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Office of  
Laboratory  
Security

MSDS

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**MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES****SECTION I - INFECTIOUS AGENT****NAME:** *Enterococcus faecalis*, *Enterococcus faecium***SYNONYM OR CROSS REFERENCE:** Nonhemolytic streptococci, gamma hemolytic streptococci, enterococcus, group D streptococci, vancomycin-resistant enterococcus (VRE); formerly *Streptococcus faecalis***CHARACTERISTICS:** Gram-positive cocci, facultatively anaerobic, occurs singly, in pairs or short chains, no hemolysis on blood agar after 24 hours (may see alpha hemolysis after 48 h)**SECTION II - HEALTH HAZARD****PATHOGENICITY:** Normal inhabitant of intestinal tract ( $10^5$ - $10^8$  CFU's per gram of stool) and female genital tract; occasionally associated with urinary tract infection, bacteremia and bacterial endocarditis**EPIDEMIOLOGY:** World wide distribution, newly recognized as a nosocomially transmitted pathogen ( increase due to increased use of medically compromising devices - IV's); 3<sup>rd</sup> most common organisms recovered from nosocomial infections; accounts for 10% of nosocomial infections, 9% of bacteremia infections, 16% urinary tract infections and 5-15% of cases of bacterial endocarditis ; clinical isolate ratio of *E. faecalis* : *E. faecium* is 10:1, however among VRE isolates the ratio of *E. faecium*: *E. faecalis* is 10:1**HOST RANGE:** Humans**INFECTIOUS DOSE:** Not known**MODE OF TRANSMISSION:** Normal inhabitant of gastrointestinal tract - trauma results in organisms entering into blood stream; organism is found in many food products but relationship with food poisoning is questionable**INCUBATION PERIOD:** Not known**COMMUNICABILITY:** Not transferred from person-to-person**SECTION III - DISSEMINATION****RESERVOIR:** Humans, various animals**ZOONOSIS:** None**VECTORS:** None

## SECTION IV - VIABILITY

**DRUG SUSCEPTIBILITY** Sensitive to combination of penicillin or ampicillin plus an aminoglycoside, drug susceptibility testing must be done

**DRUG RESISTANCE:** Multi Drug Resistant (MDR) ( eg. vancomycin, chloramphenicol, tetracycline, etc)

**SUSCEPTIBILITY TO DISINFECTANTS:** Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, 2% glutaraldehyde, formaldehyde, iodines

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

**SURVIVAL OUTSIDE HOST:** Extremely hardy, can survive for weeks on environmental surfaces; cheese - 180 days; soil up to 77 days; soiled linen up to 90 days, cultures at -70° C for several years

## SECTION V - MEDICAL

**SURVEILLANCE:** Monitor for symptoms of infection; confirm bacteriologically, new rapid surveillance typing methods and antimicrobial susceptibility testing

**FIRST AID/TREATMENT:** Antibiotic therapy with penicillin or ampicillin in combination with aminoglycoside for treatment of serious enterococcal infections

**IMMUNIZATION:** None available

**PROPHYLAXIS:** Antibiotic prophylaxis - only indicated for persons with diseased or artificial heart valves who undergo genitourinary or rectal procedures

## SECTION VI - LABORATORY HAZARDS

**LABORATORY-ACQUIRED INFECTIONS:** 78 recorded cases of infections with *Enterococcus* spp. with 4 deaths up to 1976

**SOURCES/SPECIMENS:** Tissues - ulcers, intra-abdominal abscesses; blood, feces, urine

**PRIMARY HAZARDS:** Accidental parenteral inoculation; ingestion

**SPECIAL HAZARDS:** None

## SECTION VII - RECOMMENDED PRECAUTIONS

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices, containment equipment and facilities for all activities involving known or potentially infected clinical materials or cultures; animal biosafety level 2 facilities for studies utilizing infected animals

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

**OTHER PRECAUTIONS:** Hand washing particular in medical hospital setting

### 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, incineration

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

### SECTION IX - MISCELLANEOUS INFORMATION

**Date prepared:** March, 2001

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

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