

**INTERVENTIONAL NEPHROLOGY FELLOWSHIP
ATTACHMENT PROGRAMME IN SGH**

Components	Information
1. Division/ Department	Medicine/ Department of Renal Medicine
2. Title of Programme	Fellowship Training in Interventional Nephrology
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	<p>Interventional Nephrology is a new and emerging subspecialty of Nephrology that mainly deals with ultrasonography of kidneys, ultrasound-guided kidney biopsy, insertion of peritoneal dialysis catheters, tunneled dialysis catheters as well as endovascular procedures to create arteriovenous fistula and manage dysfunction of arteriovenous access in end-stage renal disease patients. Traditionally, these procedures have been delegated to a variety of specialists with resultant delays in diagnosis and initiation of therapy. To avoid delays, nephrologists have taken the initiative to perform these procedures safely and successfully. Singapore General Hospital has an Interventional Nephrology program and have been providing Interventional Nephrology training to young nephrologists within Singapore and around the region.</p>
4.2 Goal/ aim(s)	<p>On completion of the programme, fellows are expected to:</p> <ol style="list-style-type: none"> 1. Insert, exchange and remove tunneled and non-tunneled dialysis catheter independently. 2. Perform a diagnostic fistulogram and graftogram independently. 3. Perform angioplasty, thrombolysis and stent placement, when clinically indicated independently with acceptable outcomes. 4. Perform ultrasound evaluation of arteriovenous access 5. Perform ultrasound guided renal biopsy 6. Involve in clinical research in the field of Interventional Nephrology.
4.3 Duration	3, 6 or 12 months
5. Target Audience	Nephrologists who are interested in dialysis access management.
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

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	<p>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.</p> <p>In addition to the above criteria, Clinical Fellows must:</p> <ol style="list-style-type: none"> Have a minimum of 3 years working experience as a medical officer (or equivalent) Fulfil English Language requirements of SMC if the medium of instruction for the basic medical qualification is <u>not</u> in English Preferably have obtained a postgraduate diploma or medical degree in his country or overseas 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. <p>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.</p> <p>Department's requirement, if any (only for Clinical Fellow in this subspecialty):</p> <ul style="list-style-type: none"> - Postgraduate medical qualification e.g. MRCP, MMed or equivalent. - Minimum 3 years of postgraduate training experience in Renal Medicine or Nephrology (after obtaining the postgraduate medical qualification) - Current position as Associate Consultant or equivalent and above.
<p>6. Learning Objectives</p>	<p>This fellowship would allow the Fellow to acquire:</p> <ul style="list-style-type: none"> • The necessary skills required for insertion and exchanged of tunnelled and non-tunnelled hemodialysis catheter • The necessary skills required for performing diagnostic fistulogram, graftogram and balloon angioplasty • The necessary skills required for performing thrombolysis in the salvage of thrombosed dialysis access • The necessary skills required to perform ultrasound guided biopsy of native and transplant kidney • The necessary skills required to perform ultrasound vascular mapping and ultrasound assessment of arteriovenous access • The necessary skills required to perform endovascular creation of arteriovenous fistula
<p>7. Course/Training Syllabus</p>	<p>The programme includes:</p> <ol style="list-style-type: none"> Renal ward rounds Renal inpatient consult Renal specialist outpatient clinics Interventional sessions in Interventional Nephrology Suite (INS) and fluoroscopy suites within Singapore General Hospital to perform catheter insertions, catheter exchanges, angioplasty, thrombolysis and stenting Interventional sessions to perform ultrasound-guided renal biopsy, ultrasound assessment and cannulation of arteriovenous accesses Endovascular arteriovenous fistula creation

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	<ul style="list-style-type: none"> 7. Clinical research related to vascular access 8. Didactic lectures on nephrology 9. Renal grand ward round 10. Renal Morbidity and Mortality rounds 									
8. Training Method	<p>Method of Supervision: Direct observation and feedback. Clinical Fellow will be supervised by an assigned supervisor at all times.</p> <p>Observed Only: Fellows will have opportunities to observe the following procedures:</p> <ul style="list-style-type: none"> 1. Insertion of peritoneal dialysis catheter 2. Open surgery for arteriovenous fistula and arteriovenous graft creation <p>Hands-On Experience: Fellows will assist in the following procedures under supervision:</p> <ul style="list-style-type: none"> 1. Ultrasound scans and cannulation of arteriovenous fistula and graft 2. Fistulogram and graftogram, including central venogram 3. Balloon angioplasty of arteriovenous fistulas and grafts 4. Thrombolysis of arteriovenous fistulas and graft 5. Stent placement 6. Endovascular arteriovenous fistula creation 7. Non-tunneled and tunneled dialysis catheter insertion 8. Percutaneous biopsy of native and transplant kidneys under ultrasound guidance <p>Job rotation within SGH and to other institution not required.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #D3D3D3;"> <th colspan="3">TRAINING ACTIVITIES & METHODOLOGY</th> </tr> <tr style="background-color: #D3D3D3;"> <th style="width: 40%;">Name of activity</th> <th style="width: 30%;">Frequency / No. of sessions / Length of session</th> <th style="width: 30%;">Teaching methodology</th> </tr> </thead> <tbody> <tr> <td>Performance of interventional procedure</td> <td>3 AM sessions per week (4 hours each) 3 PM sessions per week (4 hours each)</td> <td>Competency in performing interventional procedure is the main focus of the training program and 60% of the time is dedicated to this. The fellow will spend a significant portion of time in the Interventional Nephrology Suite, fluoroscopy suite and major operating theatre observing, assisting and performing procedures under direct supervision of programme faculty.</td> </tr> </tbody> </table>	TRAINING ACTIVITIES & METHODOLOGY			Name of activity	Frequency / No. of sessions / Length of session	Teaching methodology	Performance of interventional procedure	3 AM sessions per week (4 hours each) 3 PM sessions per week (4 hours each)	Competency in performing interventional procedure is the main focus of the training program and 60% of the time is dedicated to this. The fellow will spend a significant portion of time in the Interventional Nephrology Suite, fluoroscopy suite and major operating theatre observing, assisting and performing procedures under direct supervision of programme faculty.
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			<p>As part of the training, the fellow is also expected to review patients in the emergency department, wards and outpatient clinic before the intervention, obtain informed consent for intervention and follow them up for possible complications of endovascular interventions. Through this process, the fellow will come to appreciate the indications for intervention, master the necessary procedural skills and be conscious of the possible complications of the procedures.</p>
	Clinical Patient Management	Daily ward round (5 hours per week) PM specialist clinic (3 hours per week)	<p>20% of time will be spent in clinical patient management in Nephrology. The fellow will assist the program director or faculty during daily renal ward rounds and clinic session to manage and follow-up renal patients. This would train the fellow improve understanding of indication for renal biopsy, different types of vascular access creation, and management of difficult vascular access so that he/she can learn how to counsel patients and formulate treatment plans effectively.</p>
	Research	4 hours per week	<p>10% of the program will be dedicated to research. The fellow will have the opportunity to participate in dialysis access related research</p>

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			<p>project under supervision of the faculty. Time off will be given to the fellow to conduct at least 1 research project. Fellows are encouraged to present abstracts/posters at local/regional conferences and submit manuscripts for publications. The theme of the research project will be discussed within the first month of the training program and approval from the institutional Review Board will be obtained as per established protocol.</p>
	Continuous Education	4 hours per week	<p>10% of the time will be spent in continuous education. The fellow will join the Department of Renal Medicine's structured education for fellows and residents which include mortality and morbidity rounds, journal clubs, didactic teachings, radiology meetings and case discussions.</p>
8.1 Night Duties Requirement	No night duties required		
8.2 Running of Clinics Requirement	Running of Clinics required		
9. Assessment and Evaluation	<p>Clinical Fellow will need to demonstrate their proficiency level based on the following competencies:</p> <p>1) Patient Care</p> <ul style="list-style-type: none"> - Determine suitability for ultrasound guided renal biopsy in patients requiring renal biopsy. - Determine suitability for different type of dialysis access creation in patients with end-stage kidney disease. 		

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	<ul style="list-style-type: none"> - Diagnosis of dialysis access dysfunction. - Formulate treatment plan for dialysis access. - Review and follow-up of patient post procedure 			
	<p>2) Medical Knowledge</p> <ul style="list-style-type: none"> - Understand the principles of endovascular interventions - Know the indications and risk of each procedure 			
	<p>3) Practice-Based Learning and Improvement</p> <ul style="list-style-type: none"> - Able to perform ultrasound evaluation of arteriovenous accesses - Able to perform ultrasound guided kidney biopsy - Able to perform endovascular interventions competently - Perform 25 angioplasty, 25 thrombolysis and 25 catheter insertions independently with minimal assistance from the supervisor. - Review the outcome of endovascular interventions 			
	<p>4) Interpersonal and Communication Skills</p> <ul style="list-style-type: none"> - Communicate with vascular surgeons, interventional radiologists, primary renal teams, vascular technologists and dialysis nurses on the management plans of patients 			
	<p>5) Professionalism</p> <ul style="list-style-type: none"> - Punctuality for rounds, interventional sessions and lectures - Punctuality in submitting assessment forms 			
	<p>6) Systems-Based Practice</p> <ul style="list-style-type: none"> - Involves in quality improvement or research project in Interventional Nephrology 			
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;"> <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> </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\$3,000 (before prevailing GST) 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 Fellows</p>												