COLLEGE OF CLINICAL MEDICINE

NEURORADIOLOGY FELLOWSHIP ATTACHMENT PROGRAMME IN SGH

Components	Information
1. Division/ Department	Radiological Sciences/ Department of Neuroradiology
2. Title of Programme	Fellowship Training in Neuroradiology
3. Relevant Registrations	• Temporary Registration with Singapore Medical Council • Training employment pass application with Ministry of Manpower Singapore (upon successful Temporary Registration with Singapore Medical Council)
4. Overview 4.1 Background information	To provide training for Clinical Fellow in basic and advanced Neuroimaging techniques and reporting skills utilising CT, MR, and ultrasound modalities. Clinical Fellow will receive hands on training and will have opportunities to participate in supervised reporting of both Basic and Advanced Neuroimaging studies including MR Spectroscopy, Perfusion and Angiography.
4.2 Goal/ aim(s)	By the end of the programme the Clinical Fellow should be able to confidently supervise and report on a wide spectrum of Neuroradiology studies and conduct multi-disciplinary clinic-radiology rounds.
4.3 Duration	6 – 12 months
4.4 Hyperlinks/URL Sites	https://www.sgh.com.sg/Diagnostic-Radiology/Pages/Fellowships-in-Neuroradiology.aspx
5. Target Audience	Local (Home country) Board qualified radiologist or radiologists holding recognised post graduate degrees in Diagnostic Radiology e.g. FRCR, American Boards.
5.1 Pre-requisite /eligibility requirement(s)	General requirements for Temporary Registration for training (required by SMC): • A basic medical degree from an accredited medical university or medical school • Passed the relevant national licensing examination in the country of conferment 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 **Note**: The doctor should be in active clinical practice (and been registered as a medical practitioner in the countries of practice) for the 3 years preceding the application for medical registration in Singapore. In addition to the above criteria, **Clinical Fellows** must: a) Have a minimum of 3 years working experience as a medical officer (or equivalent) b) Fulfil English Language requirements of SMC if the medium of instruction for the basic medical qualification is not in English

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	c) Preferably have obtained a postgraduate diploma or medical degree in his country or overseas d) Be sponsored by (i) the government, or (ii) regional health authority or (iii) an appropriate institution in the home country. For (d)(iii), the doctor must be on current full-time employment (40 hours or more per week) with the sponsoring institution. 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 under SMC's Supervisory Framework. **Department's requirement, if any (only for Clinical Fellows in this subspecialty):** • Skillset required on arrival is pegged at the level of a Senior Resident • Accepted postgraduate medical qualifications include FRCR, FRANZCR, American Board of Radiology (ABR) • At least 1 year clinical (working) experience after attainment of accepted postgraduate qualification above
6. Learning Objectives	This fellowship would allow Clinical Fellow to acquire: • Receive experience in all cross-sectional studies of the brain, spine and head/ neck (CT, MRI, Ultrasound). • Receive training in vascular scanning (MRA, MRV, CTA), advanced functional MRI (Diffusion, Perfusion and Spectroscopy). • Have opportunity to observe neurovascular angiography and neurovascular and head and neck interventions.

7. Course/Training Syllabus	1. The main thrust of the fellowship is to achieve competency and also gain experience in the conduct and reporting of Neuro-diagnostic and Head and Neck Radiology studies. While there will be opportunities to observe Neuroangiography and Neurointerventional cases, this fellowship is not focused on providing training in these aspects of Neuroradiology and any training opportunity will be dependent on fellows' prior experience and ability. The difference between a 6-month programme and 12-month programme is to aim at an advanced level of skills with the 12-month programme with more experience in the Advanced Neuroimaging studies including MR Spectroscopy, Perfusion and Angiography.
	
	2. Clinical Responsibilities:
	As part of the fellowship, Clinical Fellows are required to take part in the day to day roster of the department under the supervision of the attending radiologist. This will include occasional evening and weekend sessions (all supervised).
	
	    a. Protocolling, reporting of studies, and prescribing contrast media as required.
	    b. Assist in the management of patients.
	    c. Assist attending radiologists in the running of the roster sessions.
	    d. Take part in Multidisciplinary rounds.

Components	Information
	3. Research and Academic Time: a. Clinical Fellows will be required to do at least 2 journal readings within the 6-month fellowship. b. Clinical Fellows will be given research time off (1 session per week) to conduct at least 1 research or audit project. c. Clinical Fellows are encouraged to present abstracts/ posters at local/ regional conferences and submit manuscripts for publications.
8. Training Method	**Method of Supervision:** Clinical Fellow will be supervised at all times by a SMC-approved supervisor from Department of Neuroradiology, SGH only. **Observed Only:** Clinical Fellows will have opportunities to observe Neurovascular procedures **Hands-On Experience:** Clinical Fellows will assist in the following procedures under supervision: 1. Protocoling and reporting neuroradiology and head and neck CT, MR, and Ultrasound studies from a large tertiary centre, including outpatient, inpatient and urgent studies. 2. Participating in multidisciplinary meetings with neurologists, neurosurgeons, eye specialists, head and neck surgeons and oncologists. 3. Exposure to interventional head and neck procedures such as dacryocystography and thyroid biopsies 4. Involvement in neuro interventional procedures is not included in this fellowship but the Clinical Fellow is allowed to attend the vascular meeting to increase understanding of the role of interventional neuroradiology. 5. Giving journal club and clinical presentations. 6. Involvement in a research project is feasible.

TRAINING ACTIVITIES & METHODOLOGY

Name of activity	Frequency / No. of sessions / Length of session	Teaching methodology
Rostered Reporting sessions	4hrs per session 9 session per week	Direct supervision of all studies reported with Consultant sign off of reports.
Participate in weekly Neuro Team education	1 hr 3 sessions per month	Case sharing, Journal reading, Didactic tutorials
Attendance / presentations at Multidisciplinary meetings	Several meetings per week	Case based discussion with one or multiple clinical disciplines

Components	Information
9. Job Rotation (To other departments within SGH)	Job rotation to other SGH departments is not required.

10. Job Rotation (to other institutions)

Name of Department	Name of Institution	Frequency of Practice (in percentage)
NNI Neuroradiology Department, Tan Tock Seng Campus	National Neuroscience Institute	Maximum 40% although this will be individualised to the clinical fellow and will likely be closer to 20%. As a default, 100% of rotations will be in SGH neuroradiology. In other words, clinical fellows will have a non-mandatory option to rotate at NNI TTSH neuroradiology that will likely be close to 20% of the clinical fellows time. This agreement has been discussed with NNI TTSH neuroradiology HOD.

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11. Night Duties Requirement	No overnight duties required. However, evening and weekend shifts will be expected.
12. Running of Clinics Requirement	No running of clinics required.
13. Assessment and Evaluation	Clinical Fellow will need to demonstrate their proficiency level based on the following competencies: **1) Patient Care** • Safe and appropriate use of radiological examinations including choice of contrast and radiological examination. • Communicate effectively at points of patient care. **2) Medical Knowledge** • Understanding disease processes (especially with respect to diagnosis, pathogenesis and management) and interpretation of images. **3) Practice-Based Learning and Improvement** • Diagnosis and reporting of studies will be closely supervised by Senior Staff who will perform face to face review whenever possible. • Positive learning attitude and improvement of practice standards are to be demonstrated **4) Interpersonal and Communication Skills** • Interacts effectively with staff of all grades from Healthcare Attendants to Senior Consultants in the department. • Communicates with clinicians effectively for patient care and management

Components	Information
	5) Professionalism • Display attitude, behavior and manner becoming of a Doctor and Radiologist in Outram Campus. • Maintains professionalism when communicating with staff, patients and family • Respects patient confidentiality at all times
	6) Systems-Based Practice • Understanding the practice of medicine; specific organisational structure of healthcare; possible implications of decisions and appropriate use of resources in a Singapore government restructured hospital.
13.1 Assessment approaches	**Formative assessment:** • Regular evaluation between Clinical Fellow and Supervisor / Head of Department • Reflective journal- logbook recordings of training activities • Passing percentage - 70% completion **Summative assessment:** • Periodical assessment reports as required by Singapore Medical Council • Department's Assessment with passing percentage - 70% completion (Informal assessment) **Feedback:** • End-of-training feedback form as required by Singapore Medical Council • End-of-training feedback session with SGH-PGMI with indication of 70% of training objectives met indicated in the logbook, under the Summary of Training and Certification page
13.2 Evaluation Process 13.2.1 General overall grading system	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. {See grading table below}

Grading Status	Description	Grading Criteria Requirements
CMP	Completes the programme	• Satisfies all core competencies and attends at least 80% of training and education activities
USP	Unsatisfactory performance	• Lacking in one or more core competencies and attends less than 50% of training and education activities

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	DCP	Did not complete the programme	• Ends fellowship before 80% of the stipulated duration is completed
	WDN	Withdrawn from the programme	• Ends fellowship within 1 month of start
13.3 Criteria for Early Termination	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. 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.		
14. Course Administration	Type of Certification: Certificate of Training Training Fee: S$3,210 per month Programme Funding source: Self-funded		
15. Number of Clinical Fellow to be accepted at any one time	5		