MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTION 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 mucus; 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

INFECTION 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; quinolines first choice treatment worldwide
DRUG RESISTANCE: tetracyclines, trimethoprim-sulfamethazolone 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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