

READING SPUTUM, TRACHEAL ASPIRATE AND BRONCHIAL WASH CULTURES

PURPOSE Sputum(expectorated, induced), Tracheal aspirates (tracheostomy, endotracheal) and bronchial wash cultures are evaluated for the presence of potential pathogens causing pneumonia.

SCOPE This procedure is to be used with the M403 Microbiology Augmentation Set.

PROCEDURE

STEP	ACTION
1	Sputum and bronchial wash sources are plated to Blood agar plate (BAP), Chocolate agar plate (CAP), and MacConkey (MAC) and incubated in CO ₂ at 35°C. PEA agar may be added to cultures when swarming <u>Proteus sp.</u> has grown on previous cultures or to cultures of known cystic fibrosis patients.
2	Plates are examined after 24 hours incubation to correlate growth on plates with organisms seen on primary Gram stain. Presence or absence of normal flora is noted on any sputum culture. Organisms commonly isolated aerobically from sputum and bronchial washings which are considered to be normal flora include: alpha and non-hemolytic strep, non-pathogenic <u>Neisseria sp.</u> , <u>Corynebacterium sp.</u> , coagulase negative staph, and <u>Micrococcus sp.</u> If normal flora is present in low quantities, it may be reported as such, eg., "Reduced normal respiratory flora", or, in some cases, "No normal respiratory flora with". If there is no growth or young growth after 24 hours, reincubate. If no growth occurs after 48 hours, report as "No growth at 48 hours".
3	When examining sputum culture plates, compare the balance of normal flora in relation to other organisms that may be potential pathogens. In addition, organisms identified as potential pathogens on the culture should reflect any organisms associated with pulmonary material on the Gram stain.
NOTE: In instances where specimens are processed regardless of	

	<p>quality (CDQ), correlation between Gram stain and culture need not be made.</p> <p>(a) If there is an obvious discrepancy between the Gram stain and the culture, reevaluate the Gram stain. If a discrepancy still exists, consult with OIC or NCOIC..</p> <p>(b) For example, if Gram positive cocci in singles, pairs, and chains are reported as predominant on the Gram stain, and alpha strep is growing on the culture, the alpha strep should be screened for <u>S.pneumoniae</u>. Whether or not the alpha strep identifies as <u>S. pneumoniae</u>, the Gram stain is considered to agree with the culture.</p>
4	<p>Potential pathogens include: <u>Staph aureus</u>, yeast, <u>Moraxella catarrhalis</u>, Gram negative rods, <u>S. pneumoniae</u>, and <u>H.influenzae</u>.</p> <p>(a) Even though these organisms are potential pathogens, workup is not warranted unless the organism is predominating. It may be helpful to evaluate potential pathogens in terms of other organisms present. For instance, if yeast, coagulase negative staph, and non-hemolytic strep are present in equal amounts, this would be considered "normal flora". However, if the yeast is predominating, workup would be warranted.</p> <ol style="list-style-type: none"> 1. The primary exception to the above is the presence of <u>S. pneumoniae</u> and <u>Haemophilus influenzae</u>. These organisms are always worked-up when present in 3+ and 4+ amounts regardless of the Gram stain report. When present in 1+ and 2+ amounts, they are worked-up only when predominating on culture, for immunocompromised patients, for cystic fibrosis patients, or when predominating on Gram stain (as indicated on initial gram stain report). 2. If an organism identifies as <u>H. parainfluenzae</u>, it is not reported unless small Gram negative rods are mentioned in the Gram stain report as associated with pulmonary material. 3. Predominating <u>S. aureus</u> is identified and submitted for antimicrobial susceptibility testing
	<ol style="list-style-type: none"> 4. If any other potential pathogen is present, workup. 5. If mold is present in 3+ or 4+ amounts, it should be reported even though further workup is not possible.

	<p>6. Any amount of beta hemolytic strep is worked up to rule out Group A strep. Refer to Throat Culture procedure.</p> <p>(b) Certain situations do not meet the criteria mentioned above. The technologist should exercise good judgement in evaluating cultures that are difficult to interpret due to either the organisms present on the culture or due to unusual clinical situations.</p> <p>(c) No more than 2 organisms may be worked-up and identified as potential pathogens without a consult. Therefore, 3 or more potential pathogens on culture always require a consult for further workup.</p>
5	<p>Repeat specimens: One good quality sputum per day per patient is cultured. Subsequent specimens may be referred to the good quality specimen and reported as duplicates.</p>
6	<p>Referring cultures: If an organism has been fully identified on a culture and the same organism is isolated on subsequent cultures the organism need not be fully identified again if the cultures were collected within a 7 day period. In reporting these cultures, the organism is described morphologically since the genus and species name cannot be used unless complete identification is performed and the specimen number of the culture to which it is being referred is entered.</p>

RESULTS

STEP	ACTION
1	Presence or absence of normal respiratory flora is always reported. The amount of normal respiratory flora may be described as scant, or reduced in quantity if applicable. If absent, report as "No normal respiratory flora."
2	If no growth at 48 hours, report as such.
3	The quantity of potential pathogen present is NOT reported. It is, however, recorded on the work document. eg. Normal respiratory flora with <u>Haemophilus influenzae</u> , beta lactamase positive.
	The presence of Beta strep is always reported whether or not it is a Group A

4	and regardless of quantity. eg. Normal respiratory flora with beta strep not Group A.
5	All cultures should have a preliminary report entered at 24 hours. If the workup is not complete at that time, reincubate for further evaluation and annotate on the culture workup sheet.
6	<u>N. meningitidis</u> should be reported as: Normal Respiratory flora with <u>N. meningitides</u> .

REFERENCES

Howard, Barbara J. Clinical and Pathogenic Microbiology, Washington, D.C.: C.V. Mosby., 1994 pp.50-51, 235.

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