

Specialty Training Requirements (STR)

Name of Specialty:	Paediatric Haematology-Oncology
Chair of RAC:	Prof Yap Hui Kim
Date of submission:	27 August 2026

Contents

Note : In addition to the training requirements stated in this STR, residents must comply with any other regulatory requirements or practice-based requirements mandated by the healthcare institutions or place of practice. 1

Scope of Paediatric Haematology-Oncology	2
Purpose of the Residency Programme	2
Admission Requirements	2
Selection Procedures.....	3
Less Than Full Time Training.....	3
Non-traditional Training Route	3
Separation	3
Duration of Specialty Training	3
“Make-up” Training.....	3
Learning Outcomes: Entrustable Professional Activities (EPAs).....	4
Learning Outcomes: Core Competencies, Sub-competencies and Milestones	4
Learning Outcomes: Others	7
Curriculum	8
Learning Methods and Approaches: Scheduled Didactic and Classroom Sessions.....	8
Learning Methods and Approaches: Clinical Experiences	9
Learning Methods and Approaches: Scholarly/Teaching Activities	9
Learning Methods and Approaches: Documentation of Learning	11
Summative Assessments.....	11

Note : In addition to the training requirements stated in this STR, residents must comply with any other regulatory requirements or practice-based requirements mandated by the healthcare institutions or place of practice.

Scope of Paediatric Haematology-Oncology

Paediatric Haematology-Oncology is a tertiary and quaternary care subspecialty that focuses on the diagnosis, treatment and long-term care of children, adolescents and young adults with malignancies and benign hematologic conditions. The scope is broad, spanning acute conditions which may be life-threatening, chronic inherited conditions, hematopoietic cell transplant and advanced cellular therapies, and survivorship care. The subspecialty also encompasses precision medicine and research.

Purpose of the Residency Programme

The aims of the Paediatric Haematology-Oncology residency training programme are:

- To develop clinical expertise across the full spectrum of paediatric haematology and oncology conditions
- To develop competency in acute and supportive care in paediatric haematology and oncology, such as oncologic emergencies, transfusion medicine, symptom management, palliative care
- To facilitate and foster multidisciplinary collaboration and care coordination
- To promote systems-based practice and safety
- To develop research skills and train physician-scientists and clinical investigators
- To develop professionalism and communication excellence
- To inculcate the habit of life-long learning to build upon their knowledge and skills

Admission Requirements

At the point of application for this subspecialty residency programme,

- a) Applicants must be either completing or had completed their primary specialty in Paediatric Medicine;
- b) Applicants must be employed by employers endorsed by Ministry of Health (MOH); and
- c) Residents who wish to switch to this residency programme must have waited at least one year between resignation from his / her previous residency programme and application for this residency programme.

At the point of entry to this residency programme, residents must have fulfilled the following requirements:

- a) Have obtained specialist accreditation in Paediatric Medicine, or have applied for specialist accreditation in the Paediatric Medicine from Specialist Accreditation Board (SAB); and
- b) Have a valid Conditional or Full Registration with Singapore Medical Council (SMC).

Selection Procedures

Applicants must apply for the programme through the annual residency intake matching exercise conducted by MOH Holdings (MOHH).

Continuity plan: Selection should be conducted via a virtual platform in the event of a protracted outbreak whereby face-to-face on-site meeting is disallowed and cross institution movement is restricted.

Less Than Full Time Training

Less than full time training is not allowed. Exceptions may be granted by SAB on a case-by-case basis.

Non-traditional Training Route

The programme must not accept application for mid-stream entry to residency programme by an International Medical Graduates (IMG).

Separation

The Programme Directors (PD) must verify residency training for all residents within 30 days from the point of notification for residents' separation / exit, including residents who did not complete the programme.

Duration of Specialty Training

The training duration must be 24 months.

Maximum candidature: All subspecialty residents must complete the training requirements, requisite examinations and obtain their exit certification from JCST not more than 24 months beyond the usual length of their training programme. The total candidature for Paediatric Haematology-Oncology is 24 months Paediatric Haematology-Oncology residency + 24 months candidature.

“Make-up” Training

“Make-up” training must be arranged when residents:

- Exceed days of allowable leave of absence / duration away from training; or
- Fail to make satisfactory progress in training.

The duration of make-up training should be decided by the Joint Coordinating Committee (JCC) and should depend on the duration away from training and / or the time deemed necessary for remediation in areas of deficiency. The JCC should review residents' progress at the end of the “make-up” training period and decide if further training is needed.

Any shortfall in core training requirements must be made up by the stipulated training year and/or before completion of residency training.

Learning Outcomes: Entrustable Professional Activities (EPAs)

Residents must achieve level 4 of the following EPAs by the end of residency training:

	Title
EPA 1	Managing patients with acute or chronic paediatric haematology/ oncology conditions
EPA 2	Performing common procedures
EPA 3	Managing patients on clinical trials
EPA 4	Integrating palliative care for patients with haematologic and oncologic conditions
EPA 5	Facilitating the transition of care
EPA 6	Managing long-term follow-up of patient survivors

Learning Outcomes: Core Competencies, Sub-competencies and Milestones

The programme must integrate the following competencies into the curriculum, and structure the curriculum to support resident attainment of these competencies in the local context.

Residents must demonstrate the following core competencies:

1) Patient Care and Procedural Skills

Residents must demonstrate the ability to:

- Gather essential and accurate information about the patient
- Counsel patients and family members
- Make informed diagnostic and therapeutic decisions
- Prescribe and perform essential medical procedures
- Provide effective, compassionate and appropriate health management, maintenance, and prevention guidance

Specialty Specific

Residents must demonstrate the ability to:

- Understand the pathophysiology of paediatric haematology-oncology disorders
- Diagnose and manage paediatric haematology-oncology conditions competently and in an evidence-based manner.
- Manage and coordinate care in a multidisciplinary team including paediatric surgeon, interventional radiologist, pathologist, oncology nurse, medical social worker, child life specialist, palliative physician to name a few.
- Participate and lead discussions in multidisciplinary tumour boards.
- Keep abreast of current knowledge by critically reviewing the literature and keeping updated.
- Manage long term follow up care including monitoring for late effects of treatment and planning for transition to adult services where appropriate.

2) Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioural sciences, as well as the application of this knowledge to patient care.

Residents must demonstrate knowledge of:

A. Paediatric Oncology

- Epidemiology and aetiology of childhood cancers
- Classification and staging
- Principles of multi-modality treatment: systemic cancer therapies and its side effects; relevant knowledge of surgical principles; radiotherapy concepts in the management of childhood cancer
- Spectrum of paediatric oncology conditions:
 - Haematologic malignancies like ALL, AML, CML
 - Pre-malignant conditions like MDS
 - Lymphomas like Hodgkins and non-Hodgkins
 - Solid tumours of organs, soft tissue, blood vessels, bone and central nervous system

B. Paediatric Haematology

- Diagnosis and management of benign disorders of red cells, white cells, platelets, bone marrow failure and haemostasis and thrombosis.
- Spectrum of paediatric haematology conditions:
 - Haematologic disorders of the newborn
 - Haemoglobinopathies like thalassaemias
 - Inherited and acquired disorders of the red cell membrane and red cell metabolism
 - Autoimmune disorders like haemolytic anaemia
 - Nutritional anaemia
 - Inherited and acquired disorders of white cells
 - Inherited and acquired coagulopathies like haemophilias
 - Platelet disorders like ITP, platelet dysfunction
 - Inherited and acquired thrombotic disorders
 - Inherited and acquired bone marrow failure disorders like aplastic anaemia
 - Transfusion medicine and the appropriate use of blood products

C. Paediatric Haematopoietic Stem Cell Transplantation

- Indications for transplantation
- Types of stem cell source and its appropriate use
- Donor identification and selection
- Pre-transplant workup for donor and recipient

- Preparative regimens
- Transplant related complications like graft versus host disease
- Post-transplant care

D. Supportive Holistic Care

- Appropriate prophylactic, empiric and definitive anti-infective therapy
- Management of an immunocompromised host including isolation principles
- Provision of adequate nutrition both enteral and parenteral
- Control of nausea and vomiting
- Management of pain
- Management of psychosocial issues including ability to harness available resources
- Ability to communicate and counsel effectively and empathetically
- Provision of comprehensive care including palliative care

E. Procedures

- Bone marrow aspiration and trephine biopsy
- Lumbar puncture and intrathecal chemotherapy
- Access and de-access of central lines e.g. PortaCath and Hickman lines
- Bone marrow harvest for transplantation
- Bone marrow and peripheral blood stem cell harvest for transplantation
- Prescription and administration of chemotherapy
- Prescription and administration of cellular products e.g. bone marrow, cord blood, peripheral blood and donor lymphocytes etc.

3) System-based Practice

Residents must demonstrate the ability to:

- Work effectively in various health care delivery settings and systems relevant to their clinical specialty
- Coordinate patient care within the health care system relevant to their clinical specialty
- Incorporate considerations of cost awareness and risk/benefit analysis in patient care
- Advocate for quality patient care and optimal patient care systems
- Work in inter-professional teams to enhance patient safety and improve patient care quality. This includes effective transitions of patient care and structured patient hand-off processes.
- Participate in identifying systems errors and in implementing potential systems solutions

4) Practice-based Learning and Improvement

Residents must demonstrate a commitment to lifelong learning.

Resident must demonstrate the ability to:

- Investigate and evaluate patient care practices
- Appraise and assimilate scientific evidence
- Improve the practice of medicine
- Identify and perform appropriate learning activities based on learning needs

5) Professionalism

Residents must demonstrate a commitment to professionalism and adherence to ethical principles including the Singapore Medical Council's Ethical Code and Ethical Guidelines (ECEG).

Residents must:

- Demonstrate professional conduct and accountability
- Demonstrate humanism and cultural proficiency
- Maintain emotional, physical and mental health, and pursue continual personal and professional growth
- Demonstrate an understanding of medical ethics and law

6) Interpersonal and Communication Skills

Residents must demonstrate ability to:

- Effectively exchange information with patients, their families and professional associates.
- Create and sustain a therapeutic relationship with patients and families
- Work effectively as a member or leader of a health care team
- Maintain accurate medical records

Other Competency: Teaching and Supervisory Skills

Residents must demonstrate ability to:

- Teach others
- Supervise others

The milestones are still being worked on and will be included once these have been approved.

Learning Outcomes: Others

Residents must attend Medical Ethics, Professionalism and Health Law course conducted by Singapore Medical Association (SMA).

Curriculum

The curriculum and detailed syllabus relevant for local practice must be made available in the Residency Programme Handbook and given to the residents at the start of residency.

The PD must provide clear goals and objectives for each component of clinical experience.

Learning Methods and Approaches: Scheduled Didactic and Classroom Sessions

The programme must schedule a minimum of 16 hours of dedicated educational and learning activities each month. These could be a combination of didactic sessions (multidisciplinary meetings, Continuing Medical Education (CME) lectures, journal critique, topic reviews, peer review round, Mortality and morbidity rounds) or bedside teaching sessions facilitated by faculty and peers. The residents must attend at least 70% of the scheduled didactic sessions.

The programme must schedule, and residents must attend the following learning activities:

Type of scheduled learning activities	Frequency	Learning outcomes
Multi-disciplinary meetings e.g. tumour boards	1 hour per week	This can take the form of tumour boards, radiology meetings or journal clubs.
CME lectures including Paediatric Haematology-Oncology-specific CME	2 hours per week	Besides haematology-oncology specific CME, department CME lectures can be counted for this.
Procedural training	2 hours per month	
Cased-based / Entrustment based discussions	2 hours per month	
Peer review round	4x per year	General Paediatrics peer review rounds can be counted for this.

Morbidity and mortality round	1 hour per month	General Paediatrics morbidity and mortality rounds can be counted for this.
-------------------------------	------------------	---

In the event of an outbreak where face-to-face teaching is disallowed, these learning activities should be conducted online.

Learning Methods and Approaches: Clinical Experiences

The clinical experience must include the following:

- Residents must conduct regular inpatient ward rounds, looking after patients admitted to paediatric haematology-oncology service daily during weekdays and participate in weekend rounds based on service requirements, in compliance with the duty-hour guidelines.
- Residents must run their own specialty clinics in paediatric haematology-oncology.
- Residents must be provided with the opportunity to provide subspecialty consult service to colleagues from general paediatrics and other subspecialties under supervision, both during and out-of-hours. The recommended frequency for this is at least 1 week every month for 24 months.

Residents must complete the following rotations:

- Minimum 18 months of clinical experience in Paediatric Haematology-Oncology, with sufficient exposures to Paediatric Haematology (~ 6 months), Paediatric Oncology (~ 6 months), Paediatric Hematopoietic Cell Transplant and Cellular Therapy (~ 6 months).
- Up to 6 months of relevant elective rotations, such as but not limited to Radiation Oncology, Palliative Care, Haemato-Pathology, Molecular Pathology, Cancer Genetics, Transfusion Medicine.

Learning Methods and Approaches: Scholarly/Teaching Activities

Residents must complete the following scholarly / teaching activities

	Name of activity	Brief description: nature of activity, minimum number to be achieved, when it is attempted
1.	Case presentation with literature review e.g. in department grand rounds, peer review learning, morbidity and mortality rounds, subspecialty meetings	At least once for every 6-month rotation.

2.	Teaching and supervision of medical students, interns and junior residents	At least one teaching activity during residency.
3.	Research or clinical practice improvement / quality improvement project or publication	At least one of any of the following: • Presentation of the results of a research project at a local, regional or international conference • Writing of guidelines • Clinical practice improvement / quality improvement projects • Successful submission of an external grant • First author paper published in a peer-reviewed journal, preference will be for a hypothesis-driven piece of work, or a critical meta-analysis of the literature, or a systematic review of clinical practice • Part of a thesis submission for a PhD or Masters of Clinical Investigation • Book chapter

Elective Scholarly Activity that is encouraged:

	Name of activity	Brief description: nature of activity, when it is attempted
1.	<i>Courses / Workshops / Scientific Conferences</i>	<i>Participation in courses / workshops / scientific conference relevant to the field of Paediatric Haematology-Oncology.</i>
2.	<i>Quality improvement (QI) or research projects</i>	<i>Participation or leading in the planning and execution of QI or research projects, including submission to institution review board (IRB), grant application, subject recruitment process, study visits, research/study procedures, data collection and analysis.</i>
3.	<i>Abstract / Poster / Oral Presentation</i>	<i>Abstract, poster or oral presentation in courses / workshops / scientific conference relevant to the field of Paediatric Haematology-Oncology.</i>
4.	<i>Academic publication</i>	<i>Manuscript submission and publication in peer review journals or book chapters.</i>

Learning Methods and Approaches: Documentation of Learning

Residents must keep a log of their clinical and procedural experience in the designated Paediatric Haematology-Oncology Training Logbook / Portfolio.

Residents must see and log in a variety of clinical cases for each 6-month training period.

Residents must perform and log the following procedures for each 6-month posting:

	Procedure	Minimum number required
1.	Bone marrow aspiration and trephine biopsy	2 each
2.	Lumbar puncture and intrathecal chemotherapy	2 each
3.	Access and de-access of central lines e.g. Port-a-Cath and Hickman lines	2 each
4.	Prescription of chemotherapy	2
5.	Administration of haematopoietic cellular products e.g., bone marrow, cord blood, peripheral blood, and donor lymphocytes, in a team setting	2
6.	Assist in the planning of Transplant and cellular therapy patient management	2

Summative Assessments

	Summative assessments	
	Clinical, patient-facing, psychomotor skills etc.	Cognitive, written etc.
SS2	Attainment of requisite entrustment levels for EPAs	Viva Voce Exit Examination (total 4 stations, 30 minutes per station): a. Three stations on Paediatric Haematology-Oncology Clinical Cases b. One station on Journal Critique (with additional 60 minutes reading time)
SS1	-	-

S/N	<u>Learning outcomes</u>	<u>Summative assessment components</u>	
		Attainment of requisite entrustment levels for EPAs	Viva Voce Exit examination
1	EPA 1: Managing patients with acute or chronic paediatric haematology/oncology conditions	✓	✓
2	EPA 2: Performing common procedures	✓	✓
3	EPA 3: Managing patients on clinical trials	✓	✓
4	EPA 4: Integrating palliative care for patients with haematologic and oncologic conditions	✓	✓
5	EPA 5: Facilitating the transition of care	✓	✓
6	EPA 6: Managing long-term follow-up of patient survivors	✓	✓