**PROCEDURE: QUALITY ASSESSMENT AND ACCURATE RESULT REPORTING**

1. **PRINCIPLE**
	1. One of the most important factors in communication of microbiology results to clinical personnel is the accuracy of the information. Reporting errors may result in adverse clinical consequences. It is therefore essential to actively seek out mistakes and investigate their roots. The resulting knowledge may identify reporting procedures that could be improved to prevent the recurrence of similar mistakes.
2. **RESULTS THAT NEED REVIEW PRIOR TO FINALIZING THE CULTURE:**
	1. Unusual Antibiotic Results:

Whenever the following are encountered, a second method of susceptibility testing should be done to confirm the result prior to the culture being finalized. Confirmation of identification may need to be performed. If the results confirm, bring up on rounds or to the attention of Director, Manager, Lead, or Senior Technologist.

* + 1. Enterobacteriaceae resistant to carbapenems
		2. *Salmonella* resistant to third generation cephalosporins or fluoroquinolone
		3. *S. maltophilia* resistant to trimethoprim-sulfamethoxazole
		4. *Acinetobacter baumanii* resistant to carbapenem
		5. *E. faecalis* non-susceptible to penicillin (unless experted by Vitek), daptomycin, or linezolid
		6. *E. faecalis* sensitive to synercid
		7. *E. faecium* resistant to linezolid or daptomycin
		8. *E. faecium* sensitive to penicillin
		9. Any Staph not susceptible to daptomycin, linezolid, synercid, or vancomycin
		10. *S. pneumoniae* not sensitive to linezolid, synercid, fluoroquinolone, rifampin, vancomycin, or carbapenems
		11. Beta-Streptococcus not sensitive to ampicillin, daptomycin, linezolid, vancomycin, or a third-generation cephalosporin (ceftriaxone) carbapenem, and synercid
		12. Streptococcus viridans group not sensitive to daptomycin, linezolid, synercid, carbapenem, or vancomycin
		13. Any organism resistant to all antibiotics tested. Bring up on rounds. Additional antibiotics will be added per consultation with Director and/or physician
		14. For antibiotics with no CLSI interpretations available, MIC’s may be performed for requested antibiotic/organism combination per Director consultation or physician request with Director consultation and approval. Interpretative results should be NI
		15. Refer to CLSI document M100, Appendix B – Intrinsic Resistance for inherent or innate antimicrobial resistance. A susceptible result should be viewed with caution. Confirm susceptibility test results and identification by alternate method
		16. The following yeast bug/drug combinations should be investigated:
			1. Candida albicans resistant to all azoles
			2. Candida sp. Susceptible to azoles but resistant to echinocandins
			3. Candida albicans resistant to echinocandins
			4. Candida kruseii susceptible to fluconazole
	1. Gram Stain Review:
		1. Gram stain reviews are documented in the worksheet of the culture by adding

**media: GSREV**

* + 1. Gram stains are reviewed periodically to confirm the quality of smear preparation and satisfactory gram staining technique, including but not limited to proper smear thickness, free of precipitate, proper cell distribution, and appropriate staining reactions.
		2. Gram stains are additionally reviewed when the following situations are encountered:
			1. Sterile body fluids
				1. The gram stain was NOS and original culture plates are growing in any amount.
				2. The bacteria in the culture do not match the bacteria in the gram stain.
				3. Organisms were seen in the gram stain and did not grow.
			2. Anaerobic bench
				1. Culture grows 2+ or greater and organism is not seen in gram stain.
				2. Bacteria in the culture do not match the bacteria in the gram stain.
				3. Organisms seen in gram stain and did not grow.
			3. CSF
				1. The gram stain was NOS and original culture plates are growing in any amount.
				2. Organisms were seen in the gram stain and did not grow.
				3. The bacteria in the culture do not match the bacteria in the gram stain.
			4. Bloods
				1. The bacteria in the culture do not match the bacteria in the gram stain.
				2. The gram stain was NOS and original subculture plates are growing in any amount.
				3. Smears done on 2nd or 3rd shift will be reviewed the following day.
			5. Circumstances when a gram stain review is not necessary
				1. If organism grows from broth only and not growing on original plates
				2. Organisms are noted in worksheet of gram stain that match the culture result
1. **MANAGER/LEAD-SR. TECHNOLOGIST DAILY REVIEW OF REPORTS**
	1. All positive cultures are reviewed by the Manager, Lead/Sr. Technologist, or designee for accuracy, Monday – Friday after the technologist has read that culture for the day. Review on weekends is done, time permitting. Work done on 2nd or 3rd shift will be reviewed by 2nd shift Sr. Technologist or the following day. If any discrepancies are discovered, the report is corrected immediately. Errors affecting patient care are reported to the nurse/physician caring for the patient and a SAFETY NET report is completed.
	2. Work lists that are reviewed:



* 1. Criteria utilized when reviewing reports:
		1. Final reports are compared to the written procedures to ensure that the procedure is followed accurately
		2. Smears
			1. Ensure the gram stain was reviewed when applicable according to review criteria
			2. Match culture results to smear
			3. Smears are quantitated per protocol
		3. Cultures
			1. Organisms are quantitated accurately
			2. Organisms isolated correlate with the source of the specimen
			3. For blood cultures when the ‘single bottle’ comment is used ensure there was only 1 set ordered within 3 days
			4. If the organism is referred to another culture, be sure the organism name and any comments are included in the report
		4. Susceptibility
			1. Ensure susceptibility results were reviewed when applicable according to review criteria
			2. ESBL or confirmation testing is done and reported correctly
			3. Appropriate susceptibility panel is done
			4. Oxacillin resistant SA are changed to MRSA
			5. Enterococcus isolates have “Vancomycin Resistance Detected” comment added when applicable
		5. Critical call policy is followed
		6. Worksheets are randomly checked for completeness and to make sure that the appropriate testing was done for the identification of the organism
	2. Reviewing Virology Reports for accuracy:
		1. DiaSorin HSV
			1. Any specimen positive for both targets should be repeated
			2. If there is a positive with a low CT (15-18), check for a positive with a high CT (35-38). This may show contamination and the latter should be rerun
		2. BD MAX
			1. Any specimen positive for more than 1 target should be repeated.
			2. Any specimen positive for E. histolytica should be repeated then confirmed by a reference lab.
	3. Corrective actions when errors are identified:
		1. Results in question have been verified by either an alternate method or review of original results
		2. Reports that need correction have been updated following *Procedure: Corrected and Supplemental Reports*
		3. Errors are printed in duplicate, one goes to the manager, the other one goes to the employee responsible for the error
		4. The errors are categorized and tabulated monthly and reviewed with employees
1. **WEEKLY AND MONTHLY REVIEW**
	1. All non-interfaced results are reviewed at least weekly for accuracy
	2. All QC, instrument maintenance records, and function checks are reviewed at least monthly by QC designee
2. **STATISTICS -** Any drastic fluctuation is brought to the attention of the laboratory director.
	1. Daily
		1. Blood Culture volumes are tracked twice daily
	2. Weekly
		1. RPP totals (% positive)
	3. Monthly
		1. Blood Culture Contamination (target 3%) and Positivity (target 10%)
		2. Group A Strep PCR – Track positivity and Invalid rates
	4. CDiff – Track positivity and indeterminate rates, Track rejected formed stools
	5. Enterovirus – Track total number of positive, and indeterminate results
	6. HSV CSF/plasma – Positivity rates
	7. VZV CSF and UTM – Positivity rates
	8. Preadmit Nasal PCR – MSSA/MRSA positivity and Indeterminate rates
	9. Meningitis/Encephalitis PCR – Track totals and positivity and invalid rates
	10. Enterovirus PCR Turnaround times (target 4 hours)
	11. MRSA/SA PCR - % performed and Accuracy of results compared to culture.
3. **PROCEDURE REVIEW**
	1. All procedure in the Microbiology lab are adopted and approved by the director or designee
	2. All procedures are reviewed biannually by the director or designee
	3. Any procedure that is unclear is updated as needed by manager or Lead/Sr. Technologist and reviewed by director or designee
	4. Procedures that are discontinued are maintained for two years. The retired date and discard date are written on the procedure
	5. In the event of a change in directorship, the new director will promptly review all procedures
4. **REVISIONS**
	1. 2/10/2020 Updated gram stain review criteria and monthly statistics tracking