|  |
| --- |
| Nose Culture |
| **Purpose** | This procedure provides instruction for Nose Culture for the Microbiology laboratory. |
| **Principal and Clinical Significance** | Nasal cultures are used primarily for the surveillance and control of the nosocomial spread of *S. aureus.* The anterior nares are cultured to detect carriers of *S.aureus.* Refer to procedures specific for *C. diphtheriae* or MRSA if requested. Request for “routine” bacterial culture should rarely occur. Specimens from the nares often are contaminated with resident microorganisms that can be found in both the disease and carrier states. Because of this contamination, these specimens often do not provide accurate information unless a specific pathogen is requested. |
| **Policy Statements** | This procedure applies to Microbiologists who perform culture set-up and plate reading. |
| **Test Code** | NPC |
| **Materials** |  |  |  |  |
|  | **Reagents** | **Supplies** | **Equipment** | **Media** |
|  | * 3% hydrogen peroxide
* Catarrhalis Test disk
* Gram Stain reagents
* Oxidase reagent
* Staphaurex™
 | * Glass slide
* Falcon tubes
 | * Ambient air incubator
* CO2 incubator
* Incinerator
* Inoculating loop
* Microscope
* Vitek MS MALDI
 | Refer to the Sunquest specimen label for media information.* Chocolate agar (CHOC)
* Sheep Blood agar (SB)
* MacConkey agar (MAC)
 |
| **Specimen** | 1. Acceptable specimens
* Anterior nares swab
* Nasal wash or aspirate
* Refer to procedures specific for [*C. diphtheriae*](MC%201.10%20Corynebacterium%20diphtheriae%20Culture.docx) or [MRSA](MC%201.21%20MRSA%20Culture.docx) if requested.
1. Refer to Lab Test Directory for Specimen Collection and Transport– [Nose Culture](https://www.childrensmn.org/References/Lab/microbioviral/nose-culture.pdf)
 |
| **Special Safety Precautions** | Microbiologists are subject to occupational risks associated with specimen handling. Refer to the safety policies located in the safety section of the *Microbiology Procedure Manual***.**1. [*Biohazard Containment*](file:///G%3A%5CLab%20Procedures%5CMicrobiology%5C1NEW%20Micro%20Procedure%20Manual.%20%28same%20as%20in%20Starnet%29%5CMCVI%203%20Safety%5CMCVI%203.1%20Biohazard%20Containment.docx)
2. [*Biohazardous Spills*](file:///G%3A%5CLab%20Procedures%5CMicrobiology%5C1NEW%20Micro%20Procedure%20Manual.%20%28same%20as%20in%20Starnet%29%5CMCVI%203%20Safety%5CMCVI%203.4%20Biohazardous%20Spills.docx)
3. [*Safety in the Microbiology Laboratory*](file:///G%3A%5CLab%20Procedures%5CMicrobiology%5C1NEW%20Micro%20Procedure%20Manual.%20%28same%20as%20in%20Starnet%29%5CMCVI%203%20Safety%5CMCVI%203.2%20Safety%20in%20the%20Microbiology%20Lab.docx)
 |
| **Procedure** | InoculationAllow all media to come to room temperature before inoculationLabel all plates and slide properly with the patients name, accession number and date. Inoculate the media in the order of the least selective first to prevent carryover of inhibitory substances to another medium. Refer to the Sunquest specimen label for the order of inoculation.Specimen processing1. Roll swab across the upper quadrant of the CHOC, SB and MAC, touching all surfaces of the swab.
2. Streak plates semi-quantitatively for primary isolation.
3. Sterilize the inoculating loop in the incinerator for 5 s to 10 s. Allow the loop to cool.
4. Pass the loop through the edge of the first quadrant approximately 4 times while streaking into the second quadrant. Continue streaking in the second quadrant without going back into the first quadrant 3-4 times.
5. Flame loop again, turn the plate another quarter of a turn, and pass the loop through the edge of the second quadrant approximately four times while streaking into the third quadrant. Continue streaking in the third quadrant without going back into the second quadrant 3-4 times.
6. Make small cuts in the primary area of the SB for hemolysis.

1. **Incubation**
2. Incubate CHOC and SB in 4-10% CO2 at 35ºC
3. Place MAC in ambient air incubator at 35ºC.
4. **Culture examination**
5. Day 1
6. Examine plates.
7. Gram stain each colony type and perform initial identification procedures, i.e., catalase, oxidase, bile solubility, etc.
8. Set up definitive biochemical or identification procedures on significant organisms if well isolated.
9. Subculture organisms that are not well isolated to appropriate media for further work-up.
10. Re-incubate primary plates and subcultures for an additional day.
11. Report preliminary results.
12. Day 2
13. Examine primary plates from the previous day for additional microorganisms.
14. Read and record identification tests from the previous day.
15. Set up additional tests as needed.
16. Send updated or final report.
17. MRSA isolation requires a “Called to” if not from E.D. (disch.), or a repeat isolate.
18. Save a representative primary plate, whether a complete work-up was performed or not, at room temperature for 7 days in case a physician calls for further studies.
19. Additional Days
20. Complete identification procedures until all significant isolates are finished.

Send updated report and finalize. |
| **Method Performance Specifications** | 1. Report the presence of normal nose/throat flora (nasopharyngeal), **NTF,** which includes:

*Actinomyces* sp. *Haemophilus influenzae*, non-typablealpha-hemolytic streptococci, viridans group *Haemophilus parainfluenzae**Capnocytophaga* sp. *Lactobacillus* sp.Coagulase-negative staphylococci *Micrococcus* sp.*Corynebacterium* sp. *Moraxella catarrhalis**Eikenella corrodens* *Neisseria* sp. (not GC or NMEN)Gamma-streptococci, viridans grp. *Stomatococcus* sp.*Streptococcus pneumoniae* Yeast in low numbers (1+) Gram-negative rods in low numbers (1+) Beta-hemolytic streptococcus group F 1. Perform identification tests for the following:

Beta-hemolytic streptococci, groups A, C, and G*Haemophilus influenzae*, mucoid strains*Neisseria meningitidis-*does not require call to Infection Prevention*S. aureus*1. Perform identification tests on possible pathogens that are a single isolate, predominant organism or isolated in quantities greater than or equal to the normal nose/throat flora. These may include the following:

*Haemophilus influenzae**M. catarrhalis**Streptococcus pneumoniae**Corynebacterium sp.* (single isolate, morphology resembling *C. diphtheriae*)1. *Streptococcus pyogenes* (group A beta-hemolytic strep) is generally susceptible to penicillin and its derivatives, therefore, susceptibility need not be routinely performed. The principal reason for considering an alternative drug for individual patients is allergy to penicillin. Erythromycin, a cephalosporin, or Clindamycin might be substituted in these cases. Patients allergic to penicillins may also be allergic to cephalosporins.
* Add Sunquest code **BHSS** to report: Beta hemolytic streptococci are susceptible to penicillin, cephalosporins and Vancomycin. Some strains may be resistant to erythromycin.
 |
| **Result Reporting** | 1. CULTURE RESULTS: Record culture results and culture work-ups in Sunquest MRE *Culture Entry* tab in Observations or Workups by using customized keyboards or by entering a code in the result box. Report results semi-quantitatively, i.e., 1+, 2+, 3+ or 4+.

|  |  |  |  |
| --- | --- | --- | --- |
| Quantity | 1st quadrant# colonies | 2nd quadrant# colonies | 3rd quadrant# colonies |
| 1+ | <10 |  |  |
| 2+ | >10 | <5 |  |
| 3+ | >10 | >5 | <5 |
| 4+ | >10 | >5 | >5 |

Observations: 1. 4+ NORMAL NOSE/THROAT FLORA (NASOPHARYNGEAL) Sunquest code: **NTF** 2. Susceptibilities not performed. Please contact Microbiology if further testing is required (MPLS 813-5866).1. MRSA isolation requires a “Called to” if not from E.D. (disch.), or a repeat isolate. Document date and time called in computer.
	1. 3+ METHICILLIN-RESISTANT STAPH AUREUS \*\*\*MDRO\*\*\*
	2. MULTIPLE DRUG RESISTANT ORGANISM (MDRO): This organism requires SPECIAL CONTACT PRECAUTIONS. Please call Infection Control.
2. \*\*Called to Linda S., RN L8 @ 1300 7/7/03
3. Report mucoid *Streptococcus pyogenes* strains using the Sunquest codes **BSA – MUCO**.
4. If a culture requires a correction, the code **CORR** (corrected report) must be reported on an observation line in the *Direct Exam* or *Culture Entry* tab. Refer to policy [LABELING ERRORS/SPECIMEN MIXUPS AND CORRECTING PATIENT DATA](file://\\kidsnet.childrenshc.org\chcdfs\dept\Lab%20Procedures\Microbiology\1NEW%20Micro%20Procedure%20Manual.%20(same%20as%20in%20Starnet)\MC%20100%20%20%20%20Quality,Spec.%20mgmt.,Labeling,Proc.,Sendout%20Results,Billing,%20PT%20testing,Addl%20Projects\MC%20102%20Labeling%20Errors,%20Specimen%20Mixups,%20Corrected%20Reports%20R.docx)
5. If additional testing should be requested after the culture has been finalized, remove the final status and send out a supplementary report. The code **SRPT** (supplementary report) must be used in SREQ or *Culture Observations* as follows:
* Updated or new culture information: In the *Culture Entry* tab, enter SRPT on an observation line followed by new results.
* Requests for additional testing: In the *Misc. Updates* tab, enter SRPT in SREQ followed by the request.
* Re-final the culture when identifications and/or testing are complete.
 |
| **References** | 1. Versalovic, James, et al, *Manual of Clinical Microbiology*, 2011, ASM press, American Society for Microbiology, Washington, D.C.
2. Leber, Amy, Aerobic bacteriology, 3.11.1 *Clinical Microbiology Procedures Handbook*, 2016, 4th edition. American Society for Microbiology, Washington, D.C.
 |
| **Appendices** | WORKLOAD MEDIA FORM DEFINITIONBATTERY: NPCSPEC MEDIA1. CHOC, SB, MAC, CUT3
 |
| **Training Plan/ Competency Assessment** | **Training Plan** | **Initial Competency Assessment** |
| 1. Employee must read the procedure.
2. Employee will observe trainer performing the procedure.
3. Employee will demonstrate the ability to perform procedure, record results and document corrective action after instruction by the trainer.
 | 1. Direct observation.
 |
|  |  |
| **Historical Record** |  |  |  |  |
|  | **Version** | **Written/Revised by:** | **Effective Date:** | **Summary of Revisions** |
| 1.0 | Pat Ackerman | 1978 | Initial Version |
| 1.1 | Pat Ackerman | 04/1983 |  |
| 1.2 | Pat Ackerman | 04/1998 |  |
|  | 1.3 | Pat Ackerman | 07/29/2003 |  |  |  |
| 1.4 | Pat Ackerman | 12/27/2004 |  |
| 1.5 | Pat Ackerman | 08/17/2007 | Updated Sunquest 6.2 reporting information. Revised SRPT and CORR statements. Revised principle. Added statement “Refer to procedures specific for B. pertussis, C. Diphtheriae or MRSA if requested.” Added BHSS information. |
|  | 1.6 | Jessica Craig | 06/07/2010 | Updated into online format. |
|  | 2 | Becky Carlson | 4/18/2015 | Re-numbered from MC 424 for CMS load. |
|  | 3 | Susan DeMeyere | 11/7/2023 | Removed used for surveillance of *N. meningitidis*.  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |