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Office of
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MSDS

MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES**SECTION I - INFECTIOUS AGENT****NAME:** *Giardia lamblia***SYNONYM OR CROSS REFERENCE:** *G. intestinalis*, *G. duodenalis*, giardiasis, giardia enteritis, Lambliasis, lamblia intestinalis, "beaver fever"**CHARACTERISTICS:** Single celled flagellated protozoa, trophozoite (9-21 µm long, 5-15 µm wide and 2-4 µm thick), "tear drop" shape, contains 2 nuclei at anterior end and 5 flagella with tumbling motility; cyst form develops in the colon (13 µm long, oval shape and 2 nuclei)**SECTION II - HEALTH HAZARD****PATHOGENICITY:** Varies from asymptomatic in most individuals to a sudden onset of diarrhea with foul-smelling, greasy-looking stool that lacks mucous and blood; associated with abdominal cramps, bloating, fatigue and weight loss; restricted to upper small intestine with no invasion; normally illness lasts 1 - 2 weeks; chronic infections can last months to years**EPIDEMIOLOGY:** Worldwide; prevalent in areas with poor sanitation; outbreaks more common in children than in adults; waterborne outbreaks are common where unfiltered waters are routinely contaminated by human and animal feces; daycare centres and cause of travellers diarrhea; most frequent cause of non-bacterial diarrhea in North America (25 % of gastrointestinal disease)**HOST RANGE:** Humans; wild (beavers and bears) and domestic animals (dogs and cats)**INFECTIOUS DOSE:** Less than 10 cysts when given orally, may even be as low as 1 cyst**MODE OF TRANSMISSION:** Person-to-person, faecal-oral route is most important (hand to mouth transfer of cysts); infected food handlers; one person can pass 10⁶ cysts each day; ingestion of fecally-contaminated water and food are also mechanisms for transmission, found in soil and on surfaces; anal intercourse also facilitates transmission**INCUBATION PERIOD:** From 3 - 25 days, usually 7 - 10 days**COMMUNICABILITY:** Cysts are shed during the entire period of infection, often months**SECTION III - DISSEMINATION****RESERVOIR:** Humans, wild and domestic animals

ZOONOSIS: Beaver considered zoonotic reservoir for water-borne infection in headwaters of many cold water streams

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Sensitive to quinacrine hydrochloride, metronidazole, tinidazole, albendazole and furazolidone

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to 1% sodium hypochlorite (chlorine in drinking water not sufficient, especially if water is cold), 2% glutaraldehyde

PHYSICAL INACTIVATION: Boiling for minimum of 1 minute

SURVIVAL OUTSIDE HOST: Cysts remains infectious for prolonged periods in the environment, cysts are resistance to adverse environmental conditions

SECTION V - MEDICAL

SURVEILLANCE: Monitor for symptoms; confirm by microscopic demonstration of trophozoite and cysts in feces, stained preparations or unstained wet mounts; ELISA

FIRST AID/TREATMENT: Administer appropriate drug therapy

IMMUNIZATION: None available

PROPHYLAXIS: None available

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: Two cases were reported up to 1987

SOURCES/SPECIMENS: Feces, duodenal secretions

PRIMARY HAZARDS: Ingestion

SPECIAL HAZARDS: None

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety level 2 practices and containment facilities are recommended for activities with infective stages of mammalian *Giardia* spp. and infectious body fluids and tissues

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

OTHER PRECAUTIONS: Good personal hygienic practices - hand washing before handling food and before eating

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 center; allow sufficient contact time (30 min) before clean up

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

STORAGE: In sealed containers that are appropriately labelled

SECTION IX - MISCELLANEOUS INFORMATION

Date prepared: April, 2001

Prepared by: Office of Laboratory Security, PHAC

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