Microbiology Clinical Practicum Objectives – CLS 643

Based on your practicum location, you may or may not have the opportunity to perform all the functions in mycobacteriology, parasitology, and mycology.

The following objectives are to be completed by the student for successful completion of this clinical rotation. The objectives within the psychomotor domain will be achieved by practice and evaluated through demonstration by the student. The objectives within the cognitive domain will be obtained through readings and evaluated through written exams.

1. Select the appropriate organisms for evaluation of reactivity of media, commercial kits, and reagents.
2. Evaluate the results of quality control testing and states the media, kit, or reagents that can be placed into service. Determine the appropriate action to take if results are not acceptable.
3. Operate, maintain, and perform Quality Assurance procedures on the automated blood culture instrument according to established protocol.
4. Select and set-up the appropriate atmospheric conditions for anaerobes and Campylobacter.
5. Based on the source of a culture, determine if the culture is acceptable. If not, determine the appropriate action to take including documentation procedures.
6. For specimens deemed acceptable, select the appropriate media, determine if a gram stain is indicated, process the specimen appropriately based on source, inoculate the plates, streak for isolated colonies, and select the correct incubation conditions.
7. Perform and interpret gram stains from clinical specimens and from isolated colonies.
8. Recognize the normal flora of the upper and lower respiratory tract, skin/wound, urogenital tract, and stool in routine cultures.
9. Recognize organisms that are pathogenic or potentially pathogenic from routine cultures and determine the identification procedures necessary to identify these organisms.
10. Perform presumptive and definitive identification tests on possible pathogens isolated from routine clinical cultures.
11. Determine when susceptibility testing is required based on the organism isolated and select the susceptibility procedure most appropriate for that organism.
12. Perform and interpret MICs, Kirby Bauer, E-Test, ESBL screens, and/or D Test susceptibility procedures.
13. Following the procedure manual, operate an automated identification and susceptibility instrument and an automated blood culture instrument.
14. Determine the appropriate work-up of an organism from a positive blood culture based on the initial gram stain result.
15. Process specimens for mycobacterial cultures, evaluating specimen acceptability and determining the need for decontamination and concentration, following the lab's protocol.
16. Perform Acid Fast Stains from clinical specimens.
17. Observe the use of DNA technology in the identification of common mycobacterial isolates.
18. Perform and interpret the results of rapid EIA, kits for the determination of various human pathogens (ex: Cryptosporidium, Giardia, C. difficile, Rotavirus, Influenza, etc.).
19. Perform concentration procedures on stool specimens as required for the detection of Ova and Parasites.
20. Process specimens for fungal culture, evaluating specimen acceptability and determining the need for any special processing of the specimen prior to culture.
21. Interpret the growth on fungal culture differentiating yeasts from filamentous moulds.
22. Perform and interpret yeast identification as per the protocol of the clinical site.
23. Perform and interpret slide cultures, tease preps, or scotch tape preps to identify commonly recovered filamentous moulds to at least genus level.
24. Recognized abnormal, unusual, and/or unexpected results during the performance of diagnostic testing in microbiology.
25. Following procedures, record and report patient results as required by your supervising CLS.

Clinical Microbiology III Practicum - CLS 643
Performance Tasks Checklist

Note: This checklist contains a number of Microbiology tests that may not necessarily be performed in the department at your clinical site or may be performed in another department. The CLS student will perform assigned tests that may or may not be included in this list. However, the student is responsible for applying the objectives to each of the tests listed below and any additional assigned by the site. Performing truly independently at all tasks may not be achievable at this stage, but with supervision the student should be able to perform most tasks with minimal oversight.

Please evaluate the student using the following scale:

1. Exceeds Standards (100%): Consistently exceeds entry level expectations. Student demonstrates exceptional initiative and independent functioning. Can perform tasks independently.

2. Above Standards (90%): Consistent in meeting entry-level expectations. Student performance demonstrates initiative and independent functioning. Student may excel in some areas.

3. Meets Standards (80%): Consistent in meeting entry-level expectations. Can perform procedures with supervision.

4. Below Standards (70%): Performance is marginally below entry-level expectations. Student needs to improve to achieve entry-level competencies.

5. Fails to Meet Standards (60%): Performance is significantly below entry-level expectations. Performance is unacceptable. Needs continuous monitoring and supervision.

N/A: Not applicable. No opportunity to evaluate criteria. Please mark "NA" across the rating scale if there has been inadequate opportunity to evaluate an attribute.

Student Name:_____

Clinical Site:_____

Blood Cultures

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Logs in specimens according to procedure	○	○	○	○	○	○
Correctly loads bottles onto instrument	○	○	○	○	○	○
Performs and interprets gram Stains of positive bottles and subcultures to the appropriate media	○	○	○	○	○	○
Notifies appropriate person with positive results using correct protocol	○	○	○	○	○	○
Performs blood culture instrument maintenance and quality assurance as required	○	○	○	○	○	○
Works in an organized and efficient manner for an entry level CLS	○	○	○	○	○	○

Culture Set-Up

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Identifies unacceptable specimens and take the appropriate action	○	○	○	○	○	○
Selects the correct media For the specimen source	○	○	○	○	○	○
Properly labels media and slides	○	○	○	○	○	○
Operates the bio-safety cabinet correctly	○	○	○	○	○	○
Inoculates specimen onto media Streaks plates so that isolated Colonies are obtained	○	○	○	○	○	○
Correctly plates urine Specimens using a calibrated loop	○	○	○	○	○	○
Correctly processes tissues Using a tissue grinder or other Appropriate method	○	○	○	○	○	○
Selects appropriate incubation conditions	○	○	○	○	○	○
Sets up anaerobic jars, Campy/anaerobic bags, etc. and Achieves the expected atmosphere	○	○	○	○	○	○

Culture Set-Up *continued . . .*

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Prepares gram stain slides from clinical specimens	○	○	○	○	○	○
Stains gram stains following the procedure	○	○	○	○	○	○
Screens sputum gram stains and rejects unacceptable specimens	○	○	○	○	○	○
Correctly interprets and Reports gram stains based On the lab's procedure	○	○	○	○	○	○
Performs various rapid EIA tests and correctly interprets the results. (H. pylori, Rotavirus, RSV, Influenza, C.diff, Etc.)	○	○	○	○	○	○
Performs and interprets Fecal Leukocyte exams	○	○	○	○	○	○

Anaerobic Organisms

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Recognizes Organisms that should be checked for aerotolerance	○	○	○	○	○	○
Performs aerotolerance testing	○	○	○	○	○	○
Set-up of RapID system for Anaerobes or other commercial ID kit	○	○	○	○	○	○
Interpretation of ID system results for anaerobes	○	○	○	○	○	○
Works in an organized and efficient manner for an entry level CLS	○	○	○	○	○	○

Culture Interpretation

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Recognizes normal flora in upper respiratory cultures	○	○	○	○	○	○
Recognizes beta hemolytic strep in throat cultures	○	○	○	○	○	○
Recognizes S. pneumoniae and H. influenza in respiratory cultures	○	○	○	○	○	○
Correctly performs colony counts on urine cultures	○	○	○	○	○	○

Culture Interpretation *continued*

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Recognizes normal stool flora	○	○	○	○	○	○
Recognizes colonies on stool cultures that need to be Screened as enteric pathogens (S&S, EHEC, Yersinia, Campy)	○	○	○	○	○	○
Correctly interprets screening tests from suspected colonies from stool cultures	○	○	○	○	○	○
Recognizes normal sin flora in wound cultures	○	○	○	○	○	○
Recognizes potential pathogens in wound cultures and performs appropriate follow-up testing	○	○	○	○	○	○
Able to correctly perform rapid tests such as catalase, oxidase, spot indole, bile solubility	○	○	○	○	○	○
Ability to perform rapid tests Such as PYR, catarrhalis disk, Beta-lactamase test, Bacti-staph, Micro-ID, etc.	○	○	○	○	○	○
Able to perform strep typing On beta streps	○	○	○	○	○	○
Able to perform other overnight, non-automated tests such as optochin	○	○	○	○	○	○
Able to set-up Remel RapID systems and/or other commercial ID systems	○	○	○	○	○	○
Ability to set-up tests on an automated system (Phoenix, Vitek, Microscan or other instrument)	○	○	○	○	○	○

Mycology

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Recognizes when a yeast or mould is present on a fungal culture	○	○	○	○	○	○
Can perform screening tests For different species of yeast (Candida albicans screen, Germ tube, trehalose, etc.)	○	○	○	○	○	○
Preparation of slide cultures, tease preps, or scotch tape preps.	○	○	○	○	○	○

Mycology *continued* :

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Examine preps of filamentous moulds and can identify to at least genus level	○	○	○	○	○	○
Follows safety protocols for the mycology lab	○	○	○	○	○	○

Susceptibility Testing

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Performs Kirby Bauer disk susceptibility tests	○	○	○	○	○	○
Able to interpret KB disk susceptibility tests	○	○	○	○	○	○
Abe to set-up and interpret E-tests	○	○	○	○	○	○
Recognizes when confirmatory testing needs to be done for MRSA, ESBLs, AmpC, Carbapenamases	○	○	○	○	○	○
Correctly sets-up confirmatory tests as indicated	○	○	○	○	○	○
Works in an organized and efficient manner for an entry level CLS	○	○	○	○	○	○
Selects appropriate organisms for the performance of Quality Control Testing	○	○	○	○	○	○
Performs quality control testing as required by the lab's policies	○	○	○	○	○	○

Parasitology

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Preserve stool samples for O&P exams following the lab's procedures	○	○	○	○	○	○
Perform and interpret wet mounts for T. vaginalis	○	○	○	○	○	○
Perform stains (modified) Acid Fast or fluorescent) for Cryptosporidium	○	○	○	○	○	○
Performs concentration techniques on stool for the detection of ova and parasites	○	○	○	○	○	○

Parasitology *continued:*

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Performs various rapid EIA tests and correctly interprets the results (Crypto/Giardia; E. histolytica	○	○	○	○	○	○
Prepares and performs Trichome or other permanent stain for parasites	○	○	○	○	○	○
Examines wet and permanent smears to find and identify parasites	○	○	○	○	○	○
Examines Thin Blood smears to find and identify blood -parasites	○	○	○	○	○	○

Mycobacteria

	Exceeds Standards (100%)	Above Standards (90%)	Meets Standards (80%)	Below Standards (70%)	Fails to Meet Standards (60%)	N/A
Performs sputum digestion procedure	○	○	○	○	○	○
Performs Acid Fast stains	○	○	○	○	○	○
Follows proper protocol for handling positive bottles from the Bac-T Alert TB or other automated AFB instrument	○	○	○	○	○	○
Works in an organized and efficient manner for an entry level CLS	○	○	○	○	○	○
Follows safety protocols for The mycobacteriology lab	○	○	○	○	○	○

Additional Comments:

Clinical Instructor:_____

Date:_____