

Elective -Blood stream infection - Role of Microbiologist

Name of Block	Block 1
Name of Elective	Blood stream infection - Role of Microbiologist
Location of hospital Lab or research facility	Dayanand Medical College & Hospital, Dept. of Microbiology
Name of internal preceptor(s)	Dr. Menal Gupta
Name of external preceptor if applicable	N/A
Learning objectives of elective	• To understand the importance of blood culture • To study the methods of sample collection for blood culture • To understand the importance of paired samples and multiple samples for blood culture. • To study methods of identification and AST of the isolates with special emphasis on Salmonella • To interpret AST results for GPC/GNB • To characterization of drug-resistant isolates
Number of students that can beaccommodated in this elective	4
Prerequisites for elective	• Knowledge about standard precautions & good laboratory practice to be completed • Knowledge about antimicrobial stewardship
List of activities of student participation	• Discussion on the importance of blood culture and paired samples / multiple samples for blood culture • To observe the method of sample collection for blood culture • Observe & perform inoculation/ Subculture • Observe & perform antimicrobial susceptibility testing (AST) by disk diffusion method, Vitek -2 and BMD • Interpret AST of the isolates and their MIC • Explain implications of AST result on antimicrobial therapy to clinicians • Fill the antibiotic audit form to check escalation & de-escalation of antibiotics according to culture sensitivity report • To differentiate lood culture contaminants from true blood stream infection • Case presentation
Learning Resources	Lab manual CLSI guidelines
Portfolio entries required	• Documentation of lab techniques learned • Documentation of presentations done • Final presentation

Log book entry required	• Pre-test required • Lab techniques learned with level of competence- B/M/E • Record of presentation • Final presentation • Post-test record • Completion of posting signed by preceptor
Assessment	• Attendance • Successful completion of objectives and log book entry of day-to-day participation in departmental activities and pre/post test • Case presentation • Final presentation
Other comments	Nil

Logbook – cum- Portfolio

Elective module: Blood stream infection - Role of Microbiologist

Blood stream infections are one of the most significant challenges in critical care, and early diagnosis is one of the most decisive factors in determining patient outcome. Blood culture is the most widely used diagnostic tool for the detection of bacteremia and fungemia. It is the most important way to diagnose the etiology of bloodstream infections and sepsis and has major implications for the treatment of those patients. Early identification of pathogens in the blood can be a crucial step in assuring appropriate therapy, and beginning effective antibiotic therapy as early as possible can have a significant impact on the outcome of the disease. It also enables optimization of antibiotic therapy and reduced risk of antimicrobial resistance development.

Antimicrobial resistance (AMR) is a major public health problem worldwide and is associated with adverse health and economic consequences. The bacterial resistance crisis has been greatly attributed to the overuse and misuse of these antibiotics. Our ability to treat common pathogens is challenged because of AMR, resulting in increased duration of illness, costs, number of complications, and deaths.

In this module, students will learn about the processing and interpretation of blood culture. They will be taught about the techniques of antimicrobial susceptibility testing, their interpretation and how to detect and interpret drug resistance phenotypes like extended spectrum beta-lactamases (ESBL), AmpC, methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE) etc. As students engage in the analysis of culture and sensitivity results, they will encounter real-life scenarios for applying their theoretical knowledge.