

Radiation Oncology

Seamless

TRAINING GUIDE

(A) INTRODUCTION

Radiation Oncology is a field of clinical medicine that involves the use of ionizing radiation to treat cancers, as well as other conditions responsive to radiation.

The Radiation Oncology Seamless Programme (with effect from July 2015) is 6 years (72 months) in length.

(B) PROGRAMME OVERVIEW

The aim of the Radiation Oncology Seamless Training Programme is to produce competent and well-qualified Radiation Oncologists.

Basic Seamless begins with 1 year of foundational training (Year 1) in non-Radiation Oncology clinical departments. This is essential because:

- The majority of patients with cancer have other medical problems; assessment of these problems and their management is essential when considering potential treatment options.
- Patients may develop problems requiring medical treatment as the result of their cancer.
- Patients may develop medical problems due to systemic therapy or radiotherapy.
- Patients with cancer have complex needs requiring excellent communication skills and multidisciplinary teamwork.

This training provides the exposure and experience necessary for the development of a well-rounded Radiation Oncologist. It also provides the platform on which more specialised clinical and professional competencies required for the management of patients with cancer can be developed.

The subsequent 2 years of Basic Seamless (Year 2 and Year 3) covers:

- An introductory module, which must be completed in the first 3 months of training, and includes the following learning outcomes:
 - Consultation and communication skills, including taking informed consent
 - Management of oncological and radiotherapy emergencies (see Appendix 1)
 - Principles of palliative radiotherapy (see Appendix 2)
- The sciences underpinning Radiation Oncology. These include physics as applied to radiotherapy, radiobiology, cancer biology (including molecular biology), the pharmacology of systemic anti-cancer treatments, medical statistics and pathology.
- Understanding common malignancies and their management.
- Successful completion of First FRCR / FRANZCR examination.

In the Advanced Seamless years (Year 4 – Year 6), the trainee will master the management of common malignancies and familiarize him or herself with the management of less common ones. They should be ready to take the Final FRCR / FRANZCR examination.

(C) ADMISSION REQUIREMENTS

Applicants are required to fulfil the admission criteria prior to entry into the Radiation Oncology Seamless programme:

- Completed / completing PG Year 1 by the intake start date
- Offered employment by MOH Holdings

(D) TRAINING REQUIREMENTS

I. POSTINGS

The Radiation Oncology Seamless Training Programme comprises:

- 1) 1 year foundational training in non-Radiation Oncology clinical postings
- 2) 4 years training in Radiation Oncology
- 3) 1 year elective posting(s) in Radiation Oncology, other oncology-related departments and/or research

Seamless Year	Postings																								
Year 1 (Basic Seamless years)	<p>Trainees are required to complete 12 months of non-Radiation but Oncology relevant postings in Year 1.</p> <p>Trainees may select from the following list of acceptable clinical postings:</p> <table border="0"> <thead> <tr> <th><u>Medical specialties</u></th> <th><u>Surgical Specialties</u></th> </tr> </thead> <tbody> <tr> <td>1. General Medicine</td> <td>1. General Surgery</td> </tr> <tr> <td>2. Medical Oncology</td> <td>2. Orthopaedic Surgery</td> </tr> <tr> <td>3. Geriatric Medicine</td> <td>3. Emergency Medicine</td> </tr> <tr> <td>4. Gastroenterology</td> <td>4. Urology</td> </tr> <tr> <td>5. Endocrinology</td> <td>5. Anaesthesia</td> </tr> <tr> <td>6. Respiratory Medicine</td> <td>6. Paediatric Surgery</td> </tr> <tr> <td>7. Neurology</td> <td>7. Cardiothoracic Surgery</td> </tr> <tr> <td>8. Cardiology</td> <td>8. Neurosurgery</td> </tr> <tr> <td>9. Haematology</td> <td>9. ENT</td> </tr> <tr> <td>10. Palliative Medicine</td> <td>10. O&G</td> </tr> <tr> <td>11. Paediatric Medicine</td> <td></td> </tr> </tbody> </table> <p>Each specialty rotation should not be less than 4 months and is capped at maximum 6 months. Postings must be done in accredited training units. Please check with the JCST secretariat on the accreditation status of the departments.</p>	<u>Medical specialties</u>	<u>Surgical Specialties</u>	1. General Medicine	1. General Surgery	2. Medical Oncology	2. Orthopaedic Surgery	3. Geriatric Medicine	3. Emergency Medicine	4. Gastroenterology	4. Urology	5. Endocrinology	5. Anaesthesia	6. Respiratory Medicine	6. Paediatric Surgery	7. Neurology	7. Cardiothoracic Surgery	8. Cardiology	8. Neurosurgery	9. Haematology	9. ENT	10. Palliative Medicine	10. O&G	11. Paediatric Medicine	
<u>Medical specialties</u>	<u>Surgical Specialties</u>																								
1. General Medicine	1. General Surgery																								
2. Medical Oncology	2. Orthopaedic Surgery																								
3. Geriatric Medicine	3. Emergency Medicine																								
4. Gastroenterology	4. Urology																								
5. Endocrinology	5. Anaesthesia																								
6. Respiratory Medicine	6. Paediatric Surgery																								
7. Neurology	7. Cardiothoracic Surgery																								
8. Cardiology	8. Neurosurgery																								
9. Haematology	9. ENT																								
10. Palliative Medicine	10. O&G																								
11. Paediatric Medicine																									
Year 2 – Year 3 (Basic Seamless years)	<p>Trainees are required to complete minimum 2 years of Radiation Oncology training in Year 2 and Year 3.</p> <p>They are required to gain exposure in the following sites:</p>																								

	<ul style="list-style-type: none"> • Thorax • Breast • Gastrointestinal tract • Central nervous system • Male reproductive system • Head and neck • Female reproductive system <p>with particular emphasis on the core topics of nasopharyngeal carcinoma, breast cancer, lung cancer, colorectal cancer and cervical cancer.</p>
<p>Year 4 – Year 6 (Advanced Seamless years)</p>	<p>Trainees are required to complete minimum 2 years of Radiation Oncology training during the Advanced Seamless years.</p> <p>They are required to rotate through the following sites: Haematology, Musculoskeletal and connective tissue, Endocrine, Skin.</p> <p>The elective year may take place anytime during Year 4 to Year 6. Trainees may, during the elective year, choose to do Radiation Oncology posting, non-Radiation but Oncology-related postings or undertake a research posting.</p> <p>The acceptable non-Radiation Oncology postings for the elective year during the Advanced Seamless training are:</p> <ul style="list-style-type: none"> • Palliative Medicine • Diagnostic Radiology • Medical Oncology • Pathology • Nuclear Medicine <p>Each non-Radiation Oncology posting should be at least 4 months in duration and is capped at 6 months. Postings must be done in accredited training units.</p> <p>Trainees may also go for overseas attachments of up to 1 year for Radiation Oncology / Clinical Oncology training during the Advanced Seamless years.</p>

II. CLINICAL EXPERIENCE

Each trainee should manage and keep a representative log of the cases he or she sees/manages for each of the following sites during the entire clinical rotation (minimum 15 cases for each site).

1. Thorax
2. Breast
3. Gastrointestinal tract
4. Central nervous system
5. Male reproductive system
6. Head and neck
7. Female reproductive system

During each clinical rotation, the trainee is expected to participate actively in:

- Outpatient clinics that should be under consultant supervision to allow the clinical findings and management plans to be presented to the training consultant and discussed. The trainee should gain experience of managing both new and follow-up patients. The degree of responsibility taken by the trainee will increase as his or her competency increases.
- Radiotherapy planning sessions. There must be comprehensive teaching of radiotherapy planning that is appropriate to the stage of training, including conventional simulation, virtual simulation, 3D conformal planning, image fusion and intensity-modulated radiotherapy (IMRT). Each trainee should participate in the equivalent of at least 1 radiotherapy planning session per week, and there must be opportunities to discuss treatment plans with the supervising consultant.
- Radiotherapy treatment review clinics. Trainees must gain experience in the acute and long-term complications of radiotherapy.
- Brachytherapy sessions to allow trainees to gain experience in intracavitary and interstitial brachytherapy.
- Personal ward rounds and provision of on-going clinical care for radiotherapy patients who have been admitted because of complications of disease or treatment. Following patients through the course of their illness provides the trainee with learning opportunities in making both diagnostic and management decisions in partnership with patients and their relatives. This also allows trainees to practice, reflect on and improve their communication skills.
- Tumour board meetings where patients are discussed with doctors from other disciplines. These provide excellent opportunities for observation of clinical reasoning.

The degree of responsibility taken by the trainee will increase as his or her competency increases. There should be appropriate levels of clinical supervision throughout training with increasing clinical independence and responsibility as learning outcomes are achieved.

The trainee's timetable should contain an appropriate mix of outpatient clinics (new and follow-up), radiotherapy treatment sessions, tumour board meetings, and other appropriate clinical activities. This should be worked out with the trainee's clinical supervisor at the beginning of each rotation.

An example of a typical weekly schedule is as follows:

- 3 clinic sessions
- 3 review sessions
- 1 planning sessions
- 1 protected time/ learning session
- 1 audit session
- 1 miscellaneous session (blue letters, etc.)

(Where 1 session = half a day or equivalent)

III. DIDACTIC SESSIONS AND SCHOLARLY ACTIVITIES

A formal course of instruction has been prepared for trainees preparing for the First FRCR / FRANZCR and Final FRCR / FRANZCR examinations. They must be able to attend them free from any clinical responsibility.

Trainees are expected to attend the following:

- Didactic teaching session
- Audit meetings (weekly)
- Journal clubs
- Departmental lectures
- Tutorials

Conferences

Conferences and teaching rounds must include active trainee participation. There must be adequate frequency of conferences, with attendance by trainees and Radiation Oncologists at least once a year.

Independent self-directed learning

Suggested activities include:

- Reading, including journals and web-based material.
- Maintenance of a personal training folder.
- Audit and research projects.

Research project

During this period, the trainee should be involved in investigative procedures under faculty supervision. This may take the form of laboratory research, clinical research or retrospective analysis. The results of such projects shall be suitable for publications or presentation at local, regional or national scientific meetings.

IV. OTHER TRAINING REQUIREMENTS

Trainees are also expected to complete the following internal attachments to:

- Treatment unit and simulator, to be completed during Year 2 to Year 3.
- Radiotherapy planning, to be completed during Year 4 to Year 5.

V. COMPETENCIES

Trainees are required to attain competencies in the following areas:

Year 1 – Year 3	Year 4 – Year 6
1. Patient Care	
Gives adequate time for patients and carers to express their beliefs, ideas, concerns and expectations	Tailors the discussion and written information to the patients' requirements
Ascertains the desire of the patient for information	Supports patients and carers where relevant to comply with management plans
Encourages patients to voice their preferences and personal choices about care	Discusses complex questions and uncertainties with patients and enables them to make decisions about difficult aspects of their health e.g. to opt for no treatment or to make end of life decisions
Responds to questions honestly and seeks advice if unable to answer	Is fastidious about following safety protocols and is able to explain the rationale for protocols
Treats patients with respect and without discrimination	Participates in investigation of serious or near miss incidents and synthesise plans for resolution and future prevention
Encourages patients to take an interest in their health and take action to improve and maintain it	

Recognises and responds to a patient's deterioration or lack of response to therapy	
2. Medical Knowledge	
Develops a provisional diagnosis and a differential diagnosis on the basis of the clinical evidence	Shows willingness to search for evidence to support clinical decision making
Institutes an appropriate investigative and therapeutic plan	
3. Practice-based Learning and Improvement	
Keeps up to date with the latest literature and guidelines	Produces a review on a clinical topic, having reviewed and appraised the relevant literature
Aims for best clinical practice at all times, as informed by evidence based medicine	Contributes to the development of institutional protocols and guidelines
Recognises the need to practise outside clinical guidelines at times	
4. Interpersonal and Communication Skills	
Shows awareness of the importance of multi-disciplinary teamwork	Recognises and accepts the responsibilities and role of the doctor in relation to other healthcare professionals
Ensures appropriate confidentiality is maintained during communication with any member of the team	Takes a leadership role as appropriate, fully respecting the skills, responsibilities and viewpoints of all team members
Accepts additional duties in situations of unavoidable and unpredictable absence of colleagues, ensuring that the best interests of the patient are paramount	Employs behavioural management skills with colleagues to prevent and resolve conflict and enhance collaboration
5. Professionalism	
Practises with professionalism, showing integrity, compassion, altruism, continuous improvement, respect of diversity and regard to principles of equity	Improves clinical leadership and management skills
Recognises personal beliefs and biases and understands their impact on the delivery of health services	Acts as a leader, mentor, educator and role model where appropriate
Works in partnership with patients and members of the wider healthcare team	
Responds to criticism positively and seeks to understand its origins and works to improve	
6. Systems-based Practice	
Appreciates guidance from the health ministry in relation to cancer care	Collaborates with other stake holders in the cancer community to ensure that their needs and views are considered
Prioritise use of resources, particularly when they are stretched by competing demands	Show willingness to engage in leadership and management of the radiation oncology service
7. Faculty development (trainees as future educators)	

Demonstrates willingness to teach other health and social workers

Delivers teaching to different staff groups in a variety of formats

Acts as a mentor for junior colleagues

Leads departmental teaching programmes, including journal clubs

Plans and organises a teaching programme within the department

(E) SUPERVISION

All trainees will be supervised by a designated consultant/ supervisor but in general all the consultant staff will be duty bound to take an active part in teaching. Assessment of progress and review of logbook should take place at least 6 monthly. The supervisors should be in a comprehensive Radiation Oncology practice clinic.

(F) ASSESSMENT AND FEEDBACK

I. Log of clinical experience

All trainees are expected to keep a log of their clinical experience in the designated case log system.

II. Assessment

The trainee will be assessed in a variety of ways continually throughout the entire duration of his or her training. This is to ensure that he or she is progressing at the right pace and allows any shortfalls to be addressed in a timely fashion.

- Written
 - Case reports
- Workplace-based assessments
 - Mini-Clinical Evaluation Exercise (mini-CEX)
 - Radiotherapy Planning
- Examinations
 - Mock exam (theory and practical)
 - First and Final FRCR / FRANZCR

The supervisor's evaluation of the trainee should be performed at the end of every rotation using the designated form and then submitted to the RAC for review.

III. Feedback

Trainees should perform a bi-yearly evaluation of teaching faculty and the training programme using the designated forms. These forms must be submitted to the RAC and kept absolutely confidential.

IV. Examinations

FRCR/ FRANZCR Part 1 examination

Trainees will sit for the Fellow of the Royal College of Radiologists (Clinical Oncology) (FRCR) or the Fellow of the Royal Australian and New Zealand College of Radiologists (FRANZCR) Part 1 Examination during their Basic Seamless training.

Promotion to Advanced Seamless

Trainees are required to satisfy the following criteria for promotion to Advanced Seamless in Year 4:

- Pass the FRCR / FRANZCR Part 1 Examination
- RAC's certification of successful completion of Year 3

FRCR/ FRANZCR Part 2 examination

Trainees may attempt the FRCR / FRANZCR Part 2 examination at Year 5.

Exit Assessment

Upon passing of the FRCR / FRANZCR Part 2 examination and successful completion of the Seamless programme, trainees will be required to appear before the Radiation Oncology RAC for an exit assessment.

(G) GENERAL GUIDELINES

Please refer to Annex 1 for General JCST Guidelines on the following:

- Leave Guidelines
- Training Deliverables
- Changes to Training Period
- Part-time Training
- Overseas Training
- Withdrawal of Traineeship
- Exit Certification

Appendix 1

ONCOLOGIC EMERGENCIES

- Metabolic disorders
 - Hypercalcaemia
 - Hyponatraemia (secondary to SIADH)
 - Acute Tumour Lysis syndrome

- Hematologic
 - Neutropenia (sepsis)
 - Hyperviscosity Syndrome (Multiple Myeloma, leukaemia)

- Neurological emergencies
 - Spinal Cord Compression
 - Cauda Equina Syndrome
 - Reduced conscious level

- Superior Vena Cava Obstruction (SVCO)

- Tumour bleed

- Choroidal metastases

Appendix 2

PRINCIPLES OF PALLIATIVE RT OUTLINE

At the end of this section, the trainee should understand the principles of palliative radiotherapy for the following conditions, and be familiar with the common dose- fractionation regimens prescribed. Practical aspects, such as wiring of superficial masses, the use of pain markers, boluses, etc. will also be covered. He or she should be able to recognise the indications, book, simulate and plan the treatment (with supervision). He or she should also be aware of the alternative treatments available, and know when *not* to treat a patient.

1. Bone metastases
 - a. Painful
 - b. Cord / cauda equina compression
 - c. Impending fracture
2. Bleeding & Obstruction
 - a. GI, biliary tree
 - b. Airway, SVCO
 - c. GU
3. Brain metastases
 - a. Whole brain - with or without shell / simulation
 - b. Base of skull
4. Superficial lesions
 - a. Enlarged LNs e.g. SCF, axillary, inguinal
 - b. Skin nodules, fungating lesions
5. Painful / symptomatic mass
 - a. Intra-thoracic masses
 - b. Intra-abdominal / pelvic masses
 - c. Retroperitoneal LNs
6. Miscellaneous
 - a. Choroidal metastases
 - b. Hemi-body RT
 - c. Repeat RT