

**MUSCULOSKELETAL RADIOLOGY FELLOWSHIP
ATTACHMENT PROGRAMME IN SGH**

Components	Information
1. Division/ Department	Radiological Sciences / Department of Diagnostic Radiology
2. Title of Programme	Fellowship Training in Musculoskeletal Radiology
3. Relevant Registrations	<ul style="list-style-type: none"> • Temporary Registration with Singapore Medical Council (SMC) • Training employment pass application with Ministry of Manpower, Singapore (MOM) (upon successful Temporary Registration with Singapore Medical Council)
4. Overview 4.1 Background information	To train radiologists who have at least 2 years of post-graduate experience in general radiology to be able to interpret musculoskeletal imaging inclusive of radiographs, computed tomography (CT) and magnetic resonance imaging (MRI) as well as perform and interpret ultrasound (US), MR arthrogram and image guided injections and biopsies.
4.2 Goal/ aim(s)	<p>To be exposed to all aspects of Musculoskeletal Radiology with the aim for the Clinical Fellow to be able to practice safely and independently.</p> <p>To allow the Clinical Fellow to develop appropriate protocols and techniques in their practice.</p> <p>To observe and perform image guided injections and biopsies under supervision.</p>
4.3 Duration	6 months
4.4 Hyperlinks/URL Sites	https://www.sgh.com.sg/patient-care/specialties-services/diagnostic-radiology/pages/musculoskeletal-radiology.aspx
5. Target Audience	Postgraduate medical qualification with at least 2 years of postgraduate training experience in general radiology or musculoskeletal subspecialty.
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"> • A basic medical degree from an accredited medical university or medical school • Passed the relevant national licensing examination in the country of conferment of basic degree, where applicable • Evidence of at least 12 months houseman-ship / internship with a certificate of satisfactory completion of houseman-ship or equivalent • Been registered as a medical practitioner in the country where he is currently practising • Been certified to be of good standing by the Medical Council or the relevant national authority <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, Clinical Fellow must:</p> <ol style="list-style-type: none"> a) Have a minimum of 3 years of relevant working experience as a medical officer (or equivalent)

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	<p>b) Fulfil English Language requirements of SMC if the medium of instruction for the basic medical qualification is not in English</p> <p>c) Preferably have obtained a postgraduate diploma or degree in his country or overseas</p> <p>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</p> <p>Department's requirement, if any (only for Clinical Fellow in this subspecialty):</p> <ol style="list-style-type: none"> 1. Postgraduate medical qualification e.g. MMED, FRCR or equivalent. 2. Minimum 2 years of postgraduate training experience in relevant specialty. 3. Current position as Registrar, Resident or equivalent. (AST or senior resident) 4. Proven competency in English Language.
<p>6. Learning Objectives</p>	<p>This fellowship would allow the Clinical Fellow to acquire:</p> <p>Increase in interpretive skills for the following diagnostic imaging studies:</p> <ul style="list-style-type: none"> • Radiographs in the setting of an acute trauma care facility, tertiary referral center for orthopaedic oncology, hand surgery and rheumatology, inclusive of post-surgical imaging. • CT of spine and joints with emphasis on Dual-Energy protocols • MRI of spine and joints • US of joints <p>Increase in performance skills for the following image guided procedures</p> <ul style="list-style-type: none"> • MR arthrogram • Image guided nerve root and joint injections • Image guided biopsies
<p>7. Course/Training Syllabus</p>	<p>The Musculoskeletal Radiology (MSR) Subspecialty team at Singapore General Hospital reports about 1200 MRI studies and 150 CT studies a month. There are daily dedicated musculoskeletal ultrasound lists with more than 250 studies performed every month. Musculoskeletal interventional procedures performed include spine/bone biopsies and joint/nerve root injections. There will be access to all of the above during the period of training.</p> <p>Participation in multidisciplinary meetings chaired by the MSR team with relevant clinical departments will reinforce the multi-disciplinary approach to patient management. The meetings include Sarcoma, Sports, Spine, Hand-Surgery and Rheumatology.</p> <p>The monthly Journal reading meetings within the subspecialty as well as a weekly read-out session will augment the learning process.</p>
<p>8. Training Method</p>	<p>Method of Supervision: Direct observation and feedback. Clinical Fellow will be supervised by an assigned supervisor at all times.</p> <p>Observed Only: Clinical Fellows will have opportunities to observe the following procedures:</p>

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	<ul style="list-style-type: none"> Based on availability: Image guided cementoplasty, ablation of tumour (radiofrequency, microwave, cryotherapy). <p>Hands-On Experience: Clinical Fellows will perform or assist in the following procedures under supervision:</p> <p>Reporting of musculoskeletal radiographs, CT, US, MRI and MR arthrogram. Performing diagnostic musculoskeletal ultrasound. Performing image guided joint musculoskeletal procedures:</p> <ul style="list-style-type: none"> injections for MR arthrogram, nerve root and facet joint blocks, bone and soft tissue biopsies. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th colspan="3">TRAINING ACTIVITIES & METHODOLOGY</th> </tr> <tr style="background-color: #cccccc;"> <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> <u>Multi-disciplinary Team meetings</u> 1. Sarcoma round 2. Sports Round 3. Spine Round 4. Hand-Surgery Round 5. Rheumatology Round </td> <td>(all sessions are 60 min) Monthly</td> <td>Case presentation</td> </tr> <tr> <td> <u>Musculoskeletal Team meetings</u> 1. Read-out 2. Journal Club </td> <td>Weekly Monthly</td> <td>Case presentation Didactic lecture, Case discussion</td> </tr> <tr> <td> <u>Departmental meetings</u> 1. Continuous Medical Education 2. Peer Review Learning Sessions </td> <td>Weekly Monthly</td> <td>Didactic lecture, Case discussion Case presentation</td> </tr> </tbody> </table>	TRAINING ACTIVITIES & METHODOLOGY			Name of activity	Frequency / No. of sessions / Length of session	Teaching methodology	<u>Multi-disciplinary Team meetings</u> 1. Sarcoma round 2. Sports Round 3. Spine Round 4. Hand-Surgery Round 5. Rheumatology Round	(all sessions are 60 min) Monthly	Case presentation	<u>Musculoskeletal Team meetings</u> 1. Read-out 2. Journal Club	Weekly Monthly	Case presentation Didactic lecture, Case discussion	<u>Departmental meetings</u> 1. Continuous Medical Education 2. Peer Review Learning Sessions	Weekly Monthly	Didactic lecture, Case discussion Case presentation
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9. Assessment and Evaluation	<p>Clinical Fellow will need to demonstrate their proficiency level based on the following competencies:</p> <ol style="list-style-type: none"> 1) Patient Care Clinical Fellow's compassion towards patient and ability to communicate and interact with patient. 2) Medical Knowledge Improvement in knowledge and the ability to seek out peer-reviewed and evidence based literature. 3) Practice-Based Learning and Improvement Show interval improvement in knowledge and competency in interpreting musculoskeletal imaging studies and performing ultrasound procedures. 4) Interpersonal and Communication Skills Demonstrate collegial interpersonal relationship with the radiologists, residents, radiographers, clinicians and other ancillary staff. 5) Professionalism Maintain a high standard to professional conduct at all times. 6) Systems-Based Practice Awareness of practice and protocols and preliminary discussion of transferring good practice to native practice. 						
9.1 Assessment approaches	<p>Formative assessment:</p> <ul style="list-style-type: none"> • Regular evaluation between Clinical Fellow and Supervisor / Head of Department • Reflective journal- logbook recordings of training activities <p>Summative assessment: Periodical assessment reports as required by Singapore Medical Council</p> <p>Feedback:</p> <ul style="list-style-type: none"> • End-of-training feedback form as required by Singapore Medical Council • End-of-training feedback session with SGH-PGMI 						
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%; background-color: #4F81BD; color: white; margin-top: 10px;"> <thead> <tr> <th style="width: 25%;">Grading Status</th> <th style="width: 50%;">Description</th> <th style="width: 25%;">Grading Criteria Requirements</th> </tr> </thead> <tbody> <tr> <td style="height: 40px;"> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Grading Status	Description	Grading Criteria Requirements			
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<p>9.3 Criteria for Early Termination</p>	<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>												
<p>10. Course Administration</p>	<p>Type of Certification: Certificate of Training</p> <p>Training Fee: S\$3,210 per month</p> <p>Programme Funding source: Self-funded</p>												
<p>11. Number of Clinical Fellow to be accepted at any one time</p>	<p>2</p>												

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