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Office of
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Security

MSDS

MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES**SECTION I - INFECTIOUS AGENT****NAME:** *Escherichia coli*, enterotoxigenic**SYNONYM OR CROSS REFERENCE:** ETEC, traveller's diarrhea, gastroenteritis**CHARACTERISTICS:** Gram negative rod; motile, aerobic; produces a heat labile enterotoxin (LT) and a heat stable enterotoxin (ST)**SECTION II - HEALTH HAZARD****PATHOGENICITY:** Self-limiting cholera-like disease in infants and adults; profuse watery diarrhea without blood or mucous; abdominal cramping, vomiting, acidosis, prostration, malaise and dehydration can occur; fever may or may not be present; symptoms usually lasts fewer than 5 days**EPIDEMIOLOGY:** Usually sporadic, particularly in underdeveloped countries; may cause common source outbreaks; one of two major leading causes of diarrhea in children in developing countries; has become the leading bacterial cause of gastroenteritis outbreaks on cruise ships; accounts for 40-60% of all cases of traveller's diarrhea**HOST RANGE:** Humans, livestock, most mammals; species specific, no known non - human hosts for human ETEC**INFECTIOUS DOSE:** 100,000,000 organisms to 10,000,000,000 organisms (10^8 to 10^{10}) by ingestion**MODE OF TRANSMISSION:** Fecal-oral route; poor sanitation; fecal contamination of food, water or fomites; poor personal hygiene**INCUBATION PERIOD:** 24-72 hours**COMMUNICABILITY:** Communicable for duration of fecal excretion (several weeks)**SECTION III - DISSEMINATION****RESERVOIR:** Humans, animals; ETEC infections are largely species specific; humans constitute the reservoir for strains causing diarrhea in humans**ZOOONOSIS:** No**VECTORS:** None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Sensitive to wide spectrum of antibiotics; quinolones first choice treatment worldwide

DRUG RESISTANCE: tetracyclines, trimethoprim-sulfamethorazole approximately 40%

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, glutaraldehyde, iodines, phenolics, formaldehyde

PHYSICAL INACTIVATION: Inactivated by moist heat (121° C for at least 15 min) and dry heat (160-170° C for at least 1 hour)

SURVIVAL OUTSIDE HOST: Dust 4 to 27 days; feces - up to 84 days; fingertip - 45 min; soil - up to 84 days

SECTION V - MEDICAL

SURVEILLANCE: Monitor for symptoms; confirm bacteriologically

FIRST AID/TREATMENT: Electrolyte fluid therapy (oral or IV); antibiotics may be administered in very severe cases

IMMUNIZATION: oral vaccine under development

PROPHYLAXIS: Short term antibiotic therapy with TMP-SMX or doxycycline for travellers going to high-risk areas with no safe food or water

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: 2 reported cases of laboratory infections with *E. coli*

SOURCES/SPECIMENS: Feces; contaminated food, water, fomites

PRIMARY HAZARDS: Ingestion

SPECIAL HAZARDS: None

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety level 2 practices, containment equipment and facilities for activities involving cultures and infected clinical materials

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

OTHER PRECAUTIONS: Good personal hygiene and frequent handwashing

SECTION VIII - HANDLING INFORMATION

SPILLS: Allow aerosols to settle; wearing protective clothing, gently cover spill with absorbent paper towel and apply 1% sodium hypochlorite, starting at

perimeter and working towards the centre; allow sufficient contact time (30 min) before clean up

DISPOSAL: Decontaminate before disposal; steam sterilization, chemical disinfection

STORAGE: In sealed containers that are appropriately labelled

SECTION IX - MISCELLANEOUS INFORMATION

Date prepared: January, 2001

Prepared by: Office of Laboratory Security, PHAC

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