Escherichia coli, enteropathogenic - Material Safety Data Sheets (MSDS)

MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: *Escherichia coli*, enteropathogenic

SYNONYM OR CROSS REFERENCE: EPEC, attaching and effacing *E. coli* (AEEC), enteroadherent *E. coli* (EAEC), acute diarrhea, infantile diarrheal disease

CHARACTERISTICS: Gram negative rod; motile, aerobic; non - enterotoxin producing and non - enteroinvasive; serogroups possess an antigenic adherence factor (bundle-forming pil BFP); serotyping to determine somatic and flagellar antigens

SECTION II - HEALTH HAZARD

PATHOGENICITY: Intestinal disease accompanied by watery diarrhea, fever, cramps and vomiting; bloody stool in some cases; serious disease in infants

EPIDEMIOLOGY: Associated with outbreaks of acute diarrheal disease in newborn nurseries; occurs sporadically as well; EPEC no longer an important cause of infant diarrhea in North America and Europe; major agent of infant diarrhea in many developing countries (South America, South Africa, Asia), infants < 1 year old

HOST RANGE: Humans, especially infants < 2 years, most mammals (livestock)

INFECTIOUS DOSE: highly infectious for infants, does unknown, presumably low; Adults by Ingestion - 100,000,000 organisms to 10,000,000,000 organisms ($10^8$ to $10^{10}$)

MODE OF TRANSMISSION: Fecal contamination of food, water or fomites; fecal-oral spread; may be spread to infants during delivery or by contaminated hands; poor hygiene and poor sanitation

INCUBATION PERIOD: 12-72 hours (9-12 hrs in adult volunteer studies)

COMMUNICABILITY: Communicable period not known, but presumably for the duration of fecal excretion, which may be prolonged several weeks

SECTION III - DISSEMINATION

RESERVOIR: Infected persons, often asymptomatic; animals

ZOONOSIS: Yes - direct or indirect contact with infected animals and wastes

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Susceptible to ampicillin, TMP-SMX
SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, iodines, phenolics; glutaraldehyde, 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, serologically.

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

IMMUNIZATION: None.

PROPHYLAXIS: Not usually administered.

SECTION VI - LABORATORY HAZARDS

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

SOURCES/SPECIMENS: Feces.

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.

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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