

**MICROBIOLOGY FELLOWSHIP ATTACHMENT  
PROGRAMME IN SGH**

Components	Information
1. <b>Division/ Department</b>	Pathology/ Microbiology
2. <b>Title of Programme</b>	Clinical Fellowship Training in Microbiology
3. <b>Relevant Registrations</b>	<ul style="list-style-type: none"> <li>• Temporary Registration with Singapore Medical Council (SMC)</li> <li>• Training employment pass application with Ministry of Manpower, Singapore (MOM) (upon successful Temporary Registration with Singapore Medical Council)</li> </ul>
4. <b>Overview</b> 4.1 Background information	<p>This is a 1-year fellowship programme to prepare the Fellow to supervise a modern clinical microbiology laboratory.</p> <p>Our Fellows will receive broad-based, in-depth, patient-centered training in various sub-disciplines in Clinical Microbiology. Other training aspects would include infection control and in laboratory operations, safety and management.</p>
4.2 Goal/ aim(s)	To prepare the Fellow to lead, manage and provide strong clinical focus for a modern clinical microbiology laboratory, serving a tertiary level hospital/ academic medical centre.
4.3 Duration	12 months
4.4 Hyperlinks/URL Sites	<a href="https://www.sgh.com.sg/clinical-departments-centers/pathology/pages/overview.aspx">https://www.sgh.com.sg/clinical-departments-centers/pathology/pages/overview.aspx</a>
5. <b>Target Audience</b>	International candidates
5.1 Pre-requisite /eligibility requirement(s)	<p>General requirements for Temporary Registration for training (required by SMC):</p> <ul style="list-style-type: none"> <li>• A basic medical degree from an accredited medical university or medical school</li> <li>• Passed the relevant national licensing examination in the country of conferment of basic degree, where applicable</li> <li>• Evidence of at least 12 months' houseman-ship / internship with a certificate of satisfactory completion of houseman-ship or equivalent</li> <li>• Been registered as a medical practitioner in the country where he is currently practising</li> <li>• Been certified to be of good standing by the Medical Council or the relevant national authority</li> </ul> <p>Note: the doctor should be in active clinical practice for the 3 years preceding the application for medical registration.</p> <p>In addition to the above criteria, <b>Clinical Fellow</b> must:</p> <ol style="list-style-type: none"> <li>a) Have a minimum of 3 years of relevant working experience as a medical officer (or equivalent)</li> <li>b) Fulfil English Language requirements of SMC if the medium of instruction for the basic medical qualification is not in English</li> <li>c) Preferably have obtained a postgraduate diploma or degree in his country or overseas</li> <li>d) As a Clinical Fellow, the doctor will be allowed to be involved in patient care and make entries in patients' case note, communicate care plans to patients and fellow healthcare professionals, and perform procedures under <u>direct</u> supervision or Level 1 supervision</li> </ol>

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	<p><b>Department's requirement, if any (only for Clinical Fellow in this subspecialty):</b></p> <ul style="list-style-type: none"> <li>• Current position as Registrar, Senior Resident or equivalent (Advance Specialty Training level).</li> <li>• Preferably postgraduate medical qualification e.g. Master of Medicine or equivalent.</li> <li>• Minimum 2 years of postgraduate training experience in relevant specialty,</li> <li>• 2 letters of recommendation/ reference from supervisors.</li> </ul>
<p><b>6. Learning Objectives</b></p>	<p>This fellowship would allow the Fellow to learn and manage a clinical microbiology laboratory and contribute to the investigation and management of patients, through the following:</p> <ul style="list-style-type: none"> <li>• Supervise a clinical microbiology laboratory.</li> <li>• Provide clinical liaison and consultation based on an understanding of the biology of pathogens, interpretation of laboratory tests and clinical correlates of infection.</li> <li>• Provide advice in infection prevention and control.</li> <li>• Provide advice in managing an antimicrobial stewardship programme.</li> <li>• Conduct or support microbiology-based research.</li> <li>• Provide teaching and education to healthcare staff, trainees, students, and medical technologists/</li> <li>• Collaborate with authorities and other parties in public health surveillance and outbreak investigation.</li> </ul>
<p><b>7. Course/Training Syllabus</b></p>	<p>Fellows will receive training in bacteriology, mycology, parasitology, virology, immunology, mycobacteriology, molecular diagnostics and infection control. They will also receive training in laboratory management including audit, quality assurance, safety issues, personnel management, usage of laboratory and hospital information systems etc. Academic activities like education and research will be supported.</p> <p>The detailed course content will take reference from the Medical Microbiology Seamless Training Programme tailored to the ability of the Fellow. Competencies centre on patient care, medical knowledge, practice-based learning and improvement, communication, professionalism and systems-based practice.</p> <p>(<a href="http://www.healthprofessionals.gov.sg/content/dam/hprof/sab/docs/jcst/bas_training_guides/Updated_September2016/Microbiology%20Seamless%20Trg%20Requirements%20(Aprroved%2030%20Aug%2016).pdf">http://www.healthprofessionals.gov.sg/content/dam/hprof/sab/docs/jcst/bas_training_guides/Updated_September2016/Microbiology%20Seamless%20Trg%20Requirements%20(Aprroved%2030%20Aug%2016).pdf</a>)</p> <p>Our program curriculum consists regularly scheduled didactic/interactive sessions, such as one-on-one tutorials, case-based teaching, rounds, seminars, departmental conferences, multidisciplinary conferences, lectures, and journal reviews. The Fellow is also rotated through various sections of SGH, Department of Microbiology. The Fellow will shadow our trainers in their various interactions with other partners of our hospital system e.g. Infection Control and Infectious Diseases.</p>

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<b>8. Training Method</b>	<p><b>Method of Supervision:</b></p> <ul style="list-style-type: none"> <li>- Direct observation and feedback</li> <li>- One-on-one discussion with Supervisor/ Trainer</li> <li>- Log of training activities performed under supervision</li> <li>- Multi-source feedback assessment</li> <li>- Clinical Fellow will be supervised by an assigned supervisor at all times</li> </ul> <p><b>Observed Only:</b> Fellows will have opportunities to observe the following procedures:</p> <ul style="list-style-type: none"> <li>• Specialised laboratory techniques like immunofluorescence, viral isolation</li> <li>• Bench work/ rounds for difficult isolate workup</li> <li>• Laboratory result validation</li> <li>• Laboratory management</li> <li>• Infection control outbreak management</li> <li>• Antimicrobial stewardship rounds</li> </ul> <p><b>Hands-On Experience:</b> Fellows will perform or assist in the following procedures under supervision:</p> <ul style="list-style-type: none"> <li>• Laboratory workup of isolates from archived proficiency testing specimens</li> <li>• Review and plan departmental and laboratory policies with Supervisor/ Trainer</li> <li>• Participate in education of the laboratory medical technologists and scientific officers</li> <li>• Research project involvement</li> </ul> <p><b>No job rotation to other Departments within SGH is required.</b> <b>No job rotation to other Institutions is required.</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th colspan="3">TRAINING ACTIVITIES &amp; METHODOLOGY</th> </tr> <tr> <th style="width: 45%;">Name of activity</th> <th style="width: 25%;">Frequency / No. of sessions / Length of session</th> <th style="width: 30%;">Teaching methodology</th> </tr> </thead> <tbody> <tr> <td>1. Bench work/ rounds with medical laboratory technologists</td> <td>Daily/ 4 hours</td> <td>Direct observation and feedback</td> </tr> <tr> <td>2. Laboratory result validation with clinical microbiologists; Perform literature review on issues related to clinical issues</td> <td>Daily/ 1 hour</td> <td>Case-based discussions</td> </tr> </tbody> </table>	TRAINING ACTIVITIES & METHODOLOGY			Name of activity	Frequency / No. of sessions / Length of session	Teaching methodology	1. Bench work/ rounds with medical laboratory technologists	Daily/ 4 hours	Direct observation and feedback	2. Laboratory result validation with clinical microbiologists; Perform literature review on issues related to clinical issues	Daily/ 1 hour	Case-based discussions
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	3. Laboratory management rounds and unit meetings; Audit/ Laboratory safety meetings/ Laboratory IT	At least two times monthly/ 1 hours	Direct observation and feedback
	4. Infection Control meetings on outbreaks	When called	Direct observation and feedback
	5. Antibiotic stewardship programme meetings	Daily/ 1 hours/ Ten sessions	Direct observation with feedback
	6. Microbiology journal club, plate rounds, Infectious Diseases ground rounds and other didactic conferences	At least three times per week/ 1 hour	Direct observation and feedback.  Hands-on/ participation in teaching
	7. Research project	Over posting period	Hands-on
<b>9. Assessment and Evaluation</b>	<p>Clinical Fellow will need to demonstrate their proficiency level based on the following competencies:</p> <p><b>1) Patient Care</b></p> <ul style="list-style-type: none"> <li>To develop proficiency in helping physicians interpret microbiology/ virology test results.</li> <li>To learn appropriate tests to order based on clinical criteria as described by the patient's physician.</li> <li>To determine which results are critical and learn to convey those results to the appropriate caregivers.</li> </ul> <p><b>2) Medical Knowledge</b></p> <ul style="list-style-type: none"> <li>To understand the microbiology/ virology of infectious diseases based on organ system, history and epidemiology.</li> <li>To develop expertise in interpreting the clinical implications of lab results, suggesting antibiotics to test, and determining the medical necessity of unusual test requests.</li> </ul> <p><b>3) Practice-Based Learning and Improvement</b></p> <ul style="list-style-type: none"> <li>Review log and discuss cases at rounds, tutorials.</li> <li>Evaluate scientific literature; apply evidence-based medicine.</li> <li>Recognition of errors and discrepancies.</li> <li>Educate trainees and other healthcare professionals effectively.</li> </ul> <p><b>4) Interpersonal and Communication Skills</b></p> <ul style="list-style-type: none"> <li>To present cases at meetings.</li> <li>To prepare concise written reports on test evaluation, interesting cases, inspections, and other lab-based activities.</li> </ul>		

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	<p><b>5) Professionalism</b></p> <ul style="list-style-type: none"> <li>To demonstrate ethical behaviour – integrity, honesty and respect.</li> <li>Responsibility and follow through.</li> <li>Gives and receives feedback.</li> <li>To work effectively as a team with the physicians caring for the patients, the laboratory scientists, the infection control practitioners.</li> </ul> <p><b>6) Systems-Based Practice</b></p> <ul style="list-style-type: none"> <li>Able to function as a ‘team player’ and understand the role of a microbiology Fellow/ laboratory director in the larger context of the health care system, contributing towards patient safety goals.</li> <li>Able to evaluate and make cost-effective decisions pertaining to testing or management of the laboratory e.g. test utilisation.</li> </ul>															
9.1 Assessment approaches	<p><b>Formative assessment:</b></p> <ul style="list-style-type: none"> <li>Regular evaluation between Clinical Fellow and Supervisor / Head of Department</li> <li>Reflective journal- logbook recordings of training activities</li> </ul> <p><b>Summative assessment:</b></p> <ul style="list-style-type: none"> <li>Periodical assessment reports as required by Singapore Medical Council</li> </ul> <p><b>Feedback:</b></p> <ul style="list-style-type: none"> <li>End-of-training feedback form as required by Singapore Medical Council</li> <li>End-of-training feedback session with SGH-PGMI</li> </ul>															
9.2 Evaluation Process 9.2.1 General overall grading system	<p>The general overall grading system evaluates the Clinical Fellow’s performance upon completion of the fellowship programme. All Clinical Fellow will be given a general overall grading status at the end of the fellowship programme based on the grading criteria requirements incorporating the six competencies based knowledge, skills and performance that Clinical Fellow must demonstrate throughout the programme.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #4F81BD; color: white;">Grading Status</th> <th style="background-color: #4F81BD; color: white;">Description</th> <th style="background-color: #4F81BD; color: white;">Grading Criteria Requirements</th> </tr> </thead> <tbody> <tr> <td style="background-color: #D9E1F2;"><b>CMP</b></td> <td style="background-color: #D9E1F2;">Completes the programme</td> <td style="background-color: #D9E1F2;"> <ul style="list-style-type: none"> <li>Satisfactorily grading from multi-channel feedback including Supervisor.</li> </ul> </td> </tr> <tr> <td style="background-color: #D9E1F2;"><b>USP</b></td> <td style="background-color: #D9E1F2;">Unsatisfactory performance</td> <td style="background-color: #D9E1F2;"> <ul style="list-style-type: none"> <li>Below satisfactory grading from multi-channel feedback including Supervisor.</li> </ul> </td> </tr> <tr> <td style="background-color: #D9E1F2;"><b>DCP</b></td> <td style="background-color: #D9E1F2;">Did not complete the programme</td> <td style="background-color: #D9E1F2;"> <ul style="list-style-type: none"> <li>Unable to keep to less than 80% attendance in various meetings.</li> </ul> </td> </tr> <tr> <td style="background-color: #D9E1F2;"><b>WDN</b></td> <td style="background-color: #D9E1F2;">Withdrawn from the programme</td> <td style="background-color: #D9E1F2;"> <ul style="list-style-type: none"> <li>Official withdrawal from programme before the end of attachment.</li> </ul> </td> </tr> </tbody> </table>	Grading Status	Description	Grading Criteria Requirements	<b>CMP</b>	Completes the programme	<ul style="list-style-type: none"> <li>Satisfactorily grading from multi-channel feedback including Supervisor.</li> </ul>	<b>USP</b>	Unsatisfactory performance	<ul style="list-style-type: none"> <li>Below satisfactory grading from multi-channel feedback including Supervisor.</li> </ul>	<b>DCP</b>	Did not complete the programme	<ul style="list-style-type: none"> <li>Unable to keep to less than 80% attendance in various meetings.</li> </ul>	<b>WDN</b>	Withdrawn from the programme	<ul style="list-style-type: none"> <li>Official withdrawal from programme before the end of attachment.</li> </ul>
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9.3 Criteria for Early Termination	<p>The attachment programme will be terminated early on the ground of the Clinical Fellow's poor performance, misdemeanour, misconduct, negligence or breach of any terms stipulated or referred to in the Fellowship Letter of Offer and Institution Terms and Conditions.</p> <p>The Clinical Fellow may also request to terminate the attachment programme for reasons such as serious illness or other personal obligations. The institution will review all requests for early termination with the Clinical Fellow and the Supervisor / Head of Department.</p>
<b>10. Course Administration</b>	<p>Type of Certification: Certificate of Training</p> <p>Training Fee: S\$3,210 per month</p> <p>Programme Funding source: Self-funded</p>
<b>11. Number of Clinical Fellow to be accepted at any one time</b>	One