

### Elective in Department of Microbiology- Block I

<b>Name of Block</b>	Block I
<b>Name of Elective</b>	Hand Hygiene audit in Intensive care units (M7)
<b>Location of hospital lab/research facility</b>	Medical ICU
<b>Name of internal preceptor(s)</b>	Dr Lekshmi Sankar K
<b>Name of external preceptor(s) if applicable</b>	NA
<b>Learning objectives of electives</b>	<ol style="list-style-type: none"> <li>1. To understand the principle and obtain experience executing hand hygiene audit in ICUs</li> <li>2. To obtain knowledge about hand hygiene.</li> <li>3. To participate in hand hygiene audit conducted as a part of HIC surveillance</li> </ol>
<b>Number of students that can be accommodated in this elective</b>	2
<b>Prerequisites for elective</b>	<ol style="list-style-type: none"> <li>1. Training on standard work precautions</li> <li>2. Know the steps of hand hygiene.</li> <li>3. Know the moments of hand hygiene.</li> <li>4. Hand hygiene audit form.</li> </ol>
<b>Learning resources for students</b>	<ol style="list-style-type: none"> <li>1. WHO manual for Hand hygiene practices.</li> <li>2. Hospital infection control manual.</li> </ol>
<b>List of activities of student participation</b>	<ol style="list-style-type: none"> <li>1. Training on standard work precautions.</li> <li>2. Participate in observation of hand hygiene practices going on in medical ICU (minimum 20 hand hygiene moments per week)</li> <li>3. Participate in documentation of hand hygiene practices going on in medical ICU (minimum 20 hand hygiene moments per week)</li> <li>4. Participate in analysis of hand hygiene practices going on in medical ICU</li> <li>5. Record daily observations and activities</li> <li>6. Conduct hand hygiene training and participate in academic discussions</li> </ol>
<b>Portfolio entries required</b>	<ol style="list-style-type: none"> <li>1. Record details of steps of hand hygiene</li> <li>2. Record details of moments of hand hygiene</li> </ol>

	<ol style="list-style-type: none"> <li>3. Record hand hygiene audit and analysis done in medical ICU over 4 weeks</li> </ol>
<b>Log book entry required</b>	<ol style="list-style-type: none"> <li>1. Details of moments observed</li> <li>2. Hand hygiene audit</li> <li>3. Topic presentations</li> <li>4. Reflections and feedback</li> <li>5. Assessment</li> </ol>
<b>Assessment</b>	<p>Formative</p> <ol style="list-style-type: none"> <li>1. DOPS- hand hygiene moments documentation</li> <li>2. Presentation on hand hygiene</li> <li>3. Presentation of hand hygiene audit</li> <li>4. Review the records of daily activities</li> <li>5. Objective test</li> </ol>
<b>Other comments</b>	

### Elective learning experience in Block I

<b>Name of Block</b>	Block 1
<b>Name of Elective</b>	Antibiotic sensitivity pattern of bacterial isolates from urinary tract infection (M6)
<b>Location of hospital lab/research facility</b>	Microbiology lab in central lab, NMCHThrissur
<b>Name of internal preceptor(s)</b>	Dr Anitha T R
<b>Name of external preceptor(s) if applicable</b>	N/A
<b>Learning objectives of electives</b>	<ol style="list-style-type: none"> <li>1. To enumerate different agents causing urinary tract infection</li> <li>2. To demonstrate the method of culture and identification bacterial pathogens from urine</li> <li>3. To identify the various methods of antibiotic sensitivity testing (invitro) of bacterial isolates</li> <li>4. To demonstrate the Kirbeybauer disc diffusion method of antibiotic sensitivity testing for bacterial isolate from urine.</li> <li>5. To demonstrate how to interpret the results of Disc diffusion testing</li> <li>6. To evaluate this results for selecting an antibiotic at clinical side.</li> </ol>
<b>Number of students that can be accommodated in this elective</b>	2
<b>Prerequisites for elective</b>	Training on standard precautions , biosafety and immunisation
<b>Learning resources for students</b>	<ol style="list-style-type: none"> <li>1. Hand book of clinical microbiology</li> <li>2. Sop for different methods of Antibiotic sensitivity testing from CLSI</li> </ol>
<b>List of activities of student participation</b>	<ol style="list-style-type: none"> <li>1. Report to Microbiology Lab In Central lab and observe, assist and perform the plating of urine sample for obtaining the bacterial growth.</li> <li>2.Observe the antibiotic sensitivity testing for the same isolate as done in Microbiology lab</li> <li>3. Report the results for the antibiotic sensitivity testing done.</li> </ol>

	<p>4. Interpret the test results under guidance.</p> <p>5. Collect clinical details and management of minimum 3 cases of urinary tract infections</p> <p>6. Conduct case presentations and participate in academic discussions</p>
<b>Portfolio entries required</b>	<ol style="list-style-type: none"> <li>1. Details of procedure and testing of Isolates processed in the lab</li> <li>2. CLSI criteria for interpretation</li> <li>3. Clinical details and management of cases</li> </ol>
<b>Log book entry required</b>	<ol style="list-style-type: none"> <li>1. Procedures-culture &amp; antibiotic sensitivity testing conducted in lab</li> <li>2. Details of patient work up and management</li> <li>3. Completion of the work signed by the Internal preceptor with meets expectation (M) grade</li> </ol>
<b>Assessment</b>	<p style="text-align: center;"><b>Formative</b></p> <ol style="list-style-type: none"> <li>1. Attendance</li> <li>2. day to day participation in activities .</li> <li>3. Performance of assigned tasks and presentation of finished task in department</li> <li>4. Documentation in Logbook</li> <li>5. Objective test</li> </ol>
<b>Other comments</b>	

### Elective in Department of Microbiology- Block I

<b>Name of Block</b>	Block I
<b>Name of Elective</b>	Bacterial sepsis and Enteric fever (M 5)
<b>Location of hospital lab/research facility</b>	Central Lab- Microbiology
<b>Name of internal preceptor(s)</b>	Dr Remya P V
<b>Name of external preceptor(s) if applicable</b>	NA
<b>Learning objectives of electives</b>	<ol style="list-style-type: none"> <li>1. To understand the aetiological agents and causes of bacterial sepsis and enteric fever</li> <li>2. To obtain knowledge in sample collection, culture of isolate causing sepsis.</li> <li>3. To obtain knowledge on antibiotic sensitivity pattern by Kirby bauer disk diffusion test and its interpretation</li> <li>4. To know about various sepsis markers.</li> <li>5. To obtain knowledge on the serological diagnosis of Enteric fever</li> <li>6. To know about the various vaccines available for Enteric fever</li> </ol>
<b>Number of students that can be accommodated in this elective</b>	4
<b>Prerequisites for elective</b>	<ol style="list-style-type: none"> <li>1. Training in standard precautions and knowledge on lab etiquette.</li> <li>2. Hepatitis B vaccination 2 doses completed</li> </ol>
<b>Learning resources for students</b>	<ol style="list-style-type: none"> <li>1. Related journals from indexed journals.</li> <li>2. Hospital infection control manual</li> <li>3. Mandell, Douglas and Bennett`s principles and practice of infectious diseases</li> </ol>
<b>List of activities of student participation</b>	<ol style="list-style-type: none"> <li>1. Training on standard work precautions.</li> <li>2. Participate in collection and transport of specimens.</li> <li>3. Observe the sample processing, culture of isolates and antibiotic sensitivity pattern, participate in reporting.</li> <li>4. Take detailed clinical history, laboratory investigation details and antibiotic escalation and de-escalation in</li> </ol>

	<p>response to treatment of at least 3 different cases .</p> <ol style="list-style-type: none"> <li>5. Record daily observations and activities</li> <li>6. Conduct case presentations and participate in academic discussions</li> </ol>
<b>Portfolio entries required</b>	<ol style="list-style-type: none"> <li>1. Record details of methods of specimen collection and transport of 3 cases assisted</li> <li>2. Record Clinical case history, diagnostic work up and management of 2 different clinical cases of sepsis – Eg urosepsis, Catheter Related Blood stream Infection (CRBSI), Hospital acquired (following SSI, VAP , CRBSI), meningitis and other causes and 1 case of enteric fever.</li> <li>3. Microbiological profile of isolates causing bacterial sepsis and antibiogram from ICU in a fixed time period.</li> </ol>
<b>Log book entry required</b>	<ol style="list-style-type: none"> <li>1. Details of Specimen collected</li> <li>2. Laboratory procedures observed</li> <li>3. Details of cases recorded</li> <li>4. Case presentations</li> <li>5. Topic presentations</li> <li>6. Reflections and feedback</li> <li>7. Assessment</li> </ol>
<b>Assessment</b>	<p>Formative</p> <ol style="list-style-type: none"> <li>1. DOPS- specimen collection and transport.</li> <li>2. Presentation of clinical cases (at least 2) in department</li> <li>3. Review the records of daily activities</li> </ol>
<b>Other comments</b>	

### Elective in Department of Microbiology- Block I

<b>Name of Block</b>	Block I
<b>Name of Elective</b>	Diagnostic methods in mycology (M4)
<b>Location of hospital lab/research facility</b>	Central lab and Dept of Microbiology
<b>Name of internal preceptor(s)</b>	Dr Smina K.I./ Dr. Ann Mary Alex
<b>Name of external preceptor(s) if applicable</b>	NA
<b>Learning objectives of electives</b>	<ol style="list-style-type: none"> <li>1. To understand the diagnostic methods and techniques in mycology</li> <li>2. To obtain knowledge in various fungal infections</li> <li>3. To participate in collection and transport of various specimen for fungal infections</li> </ol>
<b>Number of students that can be accommodated in this elective</b>	2
<b>Prerequisites for elective</b>	<ol style="list-style-type: none"> <li>1. Training in standard precautions and biosafety</li> <li>2. Hepatitis B vaccination 2 doses</li> <li>3. Basic knowledge about different fungal infections of public health importance.</li> </ol>
<b>Learning resources for students</b>	<ol style="list-style-type: none"> <li>1. Larone, Apurba shasthry</li> <li>2. Jagadish Chandra.</li> </ol>
<b>List of activities of student participation</b>	<ol style="list-style-type: none"> <li>1. Training on standard work precautions and biosafety</li> <li>2. Participate in collection and transport of specimens like skin scrapings, nail, hair etc for diagnosis of fungal infections, under supervision ( minimum 2 cases per week)</li> <li>3. Observe the different steps involved in the processing and culture of specimen</li> <li>4. Collect clinical details, investigation details and management of cases of -fungal infections candidiasis, dermatophytes etc</li> <li>5. Record daily observations and activities</li> <li>6. Conduct case presentations and participate in academic discussions</li> </ol>

<b>Portfolio entries required</b>	<ol style="list-style-type: none"> <li>1. Record details of methods of specimen collection and transport of 4 cases assisted</li> <li>2. Record details of various steps involved in fungal culture and identification</li> <li>3. Record Clinical case history , diagnostic work up and management of 4 different clinical cases of fungal infections</li> </ol>
<b>Log book entry required</b>	<ol style="list-style-type: none"> <li>1. Details of Specimen collected</li> <li>2. Laboratory procedures observed</li> <li>3. Details of cases recorded</li> <li>4. Case presentations</li> <li>5. Topic presentations</li> <li>6. Reflections and feedback</li> <li>7. Assessment</li> </ol>
<b>Assessment</b>	<p>Formative</p> <ol style="list-style-type: none"> <li>1. DOPS- specimen collection and transport</li> <li>2. Presentation on mycology</li> <li>3. Presentation of clinical cases (at least 2) in department</li> <li>4. Review the records of daily activities</li> <li>5. Objective test</li> </ol>
<b>Other comments</b>	

## Elective in Department of Microbiology- Block I

<b>Name of Block</b>	Block I
<b>Name of Elective</b>	Molecular and serological diagnosis of viral hepatitis (M 3)
<b>Location of hospital lab/research facility</b>	VRDL( Virus Research and Diagnostic laboratory), Serology lab (Central lab), Dept of Microbiology
<b>Name of internal preceptor(s)</b>	Dr. Aiswarya Mukundan
<b>Name of external preceptor(s) if applicable</b>	Nil
<b>Learning objectives of electives</b>	<ol style="list-style-type: none"> <li>1. To obtain experience in serological techniques (ELISA and immuchromatographic tests) for diagnosis of Hepatitis A, B, C and E</li> <li>2. To understand the principles and observe the molecular diagnostic methods for viral hepatitis (PCR techniques for viral load testing of Hepatitis B and C)</li> </ol>
<b>Number of students that can be accommodated in this elective</b>	2
<b>Prerequisites for elective</b>	<ol style="list-style-type: none"> <li>1. Knowledge on standard precautions and biosafety</li> <li>2. Hepatitis B vaccination 2 doses completed</li> <li>3. Basic knowledge about the serological markers and laboratory diagnosis of Hepatitis B</li> </ol>
<b>Learning resources for students</b>	<ol style="list-style-type: none"> <li>1.National Viral Hepatitis Control Programme- operational guidelines,</li> <li>2. Textbook of Microbiology- Ananthanarayan and Panicker</li> </ol>
<b>List of activities of student participation</b>	<ol style="list-style-type: none"> <li>1. Training on standard work precautions and biosafety</li> <li>2. Training in serological techniques for Viral hepatitis (ELISA and Rapid tests for Hepatitis A,B,C and E)</li> <li>3. Observe the various steps involved in PCR (Viral load testing of Hepatitis B and C) and reporting of results</li> <li>4. Collect clinical details, investigation reports and management of 2 cases each of Hepatitis B and C</li> <li>5. Record daily observations and activities</li> <li>6. Conduct case presentations and participate in academic discussions</li> </ol>

<b>Portfolio entries required</b>	<ol style="list-style-type: none"> <li>1. Record details of various steps involved in ELISA</li> <li>2. Record details of various steps involved in molecular diagnostic methods</li> <li>3. Record Clinical case history , diagnostic work up and management of 2 cases each of Hepatitis B and C</li> </ol>
<b>Log book entry required</b>	<ol style="list-style-type: none"> <li>1. Laboratory procedures observed</li> <li>2. Details of cases recorded</li> <li>3. Topic presentations</li> <li>4. Reflections and feedback</li> <li>5. Assessment</li> </ol>
<b>Assessment</b>	<p>Formative</p> <ol style="list-style-type: none"> <li>1. Presentation on molecular diagnostics</li> <li>2. Presentation of clinical cases in department</li> <li>3. Review the records of daily activities</li> <li>4. Objective test</li> </ol>
<b>Other comments</b>	

## Elective in Department of Microbiology- Block I

<b>Name of Block</b>	Block I
<b>Name of Elective</b>	Molecular and serological diagnosis of viral hepatitis (M 3)
<b>Location of hospital lab/research facility</b>	VRDL( Virus Research and Diagnostic laboratory), Serology lab (Central lab), Dept of Microbiology
<b>Name of internal preceptor(s)</b>	Dr. Aiswarya Mukundan
<b>Name of external preceptor(s) if applicable</b>	Nil
<b>Learning objectives of electives</b>	<ol style="list-style-type: none"> <li>1. To obtain experience in serological techniques (ELISA and immuchromatographic tests) for diagnosis of Hepatitis A, B, C and E</li> <li>2. To understand the principles and observe the molecular diagnostic methods for viral hepatitis (PCR techniques for viral load testing of Hepatitis B and C)</li> </ol>
<b>Number of students that can be accommodated in this elective</b>	2
<b>Prerequisites for elective</b>	<ol style="list-style-type: none"> <li>1. Knowledge on standard precautions and biosafety</li> <li>2. Hepatitis B vaccination 2 doses completed</li> <li>3. Basic knowledge about the serological markers and laboratory diagnosis of Hepatitis B</li> </ol>
<b>Learning resources for students</b>	<ol style="list-style-type: none"> <li>1.National Viral Hepatitis Control Programme- operational guidelines,</li> <li>2. Textbook of Microbiology- Ananthanarayan and Panicker</li> </ol>
<b>List of activities of student participation</b>	<ol style="list-style-type: none"> <li>1. Training on standard work precautions and biosafety</li> <li>2. Training in serological techniques for Viral hepatitis (ELISA and Rapid tests for Hepatitis A,B,C and E)</li> <li>3. Observe the various steps involved in PCR (Viral load testing of Hepatitis B and C) and reporting of results</li> <li>4. Collect clinical details, investigation reports and management of 2 cases each of Hepatitis B and C</li> <li>5. Record daily observations and activities</li> <li>6. Conduct case presentations and participate in academic discussions</li> </ol>

<b>Portfolio entries required</b>	<ol style="list-style-type: none"> <li>1. Record details of various steps involved in ELISA</li> <li>2. Record details of various steps involved in molecular diagnostic methods</li> <li>3. Record Clinical case history , diagnostic work up and management of 2 cases each of Hepatitis B and C</li> </ol>
<b>Log book entry required</b>	<ol style="list-style-type: none"> <li>1. Laboratory procedures observed</li> <li>2. Details of cases recorded</li> <li>3. Topic presentations</li> <li>4. Reflections and feedback</li> <li>5. Assessment</li> </ol>
<b>Assessment</b>	<p>Formative</p> <ol style="list-style-type: none"> <li>1. Presentation on molecular diagnostics</li> <li>2. Presentation of clinical cases in department</li> <li>3. Review the records of daily activities</li> <li>4. Objective test</li> </ol>
<b>Other comments</b>	

Name of block	Block 1
Name of elective	Newer methods in Laboratory diagnosis of Tuberculosis-conventional and newer methods; IGRA, LPA (M2)
Location of hospital lab/research facility	Central lab, Molecular Lab for TB diagnosis, RNTCP lab
Name of internal preceptor	Dr Anjaly S
Name of external preceptor if applicable	N/A
Learning objectives of elective	<ol style="list-style-type: none"> <li>1. To observe and understand the principle, procedure and functioning of TrueNat</li> <li>2. To observe and understand the principle, procedure and functioning of CBNAAT</li> <li>3. To observe and understand the principle, procedure and functioning of Interferon Gamma Release Assay (IGRA), understand about LPA</li> <li>4. To understand the applications of each in different clinical settings</li> <li>5. To observe the various procedures in RNTCP lab including Fluorescent microscopy for TB diagnosis</li> </ol>
Number of students that can be accommodated in this elective	2
Prerequisites for elective	<p>Should have basic knowledge about standard precautions, biosafety</p> <p>Should have completed immunisation against Hepatitis B</p> <p>SDL – To read and understand the NTEP guidelines*</p>
Learning Resources for students	<p>NTEP manual</p> <p>Standard operating procedure manuals of TrueNAT, CBNAAT, IGRA</p>
List of activities of student participation	<ol style="list-style-type: none"> <li>1. Training in standard precautions followed in diagnostic microbiology laboratory</li> <li>2. Training in collection and transport of different samples including sputum, other respiratory specimens, pus aspirates, CSF, urine for routine TB diagnosis</li> <li>3. Participate in collection and transport of samples including writing a proper request form for TrueNAT, CBNAAT</li> <li>4. Collect clinical details, investigation details management and follow up of at least 2 positive cases each for TrueNAT, CBNAAT, IGRA</li> <li>5. Present these cases in the Microbiology laboratory and participate in the discussions</li> </ol>

Portfolio entries required	<ol style="list-style-type: none"> <li>1. Record details of sample collection and transport of cases observed</li> <li>2. Various steps involved in the procedures of TrueNAT, CBNAAT, IGRA</li> <li>3. Methods of reporting</li> </ol>
Log book entry required	<ol style="list-style-type: none"> <li>1. Details of specimen collection and transport</li> <li>2. Procedures observed</li> <li>3. Case presentations</li> <li>4. Reflections and feedback</li> <li>5. Assessment</li> </ol>
Assessment	<p>Formative</p> <ol style="list-style-type: none"> <li>1. DOAP – specimen collection, transport, proper filling of a request form for microbiology diagnostic lab</li> <li>2. Case presentations (atleast 1 each of TrueNAT, CBNAAT)</li> <li>3. Review of records of daily activities</li> <li>4. Objective test</li> </ol>
Other comments	

### Elective in Department of Microbiology- Block I

<b>Name of Block</b>	Block I
<b>Name of Elective</b>	Lab diagnosis and prevention of HIV infection (M1)
<b>Location of hospital lab/research facility</b>	ICTC( integrated counselling and testing centre, SRL( State reference laboratory for HIV), VLTL( viral load testing laboratory)
<b>Name of internal preceptor(s)</b>	Dr Anu P John
<b>Name of external preceptor(s) if applicable</b>	NA
<b>Learning objectives of electives</b>	<ol style="list-style-type: none"> <li>1. To know about HIV virus ,Pathogenesis and diagnosis and management</li> <li>2. To observe the Psycho- social and behavioural aspect of HIV infection</li> <li>3. To have a basic knowledge on the modes of Transmission of HIV</li> <li>4. To understand and learn about the appropriate preventive measures against HIV infection</li> </ol>
<b>Number of students that can be accommodated in this elective</b>	2
<b>Prerequisites for elective</b>	<ol style="list-style-type: none"> <li>1. Training in standard precautions and biosafety</li> <li>2. Knowledge about the HIV virus, pathogenesis and diagnosis</li> <li>3. Hepatitis B vaccination 2 doses completed</li> <li>4. Basic knowledge on the post exposure prophylaxis , prevention and treatment</li> </ol>
<b>Learning resources for students</b>	<ol style="list-style-type: none"> <li>1. National guidelines on HIV testing byNACO</li> <li>2. Mandell, Douglas and Bennett , s principles and practice of infectious diseases</li> <li>3. Resource library – Centres for disease control and prevention</li> </ol>
<b>List of activities of student participation</b>	<ol style="list-style-type: none"> <li>1. Training on standard work precautions and biosafety</li> <li>2. Participate in collection and transport of specimens</li> <li>3. Observe the pre-test and post-test counselling</li> <li>4. Observe the procedure and methods followed in ICTC</li> <li>5. Observe the protocols and steps of viral load testing and</li> </ol>

	<p>interpretation for the management</p> <ol style="list-style-type: none"> <li>6. Collect details regarding needle stick injuries and post exposure prophylaxis</li> <li>7. Record daily observations and activities</li> <li>8. Conduct case presentations and participate in academic discussions</li> </ol>
<b>Portfolio entries required</b>	<ol style="list-style-type: none"> <li>1. Record details of methods of specimen collection and transport</li> <li>2. Record details of pre-test and post-test counselling maintaining confidentiality</li> <li>3. Record the various diagnostic methods in detection</li> <li>4. Record of cases of needle stick injuries</li> <li>5. Record cases of post exposure prophylaxis</li> <li>6. Record the details of follow up of positive cases</li> </ol>
<b>Log book entry required</b>	<ol style="list-style-type: none"> <li>1. Details of Specimen collected</li> <li>2. Details of diagnostic methods , follow up of patients and post exposure prophylaxis</li> <li>3. Details of cases recorded maintaining confidentiality</li> <li>4. Case presentations</li> <li>5. Topic presentations</li> <li>6. Reflections and feedback</li> <li>7. Assessment</li> </ol>
<b>Assessment</b>	<p>Formative</p> <ol style="list-style-type: none"> <li>1. specimen collection and transport- DOPS</li> <li>2. Interpretation of HIV laboratory results – charts</li> <li>3. Needle stick injury and post exposure prophylaxis - applied question</li> <li>4. Confidentiality - assessed as AETCOM question</li> <li>5. Review the records of daily activities</li> </ol>
<b>Other comments</b>	