

Infectious Disease Rotation Clerkship Objectives

1. Microbiology Laboratory Investigations

- a. The student will be able to:
 - i. Appropriately order microbiology laboratory investigations which includes ordering the correct test, collecting the correct specimen type, and sending to the laboratory in the appropriate transportation media/container.
 - ii. Liaise with the Microbiologist/Virologist on call when appropriate including notifying the lab of possible risk group 3 or 4 pathogens which may be a hazard to laboratory staff
 - iii. Interpret a Gram stain report
 - iv. Interpret the culture results including distinguishing between colonization, contamination, and infection
 - v. Interpret common serologic tests

Resources:

1. J Michael Miller, Matthew J Binnicker, Sheldon Campbell, Karen C Carroll, Kimberle C Chapin, Peter H Gilligan, Mark D Gonzalez, Robert C Jerris, Sue C Kehl, Robin Patel, Bobbi S Pritt, Sandra S Richter, Barbara Robinson-Dunn, Joseph D Schwartzman, James W Snyder, Sam Telford, Elitza S Theel, Richard B Thomson, Melvin P Weinstein, Joseph D Yao; A Guide to **Utilization of the Microbiology Laboratory for Diagnosis of Infectious Diseases**: 2018 Update by the Infectious Diseases Society of America and the American Society for Microbiology, Clinical Infectious Diseases, Volume 67, Issue 6, 31 August 2018, Pages e1–e94, <https://doi.org/10.1093/cid/ciy381>
2. Calgary Laboratory Services Guide to Lab Services. <http://www.calgarylabservices.com/lab-services-guide/lab-tests/>
3. Alberta ProvLab Guide to Services. <https://www.albertahealthservices.ca/webapps/labservices/indexProvLab.asp>

2. Antibiotic Management

- a. For each antibiotic, the student will be able to:
 - i. Describe mode of action
 - ii. List the organisms that are usually sensitive to the antimicrobial (spectrum of activity)
 - iii. List and monitor for known side effects
 - iv. Take into account the tissue penetration/concentration of the antimicrobial agent to select the correct drug for the correct syndrome
- b. In a patient with possible antibiotic allergy the student will be able to:
 - i. Take a history to determine the likelihood of true allergy
 - ii. In a patient with a proven antibiotic allergy order appropriate alternate therapy
 - iii. Manage allergic reactions including anaphylaxis

- c. The student will be able to use local antibiogram data to guide the use of empiric antibiotic therapy

Resources:

1. <https://podcasts.apple.com/ca/podcast/sos-ams-podcast/id1648183628>
2. Spectrum localized antimicrobial stewardship app. Free on Apple, Android and on the web. <http://www.spectrum.md/>
3. Bugs and Drugs. Available for free on the AHS network at <http://bugsanddrugs.albertahealthservices.ca/>. iPhone and Android apps also available for purchase.
4. Sanford Guide to Antimicrobial Therapy. Available for purchase in print or app. <https://store.sanfordguide.com/storefront.aspx>
5. CLS Microbiology Antibiograms. <https://www.calgarylabservices.com/education-research/publications/microbiology-Antibiograms.aspx>
6. AHS Antimicrobial Stewardship Backgrounder: B-lactam Allergy.
 - a. One page summary: <https://www.albertahealthservices.ca/assets/info/hp/as/if-hp-asb-2017-07-issue-14.pdf>
 - b. Slide presentation: <https://insite.albertahealthservices.ca/Main/assets/tms/phm/tms-phm-pub-asb-b-lactam-allergy-slides.pdf#search=backgrounder%20allergy>

3. Infection Prevention and Control

- a. The student will be able to assess the need for additional precautions in patients with known or suspected infectious diseases
- b. The student will know and adhere to the four moments of hand hygiene
- c. The student will know how to appropriately don and doff personal protective equipment

Resources

1. Compendium of Strategies to Prevent Healthcare-Associated Infections in Acute Care Hospitals. <http://www.shea-online.org/index.php/practice-resources/priority-topics/compendium-of-strategies-to-prevent-hais>
2. AHS Acute Care Infection Prevention and Control Resources <https://www.albertahealthservices.ca/info/Page6854.aspx>

4. Common Infectious Disease Syndromes

- a. For the following syndromes, the student will be able to:
 - i. Elicit a history including Infectious Disease specific components such as:
 1. symptoms pointing to an infectious process including possible body site for the infection
 2. social history including sexual history and illicit drug use
 3. occupational exposures
 4. geographical details including risks for TB, HIV and travel history (including prophylactic medications)

5. risk factors for immunosuppression including an assessment of which are of the immune system may be impaired
 6. prior antibiotic use drug allergies
- ii. Perform a physical exam
 - iii. Order appropriate laboratory investigations
 - iv. Identify the clinical syndrome and come up with a differential diagnosis of infectious and non-infectious causes
 - v. Know the organisms responsible for infectious syndrome
 - vi. Using the principles of antimicrobial stewardship, order and justify initial management including empiric antibiotic therapy
 - vii. Modify the treatment plan based on results of laboratory testing and justify an appropriate duration of therapy.
- b. Syndromes:
- i. *Staphylococcus aureus* bacteremia
 - ii. Sepsis
 - iii. Head and neck infections: dental abscess, otitis, pharyngitis, tonsillitis, and sinusitis
 - iv. CNS infections: Meningitis, brain abscess, encephalitis
 - v. Lower respiratory tract infections: pneumonia, lung abscess, and empyema
 - vi. Gastrointestinal infections: liver abscess, acute and chronic infectious diarrhea, cholecystitis and ascending cholangitis, intra-abdominal abscess/sepsis and peritonitis
 - vii. Cardiovascular infections: infective endocarditis, septic thrombophlebitis, device associated infections, intravenous/intraarterial line infections
 - viii. Urinary tract infections: Cystitis, pyelonephritis, catheter associated urinary tract infections
 - ix. Bone and joint: Osteomyelitis, septic arthritis
 - x. Skin and soft tissue: cellulitis, fasciitis, myositis, postoperative and traumatic skin infections, herpes zoster
 - xi. Genitourinary: Pelvic inflammatory disease, endometritis, gonorrhoea, chlamydia, syphilis
 - xii. HIV and AIDS
 - xiii. Fever in the returning traveler
 - xiv. Fever in the neutropenic host

Resources:

1. Mandell, Douglas, and Bennett's Principles And Practice Of Infectious Diseases, Updated Eighth Edition. Available online via ClinicalKey through UofC Library: <https://www-clinicalkey-com.ezproxy.lib.ucalgary.ca/#/>
2. Tong SY et al. **Staphylococcus aureus infections**: epidemiology, pathophysiology, clinical manifestations, and management. Clin Microbiol Rev. 2015 Jul;28(3):603-61. <https://cmr.asm.org/content/28/3/603.long>
3. Rhodes A et al. Surviving Sepsis Campaign: International Guidelines for Management of **Sepsis and Septic Shock**: 2016. Intensive Care Med. 2017 Mar;43(3):304-377.

https://journals.lww.com/ccmjjournal/Fulltext/2017/03000/Surviving_Sepsis_Campaign_International.15.aspx

4. Baddour LM et al. **Infective Endocarditis** in Adults: Diagnosis, Antimicrobial Therapy, and Management of Complications: A Scientific Statement for Healthcare Professionals From the American Heart Association. *Circulation*. 2015 Oct 13;132(15):1435-86. <https://www.ahajournals.org/doi/pdf/10.1161/CIR.0000000000000296>
5. Osmon DR. et al. Diagnosis and Management of **Prosthetic Joint Infection**: Clinical Practice Guidelines by the Infectious Diseases Society of America, *Clin Infect Dis*. 2013 Jan;56(1):e1-e25. <https://doi.org/10.1093/cid/cis803>
6. Kalil AC et al. Management of Adults With **Hospital-acquired and Ventilator-associated Pneumonia**: 2016 Clinical Practice Guidelines by the Infectious Diseases Society of America and the American Thoracic Society, *Clin Infect Dis*. 2016 Sep 1;63(5):e61-e111. <https://doi.org/10.1093/cid/ciw353>
7. Taplitz RA, et al. Outpatient Management of **Fever and Neutropenia** in Adults Treated for Malignancy: American Society of Clinical Oncology and Infectious Diseases Society of America Clinical Practice Guideline Update. *J Clin Oncol*. 2018 May 10;36(14):1443-1453. 2018 Feb 20. <http://ascopubs.org/doi/pdf/10.1200/JCO.2017.77.6211>
8. Toward Optimized Practice (TOP) Working Group for Urinary Tract Infections in Long Term Care Facilities. 2015 Jan. Diagnosis and management of **urinary tract infections in long term care facilities**: clinical practice guideline. Edmonton, AB: Toward Optimized Practice. http://www.topalbertadoctors.org/download/401/urinary_tract_infection_guideline.pdf?20181101222600
9. AHS Antimicrobial Stewardship Backgrounder: Understanding **Asymptomatic Bacteriuria**. <https://www.albertahealthservices.ca/assets/Infofor/hp/if-hp-antimicrobial-asb-issue-4-2014-08.pdf>
10. Stevens DL et al. Practice Guidelines for the Diagnosis and Management of **Skin and Soft Tissue Infections**: 2014 Update by the Infectious Diseases Society of America, *Clin Infect Dis*. 2014 Jul 15;59(2):e10-52. <https://doi.org/10.1093/cid/ciu296>
11. McDonald LC et al. Clinical Practice Guidelines for **Clostridium difficile** Infection in Adults and Children: 2017 Update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). *Clin Infect Dis*. 2018 Mar 19;66(7):987-994. <https://doi.org/10.1093/cid/cix1085>
12. Shane AL et al. 2017 Infectious Diseases Society of America Clinical Practice Guidelines for the Diagnosis and Management of **Infectious Diarrhea**, *Clin Infect Dis*. 2017 Nov 29;65(12):1963-1973. <https://doi.org/10.1093/cid/cix669>
13. Tunkel AR et al. 2017 Infectious Diseases Society of America's Clinical Practice Guidelines for **Healthcare-Associated Ventriculitis and Meningitis**. *Clin Infect Dis*. 2017 Feb 14. <https://doi.org/10.1093/cid/cix152>
14. PHAC Sexually transmitted infection **(STI) guidelines**. <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/sexually-transmitted-infections.html>
15. **Alberta STI guidelines**. <https://open.alberta.ca/publications/treatment-guidelines-for-sti-2018>

16. Alberta **Notifiable disease guidelines** and related documents_
<http://www.health.alberta.ca/professionals/notifiable-diseases-guide.html>
17. Committee to Advise on **Tropical Medicine and Travel** (CATMAT) guidelines._
<https://www.canada.ca/en/public-health/services/travel-health/about-catmat.html>
18. US Department of Health and Human services medical practice guidelines for **HIV/AIDS**.
<https://aidsinfo.nih.gov/guidelines>