Guideline for the Collection and Storage of Bacteriology Specimens for Testing CLP 024 (04/04)

The OAML's Guidelines for the Collection and Storage of Specimens for Testing have been developed to provide practitioners with a clear and concise reference respecting the appropriate collection and storage of bacteriology specimens for testing in community laboratories. The guideline was developed by an expert group of laboratorians and has been reviewed and approved by the OAML's Quality Assurance of Clinical Laboratory Practice Committee.

Specimen type and collection device will vary according to the testing methodology of the laboratory. Testing and treatment issues are addressed for the clinical condition listed.

Good laboratory practice is influenced by clinical information. Laboratory procedures will be optimized in the presence of pertinent clinical information.

CLINICAL CONDITION	COMMONLY IDENTIFIED ORGANISMS	APPROPRIATE SPECIMEN	APPROPRIATE STORAGE TEMPERATURES	TESTING /TREATMENT ISSUES
Conjunctivitis	*Staphylococcus aureus* *Streptococcus pneumoniae* *Haemophilus influenzae*	Swab swept over conjunctiva	Room Temperature	• Susceptibility testing not routinely performed as *in vitro* results may not accurately reflect *in vivo* activity of topical antimicrobial agents
Otitis externa	*Pseudomonas aeruginosa* *Staphylococcus aureus* *Streptococcus pyogenes*	Swab of external ear canal	Refrigerate 2 - 8°C	• Tympanocentesis specimens indicated for microbiological diagnosis of otitis media
Pharyngitis	*Streptococcus pyogenes*	Posterior pharynx and tonsillar swab.	Refrigerate 2 - 8°C	• Since 14% of Group A Streptococcus pharyngeal isolates may be macrolide resistant, specifically request susceptibility testing for penicillin allergic patients[1] • Testing for *Neisseria gonorrhoeae* available upon request (do not refrigerate sample)
Lower respiratory tract infection	*Streptococcus pneumoniae* *Haemophilus influenzae* *Moraxella catarrhalis*	One deep cough sputum into sterile container. Mouth should be rinsed with water prior to specimen collection	Refrigerate 2 - 8°C	• All specimens undergo microscopic evaluation to determine suitability for culture • Antimicrobial treatment of respiratory tract infections due to beta lactamase positive *H. influenzae* and *M. catarrhalis* may consist of an appropriate macrolide, respiratory fluoroquinolone, second or third generation cephalosporins or lactam/ betalactamase inhibitor combination antibiotic
Urinary tract infection	*Escherichia coli* *Klebsiella* spp *Proteus* spp *Enterococcus* spp *Staphylococcus saprophyticus*	Midstream urine after appropriate preparation Collect into sterile container	Refrigerate 2 - 8°C	• Immediate refrigeration after specimen collection is essential for accurate results

CLINICAL CONDITION	COMMONLY IDENTIFIED ORGANISMS	APPROPRIATE SPECIMEN	APPROPRIATE STORAGE TEMPERATURES	TESTING /TREATMENT ISSUES
Bacterial Enteritis	*Campylobacter jejuni/coli* *Salmonella* spp *Shigella* spp *Yersinia enterocolitica* *Escherichia coli* O157:H7	Diarrheal stool into enteric transport system; e.g., Cary-Blair Only one specimen per patient required	Room Temperature	• Local Public Health Units should be contacted with questions related to requirements for submission of repeat specimens; e.g., for food handlers, daycare attendees • Susceptibility testing routinely performed for *Shigella* spp, *Salmonella typhi* and *S. paratyphi* isolates
Antibiotic-induced Diarrhea	*Clostridium difficile* toxin assay	One to two diarrheal specimens, each in sterile container without transport medium	Refrigerate 2 - 8°C	• Diarrheal specimens most appropriate for processing • Formed stool inappropriate for testing for *C. difficile*
Skin/Soft Tissue Infections	*Staphylococcus aureus* *Streptococcus pyogenes* Coliforms	Remove surface exudates with 70% alcohol Aspirate exudate from abscess into sterile container or insert swab deep into lesion	Room Temperature *	• Superficial swabs of doubtful value • Processing optimized when laboratory receives pertinent clinical information i.e. wound site, history of animal bite • Optimal isolation of anaerobic isolates requires submission of swab/specimen in anaerobic transportation media
Cervicitis	*Chlamydia trachomatis*	Endocervical swab	Room Temperature	• Methodology may vary according to testing laboratory. • **Clearly indicate "cervical" as site of collection on OHIP requisition and the specimen container**
	Neisseria gonorrhoeae	Endocervical swab	Room Temperature *	
Urethritis	*Chlamydia trachomatis*	Male urethral swab	Room Temperature	• Specimen types and methodology may vary according to testing laboratory • Refer to testing facility for directions regarding collection, storage and transportation • Some laboratories may offer testing for *Chlamydia trachomatis* from urine specimens
	Neisseria gonorrhoeae	Male urethral swab	Room Temperature *	

* Some evidence suggests that bacterial recovery is optimal when specimens are stored at between 2 and 8°C. Arbique J, *et al.*, "Comparison of Methodologies Described in NCCLS Document M40-P Quality Control of Microbiological Transport Devices," Poster C-040, ASM Conference, Washington, 2003.

CLINCIAL CONDITION	COMMONLY IDENTIFIED ORGANISMS	APPROPRIATE SPECIMEN	APPROPRIATE STORAGE TEMPERATURES	TESTING /TREATMENT ISSUES
Vaginitis/vaginosis	*Candida albicans* Agents of Bacterial Vaginosis *Trichomonas vaginalis*	Posterior vaginal vault swab	Room Temperature	• Laboratory diagnosis of bacterial vaginosis has been validated in premenopausal women only • Pyogenic bacteria, such as *Streptococcus pyogenes* may cause vulvitis/vaginitis in children; laboratories will process specimens accordingly • **Clearly indicate "vaginal" as site of collection on OHIP requisition and the specimen container**
Group B Streptococcus Screening in Pregnancy	Group B Streptococcus	Vaginal-rectal swab collected at 35 – 37 weeks gestation	Room Temperature	• Since up to 15% of isolates may be resistant to clindamycin[2], specifically request susceptibility testing for patients with penicillin allergy
Bacteremia/sterile site infection	Various	Aseptic collection of appropriate specimen volume into appropriate container For blood cultures routinely collect two sets of blood culture specimens	Room Temperature	• For suspected endocarditis, collect three blood culture sets at intervals at least thirty minutes apart • Clinicians MUST forewarn laboratory if infections caused by hazardous organisms are suspected: e.g., brucellosis, anthrax, tularemia
Multiple Resistance Organisms Surveillance	Methicillin Resistant *Staphylococcus aureus* Vancomycin Resistant Enterococcus	MRSA: nares (one swab from both nares), perineum, wounds/lesions (to a maximum of two swabs) VRE: rectum, wounds/lesions (to a maximum of two swabs)	Room Temperature	• Susceptibility testing results not routinely provided for surveillance culture specimens

References:

[1] Katz KC *et al.* "Emergence of Macrolide Resistance in Throat Culture Isolates of Group A Streptococci in Ontario, Canada, in 2001," *Antimicrob Agents Chemother.* 2003 Jul; 47(7):2370-2.

[2] Yamamura D *et al.* "Phenotypic Patterns in Group B Streptococcus Vaginal/Rectal Isolates from 7 MDS Community Laboratories in Ontario." 72nd Conjoint Meeting on Infectious Diseases, 2003.

The Ontario Association of Medical Laboratories (OAML) represents the community-based laboratory sector in Ontario. Its mission is to promote excellence in the provision of laboratory services and to contribute to shaping the future of health care in Ontario. The OAML encourages the highest level of professional and ethical integrity and technical excellence among laboratory owners, operators and staff in the provision of services to the benefit of the people of Ontario.

OAML Community Laboratory Practice Guidelines
The OAML, through its Quality Assurance of Clinical Laboratory Practice Program, co-ordinates the development and dissemination, implementation and evaluation of guidelines for practitioners ordering laboratory testing from community laboratories.

A proposed guideline is developed by a working group of the Committee, usually with the participation of outside experts. The proposed guideline is submitted to the Committee as a whole, to laboratory Medical Directors and others for additional comment. The document is revised in light of these comments and submitted to the OAML Board for approval.

While generally applicable, OAML Guidelines are not a substitute for sound clinical judgement.

Approved guidelines are distributed to Community Laboratories and by them to their client physicians. The comments of end users are essential to the development of guidelines that will encourage adherence. You are strongly encouraged to submit your comments on this or any other OAML Guideline to:

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