

SPUTUM ADEQUACY

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| <input checked="" type="checkbox"/> St. Joseph Medical Center, Tacoma, WA | <input checked="" type="checkbox"/> St. Anthony Hospital Gig Harbor, WA | <input type="checkbox"/> Harrison Medical Center, Bremerton, WA |
| <input checked="" type="checkbox"/> St. Francis Hospital, Federal Way, WA | <input checked="" type="checkbox"/> St. Elizabeth Hospital Enumclaw, WA | <input type="checkbox"/> Harrison Medical Center, Silverdale, WA |
| <input checked="" type="checkbox"/> St. Clare Hospital Lakewood, WA | <input checked="" type="checkbox"/> Highline Medical Center Burien, WA | <input type="checkbox"/> PSC |

PURPOSE

To provide instruction for screening the quality of sputum specimens prior to culture.

BACKGROUND

While the specimen quality is important for all samples, it is especially important in specimens from the lower respiratory tract. A gram stain is made of the sputum specimen prior to inoculation to media to evaluate the number of WBC's and squamous epithelial cells. A good quality specimen is required to determine the patient's causative agent that is causing pneumonia. Specimens with more than 10 squamous epithelial cells per low power field are rejected. The presence of ciliated epithelial cells can be an indicator of a good sample.

RELATED DOCUMENTS

SPECIMEN COLLECTION

Only expectorated sputums are screened for adequacy, preferably first morning specimen. All other respiratory specimens are not screened prior to inoculation

STEPS

1. Select the purulent portions of the specimen for smear preparation.
2. Gently roll the material onto a clean slide and allow to dry under the biosafety hood.
3. After the slide is dry, fix with methanol and perform a gram stain.
4. Use low power (10X) to examine the slide for the presence of *squamous* epithelial cells.
5. Specimens containing numerous or moderate WBC's and few or no epithelial cells are good quality specimens and will be accepted for culture. It is important to remember that transplant patients and other immunosuppressed patients may not demonstrate WBC's. Adequacy is determined by the number of epithelial cells present. Refer to the gram stain procedure for the interpretation of the smear once the smear has been determined adequate.

6. Inoculate media and incubate plates following usual procedures.
7. If the specimen has more than 10 epithelial cells/low power field, the specimen will be rejected

REPORTING RESULTS

1. Specimens with greater than 10 squamous epithelial cells/low power field are considered to be unacceptable for culture.
2. Call the nursing floor or physician's office and let them know that the sample appears to be saliva rather than sputum and ask for the specimen to be recollected.
3. Occasionally the sample may be requested to be cultured regardless of the gram stain result. The patient may have already been started on antibiotics or another sample cannot be obtained. Inoculate the specimen following protocol but indicate in the patient's report that notification was given and the reason for proceeding with the culture.
4. After notifying the staff of an inadequate specimen, discard the specimen in the hold bucket in the refrigerator. Hold the specimen in case the specimen cannot be recollected or additional tests are requested. Hold for 2-3 days.
5. Enter the gram stain result in the LIS. Result smear using Result Entry. After adding the patient's accession number, click on Edit. Under the gram stain tab, enter the results. If the sputum is adequate, Quantitate WBC's, and Epithelial cells. Enter organisms present or Mixed Flora, no predominate organism. If the specimen is inadequate enter SPIT under the description on the gram stain tab. Enter Oropharyngeal contamination in the Culture growth box. Call for recollection and document whom you called the report to so that documentation is charted. Final Verify. The LIS will automatically cancel the culture when the SPIT code is entered.
6. Remote labs must send the slide to SJMC Microbiology for review.

REFERENCES

Patrick Murray, Manual of Clinical Microbiology, ASM. Washington D.C. 2003