) is associated with adenovirus infection

**EPIDEMIOLOGY:** Worldwide; seasonal in temperate regions, with highest incidences in the fall, winter and early spring; in tropical areas, infections are common in the wet and colder weather; annual incidence is particularly high in children; adenovirus types 4 and 7 are common among military recruits (ARD)

**HOST RANGE:** Humans

**INFECTIOUS DOSE:** >150 plaque forming units when given intranasally

**MODE OF TRANSMISSION:** Directly by oral contact and droplet spread; indirectly by handkerchiefs, eating utensils and other articles freshly soiled with respiratory discharge of an infected person; outbreaks have been related to swimming pools; possible spread through the fecal-oral route

**INCUBATION PERIOD:** From 1-10 days

**COMMUNICABILITY:** Shortly prior to and for the duration of the active disease

### SECTION III - DISSEMINATION

**RESERVOIR:** Humans

**ZOONOSIS:** None

**VECTORS:** None

#### **SECTION IV - VIABILITY**

**DRUG SUSCEPTIBILITY:** No specific antiviral available; cidofovir has shown promise in the treatment of adenoviral ocular infections.

**SUSCEPTIBILITY TO DISINFECTANTS:** Susceptible to 1% sodium hypochlorite, 2% glutaraldehyde, 0.25% sodium dodecyl sulfate

**PHYSICAL INACTIVATION:** Sensitive to heat >56°C; unusually stable to chemical or physical agents and adverse pH conditions

**SURVIVAL OUTSIDE HOST:** Resistance to chemical and physical agents allows for prolonged survival outside of the body. Adenovirus type 3 survived up to 10 days on paper under ambient conditions; adenovirus type 2 survived from 3-8 weeks on environmental surfaces at room temperature

#### **SECTION V - MEDICAL**

**SURVEILLANCE:** Monitor for symptoms; confirm by serological analysis

**FIRST AID/TREATMENT:** Mainly supportive therapy

**IMMUNIZATION:** Vaccine available for adenovirus types 4 and 7 (used for military recruits)

**PROPHYLAXIS:** None available

#### **SECTION VI - LABORATORY HAZARDS**

**LABORATORY-ACQUIRED INFECTIONS:** Ten cases documented up to 1988

**SOURCES/SPECIMENS:** Respiratory secretions

**PRIMARY HAZARDS:** Ingestion; droplet exposure of the mucous membrane

**SPECIAL HAZARDS:** Contact with feces from infected animals

#### **SECTION VII - RECOMMENDED PRECAUTIONS**

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices and containment facilities for all activities involving the virus and potentially infectious body fluids or tissues

**PROTECTIVE CLOTHING:** Laboratory coat; gloves when skin contact with infectious materials is unavoidable

**OTHER PRECAUTIONS:** None

## SECTION VIII - HANDLING INFORMATION

**SPILLS:** Allow aerosols to settle; wearing protective clothing gently cover the spill with absorbent paper towel and apply 1% sodium hypochlorite starting at the perimeter and working towards the centre; allow sufficient contact time (30 min) before clean up

**DISPOSAL:** Decontaminate all wastes before disposal; steam sterilization, incineration, chemical disinfection

**STORAGE:** In sealed containers that are appropriately labelled

## SECTION IX - MISCELLANEOUS INFORMATION

**Date prepared:** November 1999

**Prepared by:** Office of Laboratory Security, PPHB

Although the information, opinions and recommendations contained in this Material Safety Data Sheet are compiled from sources believed to be reliable, we accept no responsibility for the accuracy, sufficiency, or reliability or for any loss or injury resulting from the use of the information. Newly discovered hazards are frequent and this information may not be completely up to date.

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