

NATIONAL CENTRE FOR STREPTOCOCCUS
Provincial Laboratory of Public Health for Northern Alberta
Rm. 1B3.26 WMC
University of Alberta Hospital
8440-112 St.
Edmonton, Alberta T6G 2J2
Email: m.lovgren@provlab.ab.ca

GUIDE TO SERVICES

The National Centre for Streptococcus (NCS) was established at the Provincial Laboratory of Public Health for Northern Alberta, Edmonton, in April, 1991. This Centre is part of a network of national laboratories operating under the auspices of the National Microbiology Laboratory, Winnipeg, Manitoba.

The NCS offers serotyping services for group A (*S. pyogenes*) and group B (*S. agalactiae*) streptococci and *Streptococcus pneumoniae* strains that are isolated from patients with invasive disease. Identification of *Streptococcus*, *Enterococcus* and other catalase-negative gram-positive cocci is also provided for isolates recovered from normally sterile body sites.

Services also include a quantitative ELISA method for the detection of pneumococcal antibodies to the seven most common serotypes. All test requests must be accompanied by relevant clinical information. Paired sera (pre and post-vaccination) should be submitted for testing. A single serum is of limited value in determining serological response and testing is actively discouraged.

Non-invasive isolates from serious disease which are accompanied by sufficient clinical data, and strains related to outbreak investigation or research may also be processed if prior arrangements have been made with the NCS.

All isolates submitted for further investigation must be accompanied by relevant clinical details and, if related to research, pertinent information about the nature of the study and principal investigator(s) should be included. All research projects must be approved by the NCS director and/or technical supervisor before samples are shipped.

The age of the patient and the date of isolation is critical for accurate retrospective data analysis, and submitting laboratories are requested to provide this information for each isolate that is sent to this laboratory.

It is particularly important to identify strains that may have been isolated from outside Canada and those which are from non-human sources to ensure that inappropriate data is not included in Canadian statistics.

Minimum inhibitory concentration (MIC) as determined by broth microdilution is performed for surveillance purposes on all invasive pneumococci. The following antibiotics are tested: penicillin, ceftriaxone, chloramphenicol, clindamycin, erythromycin, ofloxacin, trimethoprim/sulfamethoxazole and vancomycin. As of April, 2002, levofloxacin will be tested against all pneumococci that show reduced susceptibility to ofloxacin. Antibiotic susceptibility testing for other *Streptococcus* and *Enterococcus* species may be provided upon consultation with the laboratory.

Please submit pure isolates in charcoal transport media or on blood or chocolate agar slants. Group A and group B streptococci survive well in both media, but blood agar is NOT suitable for *Streptococcus pneumoniae* due to the tendency of this organism to autolyse. Blood agar plates or liquid media are not recommended for transport due to potential leakage of the specimen. Please use the following shipping address:

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INVESTIGATIVE SERVICES / METHODOLOGY

1. *Streptococcus* grouping using Lancefield hot acid extracts
2. Group A *Streptococcus* serotyping (M, T & AOF) / using antisera prepared in-house
3. Group B *Streptococcus* serotyping / using antisera prepared in-house
4. *Streptococcus pneumoniae* serotyping (Danish nomenclature) / Quellung reaction with commercial antisera (Statens Seruminstitut, Copenhagen, Denmark)
5. *Streptococcus pneumoniae* MIC by broth microdilution (NCCLS)
6. Other relevant antibiotic susceptibility testing for streptococci and enterococci as required on consultation with the NCS
7. Detection of the genetic sequences for vancomycin resistance in enterococci (VRE) - *vanA*, *vanB*, *vanC(gall)*, *vanC(cass)* / performed by PCR
8. Speciation of *Streptococcus*, *Enterococcus* and other aerobic catalase-negative gram-positive cocci.

*Speciation and susceptibility testing of anaerobic strains has been and will continue to be referred to the Special Bacteriology section of the National Microbiology Laboratory, Winnipeg, Manitoba.
9. *Streptococcus* serology - Anti-DNase B and ASOT / Microdilution techniques
10. Detection of human antibodies (IgG) to *Streptococcus pneumoniae* is performed by the WHO recommended quantitative ELISA method. The assay is antigen-specific and includes the seven most common pneumococcal capsular types recovered from invasive disease in Canada: serotypes 4, 6B, 9V, 14, 18C, 19F and 23F.