

# AST PROGRAMME

## PAEDIATRIC MEDICINE Haematology-Oncology

### (A) INTRODUCTION

#### Definition

Paediatric Haematology-Oncology subspecialisation is inevitable with the rapid increase of domain-based content knowledge, not only in evidence-based medicine, but also in the deeper understanding of the patho-biology of diseases. For Paediatric Haematology/Oncology, the subspecialist has to develop technical knowledge and experience in the broad fields of benign and malignant haematology/oncology, including adolescent/ young adult oncology (AYA). He/ she has to be well versed in standard therapeutic modalities including haematopoietic stem cell transplantation, innovative/ experimental therapeutics as well as paediatric palliative care. Other than being familiar with the new level of sophistication in diagnostics, the specialist needs to be comfortable with managing expanded indications for therapy e.g. haematopoietic stem cell transplantation for primary immunodeficiencies. He/ she needs to know how to care for long-term survivors. It is no wonder that Paediatric Haematology/Oncology has been a well-established Board-certified paediatric subspecialty in North America, UK, Australia, most European countries; as well as in the region e.g. Philippines.

#### Objective(s) of Training

The aims of the Haematology/Oncology subspecialty training programme are:

- To train a specialist in Haematology/Oncology for hospital-based
- To encourage trainees to possess habits of life-long learning to build upon their knowledge and skills.
- To facilitate trainees to be involved in a multidisciplinary working environment where they contribute their particular expertise to situations often in consultation with equally valid opinions from other health professionals.
- To ensure that the trainees are exposed to the necessary competencies required in Haematology/Oncology to complete advanced subspecialty training (AST) in this field, and thereby be able to work as consultant specialists in hospitals or the community.

### (B) PROGRAMME OVERVIEW

#### Trainee Duration

The traineeship programme for Paediatric Haematology/Oncology Subspecialty Training is conducted for a period of 2 years, after successful exit from the Paediatric Medicine Residency Training Program.

- a) Minimum 18 months exposure to the management of Paediatric Haematology/Oncology patients including at least 6 months exposure to the field of benign haematology.
- b) Minimum 6 months exposure to Paediatric Haematopoietic Stem Cell Transplantation.
- c) A 6 month elective period to do relevant postings approved by RAC. Suggested

electives include but not limited to:

- Palliative Medicine
- Infectious Diseases
- Adolescent and Young Adult Oncology (AYA)
- Paediatric Oncology Surgery
- Radiation Oncology
- Diagnostic Imaging
- Pathology
- Haematopathology
- Research

## **(C) ADMISSION REQUIREMENTS**

### **Entry Criteria/ Pre-requisites**

Applicants must fulfill the following entry criteria/ pre-requisites as stated below:

- commencement of sub-specialty would be after exiting from paediatric Medicine residency
- Residents can apply only in their final year of residency (R6)

## **(D) TRAINING SYLLABUS**

### **Competencies for the AST Programme in Paediatric Haematology/Oncology**

For the AST Programme, the expected **general competencies** to be achieved at the end of training are as follows:

- a) Acquisition of fundamental knowledge base and ability to apply such knowledge base to provide appropriate clinical care in Paediatrics and Paediatric Haematology/Oncology
- b) Acquisition of advanced theoretical knowledge, clinical examination and assessment skills required for competent practice in Paediatrics and Paediatric Haematology/Oncology
- c) Acquisition of communication skills to be able to communicate effectively and sensitively with patients and their families, colleagues and other allied health professionals
- d) Ability to recognise the various socio-economic and cultural factors that contribute to illness and vulnerability in patients from diverse backgrounds
- e) Acquisition of advanced life support management skills
- f) Acquisition of all basic and advanced technical skills related to Paediatrics and Paediatric Haematology/Oncology
- g) Ability to perform allocated tasks and plans and prioritises tasks appropriately
- h) Ability to work within multi-disciplinary teams and development of leadership skills while still accepting leadership from other members of the multi-professional team
- i) Ability to perform allocated teaching and training tasks and plans and deliver teaching to trainees and other professionals
- j) Development of peer-mentoring skills
- k) Development of management skills and ability to take responsibility for a defined project
- l) Ability to design audit projects and understand risk management
- m) Ability to write appropriate clinical guidelines
- n) Understanding the principles of critical appraisal and research methodology and appraising the literature critically, with application to clinical practice
- o) Recognising the need for, and development of appropriate patient advocacy skills
- p) Recognising the need to promote and maintain excellence through actively supporting or participating in research and a program of continuing professional development

## Evaluation of Trainees:

**Table 2: Expected frequency of assessments**

	<b>AST – Year 1</b>	<b>AST – Year 2</b>
<b>CBD</b>	2 every 6 months	2 every 6 months
<b>MSF</b>	1 every 6 months	1 every 6 months
<b>Portfolio review</b>	1 every 6 months	1 every 6 months
<b>Supervisor’s report</b>	1 every 6 months	1 every 6 months
<b>Exit Examination</b>		Essential

**Table 3: Other areas of curriculum and assessment**

<b>Patient Care</b>	Lectures, interactive tutorials, journal clubs All trainees must clock in $\geq 4$ hours training time per week, encompassing these activities.
<b>Medical knowledge</b>	<b>Assessment:</b> CBD Scholarly Activity Exit Examination
<b>Practice based learning</b>	Journal club: leads junior residents Clinical Practice Improvement Programme or Audit Project Paediatric Haematology/Oncology Competencies <b>Assessment:</b> Supervisor to assess performance
<b>Communication skills</b>	Leads tutorials, supervised teaching of junior residents by senior residents Ability to conduct family conferences to break bad news <b>Assessment:</b> Supervisor to assess performance at tutorials and family conferences MSF CBD: skills in written documentation
<b>Professionalism</b>	Ethics Workshop Reflective exercises documented for portfolio and discussed with supervisor <b>Assessment:</b> MSF
<b>System based practice</b>	Morbidity / Mortality rounds / Sentinel events: identifying system errors Health care delivery course <b>Assessment:</b> MSF: Ability to function as part of a multi-disciplinary team

## **E) INSTITUTIONAL REQUIREMENTS (FACILITIES & RESOURCES)**

### **Minimum and Preferred Teaching Faculty: Trainee Ratio**

All the members of the teaching staff should have received accreditation by the Specialist Accreditation Board. The teaching faculty should represent the full range of paediatric subspecialties and other related disciplines such as paediatric surgery, radiology, and child psychiatry. The minimum teaching faculty: trainee ratio will be as determined by the Specialist Accreditation Board.

Designated supervisors as defined by the Specialist Accreditation Board are required to meet and review the trainee's progress every 2 months. The aim of such a review is to ensure that the trainee is exposed to and taught all aspects of the specialty. Deficiencies in training (both theoretical and practical) should be recognised, and appropriate steps taken to overcome them.

### **Requirements for Facilities for Study and Training**

Adequate inpatient and outpatient facilities must be available to meet the needs of the general and subspecialty programmes. There must be a full intensive-care facility, as well as a facility for dealing with paediatric emergency patients. Patients should range in age from the newborn through to the young adult. There should be adequate numbers of inpatients and outpatients, as well as new and follow-up patients so as to ensure sufficient clinical exposure and training. Support services should include clinical laboratories, intensive care, occupational and physiotherapy, speech pathology, diagnostic imaging, respiratory therapy, pathology, pharmacology and social services.

Trainees must have access to on-site library or collection of appropriate texts and journals, as well as computer access to electronic databases and on-line search engines for medical literature.

## **(F) SUPERVISION OF TRAINEES**

### **Supervision of Training**

#### ***Advanced training***

Clinical duties will include supervision of a ward, inpatient consults, outpatient general and subspecialty clinics, and special procedures provided by a subspecialty. Trainees must keep a log of their training activities and record their training experience. Responsibility for supervision is accorded by the consultant heading that particular subspecialty, and includes clinical work, research focus and 6-monthly assessments.

## **(G) ASSESSMENT AND FEEDBACK**

### **Logbook**

All trainees are expected to keep a log book which will be reviewed on a monthly basis by the main supervisor. The log book will have a record of cases managed or consulted. Notes should be made regarding difficult or complicated cases. CME activities should also be recorded.

All other teaching experiences e.g. conferences, seminars, papers presented should also be recorded.

### **Documentation of training**

Documentation of work experience and training received will be Paediatric Haematology/Oncology training portfolios. The Paediatric Haematology/Oncology training portfolio must be submitted at the Exit Examination in Paediatric Haematology/Oncology. Trainees are expected to attend a minimum of 4 hours of training sessions per week. The training portfolio will help to:

- Trainee's work experience, training
- Education supervision
- Professional development plans
- Workshops attended
- Reflective entries
- Annual review of 6 core competencies
- Requisite formative work assessments

## **Feedback**

Six-monthly interviews with the trainees should be conducted to ensure that the training objectives for each rotation have been adequately met, as well as to monitor for any difficulties in workload and training activities. Feedback forms should also be provided at the end of each posting, and the programme supervisor is responsible for collating the results and instituting the appropriate changes to the training programmes.

## **(H) EXIT EXAMINATION**

### **Exit Examination in Paediatric Medicine**

The trainee must undergo an Exit Examination in Paediatric Haematology/Oncology upon satisfactory completion of 2 years of advanced training. The trainee must pass the Exit Examination within the stipulated training period (maximum 3 years beyond the stipulated time frame), unless special permission has been obtained from JCST for any extenuating circumstances, in order to be accredited by the Specialist Accreditation Board (SAB) of the Singapore Medical Council (SMC) as a Paediatric Specialist.

### **Application for Exit Examination**

Candidates who have completed the requirements for advanced training and are eligible for the Paediatric Haematology/Oncology Exit Examination must submit their completed training portfolios and application form endorsed by their Heads of Departments indicating that they have fulfilled all the posting requirements satisfactorily. Candidates will be notified of the exit examination dates at least 2 months in advance.

### **Exit Examination Format**

The exit examination shall consist of the following sections:

- Appraisal of the Scholarly Activity, Reflective Entry on an adolescent problem in Paediatric Haematology/Oncology and assessment of experience and competence based on the log book.
- Structured Examination consisting of the following sections:

- Clinical case scenario on any problem in General Paediatric Haematology/Oncology, including oncological emergencies, ethical and palliative care issues
- Clinical case scenario on a problem in Benign Haematology
- Clinical case scenario on a problem in Haematopoietic Stem Cell Transplantation
- Journal critique on an article in Paediatric Haematology/Oncology.

### **Timing of Exams**

The examinations are held annually, not earlier than 3 months before end of training

## **(I) CHANGES IN TRAINING PROGRAMME STRUCTURE/DURATION, AND OVERSEAS TRAINING**

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

- Leave Guidelines
- Training Deliverables
- Retrospective Recognition (Not applicable to IM AST)
- Changes to Training Period
- Part-time Training
- Overseas Training
- Withdrawal of Traineeship
- Exit Certification

## **APPENDIX A**

### **CURRICULUM FOR AST PROGRAMME IN PAEDIATRIC HAEMATOLOGY/ONCOLOGY LEADING TO SPECIALIST ACCREDITATION IN SINGAPORE**

The core curriculum for Paediatric Haematology/Oncology is not meant to be exhaustive but aims to equip the specialist with the skills and knowledge to be able to understand the pathophysiology of paediatric haematology/oncology disorders as well as diagnose and manage patients competently and in an evidence-based manner. The specialist must recognise that these patients should be managed in a multidisciplinary team including paediatric surgeon, interventional radiologist, pathologist, oncology nurse, medical social worker, child life specialist, palliative physician to name a few. They should have the opportunity to participate and present in multidisciplinary tumour boards.

The field of Paediatric Haematology/Oncology is constantly changing with new diagnostics and new treatment modalities and the specialist should be able to keep abreast of current knowledge by critically reviewing the literature and keeping updated. The specialist must also recognise that the care of these patients does not end when treatment is completed, and must be familiar with long term follow up care including monitoring for late effects of treatment and planning for transition to adult services where appropriate.

#### **A. Paediatric Oncology**

The specialist should be familiar with the epidemiology and aetiology of childhood cancers, the classification and staging and the principle of multi-modality treatment. He/she should be competent in the use of chemotherapy and its side effects; and have relevant knowledge of surgical principles and radiotherapy concepts in the management of childhood cancer. The core curriculum for the oncology component includes but is not limited to:

- 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**

The specialist is not meant to be a trained haematopathologist or laboratory trained haematologist but should be clinically competent in the diagnosis and management of benign disorders of red cells, white cells, platelets, bone marrow failure and haemostasis and thrombosis. Therefore the core curriculum for the haematology component includes but is not limited to:

- 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**

Currently haematopoietic stem cell transplants are done for malignant and benign disorders as well as immunodeficiencies. The specialist should have experience in and demonstrate knowledge of the following:

- 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**

The current intensive treatment of childhood cancer cannot be possible without good supportive care measures. The specialist should be cognizant of the importance of good supportive holistic care and be familiar with the following aspects:

- 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**

The specialist must demonstrate skills and ability to perform the following procedures related to the care of children with haematology/oncology diseases:

- Bone marrow aspiration and trephine biopsy
- Lumbar puncture and intrathecal chemotherapy
- Access and de-access of central lines like 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.