

“This prospectus is made under the provisions of the Universities Act, the Postgraduate Institute of Medicine Ordinance, and the General By-Laws No. 1 of 2016 and By-Laws No. 2 of 2016 for Degree of Doctor of Medicine(MD) and Board Certification as a Specialist”

**POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO, SRI LANKA**



**Prospectus of
The Postgraduate
Diploma/Doctor of Medicine (MD) &
Board Certification
in
Clinical Haematology
2013**

Specialty board in Haematology and Transfusion Medicine
Board of Study in Pathology

CONTENTS	page
1 Description, Nomenclature and Associated Agencies	4
2 Overview of the Postgraduate Training in Haematology	4
2.1 Duration	4
2.2 Examinations in Postgraduate Training Programme in Clinical Haematology	4
2.3 Background to the Programme	6
2.4 Curriculum	6
2.5 Learning Experience	6
2.6 Administration of the programme	6
3 Selection of Medical Officers for the postgraduate training programme in Clinical Haematology	7
3.1 Eligibility Criteria	7
3.2 Format and Details of the Selection Examination	7
3.3 Requirements to Pass the Selection Examination	8
3.4 The Number of Trainees Selected for the Training Programme	8
3.5 Training clusters	8
4 Course in Basic Laboratory Sciences	9
4.1 Aim	9
4.2 Course in Basic Laboratory Sciences	9
4.3 Learning Outcomes	9
4.4 Contents of the Course in Basic Laboratory Sciences	10
4.5 Examination in Basic Laboratory Sciences	10
5 Postgraduate Diploma in Clinical Haematology	11
5.1 Programme Aims	11
5.2 Learning Objectives	11
5.3 Structure of Training Programme	11
5.4 Learning objectives of in-course Laboratory based training	13
5.5 Trainers	13
5.6 Postgraduate Diploma in Clinical Haematology examination	13
5.7 Recommended reading for the postgraduate diploma in Clinical Haematology	15
6 MD in Clinical Haematology with Board Certification	16
6.1 Programme Aims	16
6.2 Learning Objectives	16
6.3 Entry Criteria	16
6.4 Format of Training programme	16
6.5 Clinical training rotations in the MD Clinical Haematology programme	17
6.6 Details of MD Clinical Training	17
6.7 Identification of trainers	17
6.8 Portfolio	18

6.9	Monitoring of Progress	19
6.10	Format of examination	19
6.11	Requirements to pass the MD in Clinical Haematology Examination	21
6.12	Repeat attempts	21
6.13	Recommended reading for MD in Clinical Haematology	21
7	Post MD training in clinical haematology	22
7.1	Post MD local training	22
7.2	Post MD overseas training	22
7.3	Portfolio	22
7.4	Progress reports	23
7.5	Scientific paper / Research project	23
8	Pre Board Certification Assessment (PBCA)	24
9	Requirements for Board certification	24
Annex : 1	Contents of the Course in Basic Laboratory Sciences	1
Annex : 2	Contents of incourse laboratory training	4
Annex : 3	Learning Objectives of Pg Diploma in Clinical haematology	7
Annex : 4	Log book Pg Diploma in Clinical haematology	11
Annex : 5	Recommended Reading for the Pg Postgraduate Diploma in Clinical Haematology	18
Annex : 6	Learning objectives MD in clinical haematology	19
Annex : 7	Lecture series MD in clinical haematology	20
Annex : 8	Clinical rotations MD in clinical haematology	21
Annex : 9	Details of MD in clinical haematology	23
Annex : 10	Log book MD in clinical haematology	30
Annex : 11	Portfolio	42
Annex : 12	Progress report	47
Annex : 13	PGIM assessment of registrars and senior registrars	48
Annex : 14	Recommended reading for	50
Annex : 15	Format of detailed project proposal for MD in clinical haematology	51
Annex : 16	Assessment of MD project proposal by reviewers	52
Annex : 17	Instructions to supervisors of research project for MD in Clinical Haematology	55
Annex : 18	Research project supervisor consent form	57
Annex : 19	Research project progress report	58
Annex : 20	Project report submission format for the MD in Clinical Haematology	59
Annex : 21	Project report assessment and marking scheme MD in Clinical Haematology	64

Postgraduate Training Programme leading to
Diploma, MD&Board Certification
in
Clinical Haematology

1. DESCRIPTION, NOMENCLATURE AND ASSOCIATED AGENCIES OF THE DEGREE PROGRAMME

- 1.1** Names of the degree programmes - Postgraduate Diploma and MD in Clinical Haematology
- 1.2** Full title –Board Certification in Clinical Haematology
- 1.3** University – University of Colombo, Sri Lanka
- 1.4** Faculties and institutes – Postgraduate Institute of Medicine of the University of Colombo (PGIM)
- 1.5** Departments, external resources and associated agencies – Board of Study in Pathology (BOS), Specialty Board in Haematology& Transfusion Medicine, Boards of Study in Medicine/Surgery/Paediatrics/Oncology/Radiology, Obstetrics &Gynaecology, Ministry of Health, The Sri Lanka College of Haematologists

2. OVERVIEW OF THE POSTGRADUATE TRAINING PROGRAMME IN CLINICAL HAEMATOLOGY

2.1 Duration

The total training period of postgraduate training in Haematology is six years and six months. (Table 1)

- 2.1.1** The first six months will be devoted to acquire knowledge in basic laboratory sciences.
- 2.1.2** The next two years will be devoted to training for the Postgraduate Diploma in Haematology
- 2.1.3** The next two years will be devoted to training for the MD in Clinical Haematology
- 2.1.4** Two years post MD training for board certification.

2.2 EXAMINATIONS IN THE POSTGRADUATE TRAINING PROGRAMME IN CLINICAL HAEMATOLOGY

End of 6 months	Examination in Basic Laboratory Sciences
End of 2 nd year	Postgraduate Diploma Examination in Clinical Haematology
End of 4 th Year	Postgraduate MD examination in Clinical Haematology
End of post MD period	Pre-Board Certification Assessment (PBCA)

Table 1 – Overview of Training Programme

1st 6 months	Postgraduate course in basic laboratory sciences programme
Examination in Basic Laboratory Sciences	
Year 1	In service Laboratory training for Postgraduate Diploma In Clinical Haematology
Year 2	In service Laboratory training for Postgraduate diploma in Clinical Haematology with rotation in specialist laboratories
Postgraduate Diploma in Clinical Haematology Examination	
Year 3	Year 1 of MD training
Year 4	Year 2 of MD training
MD in Clinical Haematology Examination	
Year 5	Post MD local training under direct supervision of Consultant Haematologist
Year 6	Post MD overseas training
Pre Board Certification Assessment	

DIPLOMA IN CLINICAL HAEMATOLOGY

2.3 BACKGROUND TO THE PROGRAMME

The Postgraduate Diploma Clinical Haematology including the course in basic laboratory sciences consists of 2 and a half years of laboratory based practical work. The course in basic laboratory sciences includes a lecture course and the postgraduate diploma in Clinical Haematology includes a series of seminars. It is an intensive, full-time course conducted by designated trainers in the clusters approved by the Board for this purpose. The period of training under supervision covers general haematology, haematological oncology, paediatric haematology, transfusion medicine, haemostasis and thrombosis approved by the BOS. Following successful completion of the CBLs, trainees are eligible to enter the training programme of the Postgraduate Diploma in Clinical Haematology.

2.4 CURRICULUM

The curriculum outlines the knowledge, skills, attitudes and the competence needed for the award of board certification. It would guide both the trainer and the trainee towards work-based experiential learning. It will help the trainees to be active lifelong learners.

2.5 LEARNING EXPERIENCE

The learning takes place mostly in the form of day to day routine work under supervision of a consultant who will give regular feedback to the trainee on the progress, standard of conduct and practice of a trainee. Regular slide discussions, lectures, tutorials, seminars, laboratory based practicals, multidisciplinary meetings, journal clubs, annual academic sessions of the relevant fields of medicine will be the other opportunities for learning.

2.6 ADMINISTRATION OF THE PROGRAMME

1. The Postgraduate Institute of Medicine (PGIM) shall be in charge of the administration and general direction of the programme. General regulations and guidelines stipulated by the PGIM shall apply to the Postgraduate training programme in Clinical Haematology
2. The Director of the PGIM shall function, ex officio, as the Director of the programme
3. There shall be a specialty board in haematology and transfusion medicine with a Chairperson, Secretary and members from the training clusters under the Board of Study in Pathology.

The Board of study shall be responsible for the academic and administrative affairs of the programme under the direction of the Director/PGIM

3. SELECTION OF MEDICAL OFFICERS FOR THE POSTGRADUATE TRAINING

PROGRAMME IN CLINICAL HAEMATOLOGY

Entry to the training programme will be based on success at the selection examination in pathology which will be held annually. Candidates will be tested on the knowledge in Pathology that an undergraduate is expected to possess. Content areas for the selection examination are provided in Annex 1.

3.1 ELIGIBILITY CRITERIA

Prospective applicants must satisfy the following requirements.

1. A medical degree registered * with the Sri Lanka Medical Council.
2. Satisfactory completion of internship acceptable to the Sri Lanka Medical Council.
3. Satisfactory completion of one year of post internship in a university/public/private sector institution in Sri Lanka acceptable to the PGIM.
 - At least 1 year of the post intern period should be in a clinical discipline
 - The candidate should have at least 6 months of work experience in adult medicine or paediatrics during the intern or post intern periods
4. The criteria prescribed in paragraphs (1) to (3) must have been satisfied by the applicant at the date of closure of applications. In the event that a shortfall exists due to any reason including sick, maternity or any other type of leave, the prospective applicant must complete such shortfall in order to become eligible to apply for the Selection Examination.

*Foreign nationals who wish to register for selection examinations should possess a medical degree registrable with the Sri Lanka Medical Council. The decision of the Board of Management will be final in all such applications.

A quota for private sector candidates is presently available.

3.2 FORMAT AND DETAILS OF THE SELECTION EXAMINATION

The selection examination is a common examination for the specialties of clinical haematology, histopathology, and chemical pathology.

The examination comprises a MCQ paper and a SEQ paper.

3.2.1 Multiple Choice Question (MCQ) paper

The MCQ paper will comprise of 45 questions of the True / False type, to be answered in 2 hours and 15 minutes

General Pathology	10
Systemic Pathology	10
Haematology	10
Chemical Pathology	10
Microbiology	05

A negative mark will be given for wrong answers. However, there will be no carry over of negative marks to the next question.

Only those who obtain 50% or more for the MCQ paper will be eligible to sit the structured essay / essay paper.

3.2.2 Structured Essay paper (SEQ)

The SEQ paper comprises of 4 questions to be answered in 2 hours. There shall be one question from each of the following four specialties/areas; General Pathology, Haematology, Chemical Pathology and Systemic Pathology.

3.3 REQUIREMENTS TO PASS THE SELECTION EXAMINATION

The MCQ paper and the SEQ paper will carry equal weight.

The candidate should obtain a minimum of 50% from the total aggregate and a minimum of 45% for the SEQ paper to pass the examination.

3.4 SELECTION OF TRAINEES

The number will be based on training slots available and agreed number by the Ministry of Health. This will be indicated in the advertisement/circular calling for applications. The available training slots will be filled according to the rank order based on the results of the selection examination and the applicant's preferences (haematology / histopathology/ chemical pathology and training cluster).

Those who are selected for the postgraduate training in Clinical Haematology will be enrolled to follow the 6 month course in Basic Laboratory Sciences.

3.5 TRAINING CLUSTERS

Training will take place in 6 clusters with two training centres in each cluster. (Table 2)

Table 2 – Training Clusters

Training Clusters	Training Centres
Colombo	National Hospital of Sri Lanka
	Dept of Pathology, Faculty of Medicine, University of Colombo
Kandy	Teaching Hospital, Kandy
	Dept of Pathology, Faculty of Medicine, University of Peradeniya
Galle	Teaching Hospital Karapitiya
	Dept of Pathology, Faculty of Medicine, University of Ruhuna
Colombo South	Colombo South Teaching Hospital
	Dept of Pathology, Faculty of Medical sciences, University of Sri Jayewardenepura
Colombo North	Colombo North Teaching Hospital
	Dept of Pathology, Faculty of Medicine, University of Kelaniya
Maharagama	Sri Jayewardenepura General Hospital, Thalpathpitiya
	National Cancer Institute Maharagama

Trainees will be allocated to these clusters according to vacant training posts as per order of merit at the Selection Examination.

4. COURSE IN BASIC LABORATORY SCIENCES (CBLS)

4.1 AIM

To ensure that sufficient knowledge of the services of the other fields of pathology is acquired to enable the use and interpretation of basic test results of those disciplines and to ensure sufficient basic background knowledge is acquired to proceed with a specialized training in haematology.

4.2 COURSE IN BASIC LABORATORY SCIENCES

The selected trainees will be posted to training clusters to work full time.

This training comprises

- 6 weeks rotation in Histopathology,
- 6 weeks rotation in Haematology,
- 6 weeks rotation in Chemical pathology
- 4 weeks rotation in Microbiology
- 4 weeks multi disciplinary lecture programme, the attendance at which will be compulsory and a minimum of 80% of attendance is required.

Credit rating for the CBLS is given in Table 3.

Training /teaching instruments (Learning tools)

A Routine work:

The most important learning experience will be day-to-day work in the respective sections in the laboratory; histopathology, haematology, chemical pathology and microbiology. This will be under close supervision of the Consultant Pathologist /Microbiologist (Trainer) There will be regular case to case teaching at the microscope and bench work.

B Textbooks:

Trainees need to 'read around' routine cases that they report. Background reading and learning is essential in Pathology together with the routine work.

C Bench work in Histopathology, Haematology, Chemical Pathology and Microbiology

D One month lecture course

E Departmental teaching sessions.

F Annual Academic Sessions

G Discussions with laboratory technical staff

H Independent self-directed learning

4.3 LEARNING OUTCOMES

At the end of the Basic Laboratory Sciences course, the trainees should be able to

1. Describe the basic pathological processes in terms of pathogenesis, morphological changes and their application in clinical situations.
2. Describe specimen collection, transport, processing and clinical applications with regard to Histopathological, Cytological, Haematological, Microbiological and Chemical pathological investigations

3. Discuss the basis, value and limitations of the Molecular Biological and other special tests in the diagnosis, management and screening of diseases.
4. Discuss the value of good laboratory management in improving the pathology laboratory services
5. Discuss the uses of statistics in the practice of pathology.

4.4 CONTENTS OF THE COURSE IN BASIC LABORATORY SCIENCES

See Annex 2

4.5 EXAMINATION IN BASIC LABORATORY SCIENCES

4.5.1 Eligibility to sit for the examination

- A minimum of 80% attendance during the 6 months of in-service training period is essential to be eligible to sit the examination.
- Eighty percent attendance at the lecture series is also compulsory.

4.5.2 Format of the examination

One multiple choice question paper with 60 True/false type questions to be answered in 3 hours.

Histopathology	16
Haematology	16
Chemical Pathology	16
Microbiology / Parasitology	06
General	06

(The 6 general questions will be on Genetics, Immunology, Laboratory management, statistics, Molecular Pathology and Embryology)

A negative mark will be given for wrong answers. However, there will be no carrying over of negative marks to the next question.

4.5.3 Requirements to pass the Examination

A candidate must obtain a minimum of 50% marks for the MCQ paper in order to pass the examination in Basic Laboratory Sciences.

A candidate is allowed only a **maximum of six (6) attempts** at the Examination in Basic Laboratory Sciences. Those who are unsuccessful at the 6th attempt will have to leave the training programme.

Only candidates who pass the examination in basic laboratory sciences will be permitted to continue their training in Clinical Haematology.

5. POSTGRADUATE DIPLOMA IN CLINICAL HAEMATOLOGY

5.1. PROGRAMME AIMS

At the end of the two year training programme, the trainees who are successful at the Postgraduate Diploma in Clinical Haematology examination should have reached a level of competence that enable them to enter MD training in Clinical Haematology.

5.2. LEARNING OBJECTIVES

5.2.1. Scientific basis for Clinical Haematology

- Have a comprehensive knowledge and understanding of haematological disorders.
- Be able to investigate and diagnose haematological conditions.

5.2.2. Laboratory skills

- Be able to perform and interpret routine and special haematological investigations.
- Have a comprehensive knowledge of quality assurance and laboratory safety.
- Be competent in collection, transport and storage of samples for haematological and related investigations

5.2.3. Laboratory Management

- Be able to manage the haematology laboratory services and the work environment of a haematology laboratory service.

5.2.4. Patient management

- Be able to advise clinicians on investigations and management of haematological conditions

5.3. STRUCTURE OF TRAINING PROGRAMME

Hospital-laboratory based practical in-service training will expose the trainees to general haematology in their respective cluster of training, haematological oncology at the National Cancer Institute at Maharagama, special diseases of haemostasis and thrombosis at the National Hospital Colombo, paediatric haematology at the Lady Ridgeway Hospital for children, and transfusion medicine at the National blood bank. Six seminars will be conducted during the second year of training on broad topic areas.

5.3.1 Hospital laboratory based training

In-service training will consist of hospital laboratory-based practical training under the direct supervision of a Consultant Haematologist for a period of 24 months.

Training will commence with general haematology for a period of 12 months followed by specialized training in paediatric haematology, haematological oncology, blood transfusion and haemostasis and thrombosis each for a period of 3 months.

The main centres recognized for specialized training are:

- Haemato oncology at the Department of Pathology, National Cancer Institute Maharagama.*
- Paediatric haematology at the Department of Pathology, Lady Ridgeway Hospital for Children*
- Haemostasis and thrombosis at the Department of Pathology, National Hospital of Sri Lanka*
- Blood transfusion and serology at the National Blood Transfusion centre, Narahenpita

*The trainee may complete part of the training at his/her cluster by prior approval of the Board of study in Pathology. However, it is mandatory to train at each of the above "special centres" for a minimum of 6 weeks.

5.3.2 Seminars

Six seminars will be conducted during the second year of training. These will be full day programmes for which attendance is compulsory. The topics of the seminars are as follows:

- Red cell disorders
- White cell disorders
- Disorders of coagulation and thrombophilia
- Bone marrow failure
- Transfusion and serology
- Quality assurance and quality control in the haematology laboratory.

Credit rating for CBLS is as follows:

5.3.3 Credit rating

This is calculated on the basis that one credit is equivalent to 15 hours of lectures, and 45 hours of in-service training in the laboratory setting. One week of training consists of 30 hours.

Table 3. Credit rating for CBLS

Learning activity	Duration(weeks)	Credits
Histopathology laboratory work	6	4
Haematology laboratory work	6	4
Chemical Pathology laboratory work	4	2
Microbiology laboratory work	4	2
Lecture Programme	4	8
Total	24	20

Credit rating for the Postgraduate Diploma in Clinical Haematology:

In-service laboratory training	69 credit hours
Seminars	3 credit hours
Total	72 credit hours

5.4 LEARNING OBJECTIVES OF IN-COURSE LABORATORY BASED TRAINING

See Annex 3 for learning objectives

The progress will be monitored by using the log book (see Annex 4) which will be periodically reviewed by the supervisors.

5.5 TRAINERS

Specialists with atleast 3 years experience after board certification in the fields relevant for the training programme of clinical haematology will be appointed as trainers.

5.6 POSTGRADUATE DIPLOMA IN CLINICAL HAEMATOLOGY EXAMINATION

5.6.1 Eligibility to sit for the examination

In order to be eligible to sit for the end of course examination, trainees must have at least 80% attendance during

- a. each of the 5 components of the period of in-service training (general haematology, paediatric haematology, haemato oncology, blood transfusion and haemostasis and thrombosis) AND
- b. the seminars conducted during the period of in-service training

5.6.2 End-of-course assessment

This will consist of 3 components:

- Theory component
- Practical component
- Viva voce

5.6.2.1 Theory component

- 1) Theory Paper 1 – The essay question paper - 5 questions out of which 4 questions must be answered in 3 hours. All questions shall carry equal marks.
- 2) Theory Paper 11 – The structured essay question paper - 7 questions out of which 6 must be answered within 3 hours. All questions shall carry equal marks.

Theory papers I and II will carry equal weight

Each Question will be independently marked out of 100 by two examiners according to a marking grid to a predetermined answer script.

The mark for each question will be the average of the two marks given by the two examiners provided the two marks are within 15 marks of each other. If the two marks are more than 15 marks apart for any question, the two examiners will re-correct such questions and arrive at an agreed mark.

Candidates who obtain a minimum of 50% marks for the theory component shall be considered to have passed the theory component and will be eligible to sit the practical examination.

5.6.2.2 Practical Component

- 1) Transfusion - One problem based wet practical and 04 to 06 short questions to be answered in 3 hours. All questions to be answered.
- 2) Coagulation - One problem based wet practical and 04 to 06 data interpretation questions to be answered in 3 hours. All questions to be answered.
- 3) Short Cases - 15 to 20 cases of morphology & special investigations to be answered in 03 hours. All questions to be answered.
- 4) Long Cases - 05 to 08 cases of morphology and data interpretation questions to be answered in 03 hours. All questions to be answered.

Questions of each subcomponent will be independently marked out of 100 by two examiners according to a marking system to a predetermined model answer script.

The mark for each question will be the average of the two marks given by the two examiners based on the predetermined marking scheme for the expected answers, provided the two marks are within 15 marks of each other. If the two marks are more than 15 marks apart for any question, the two examiners will re-correct such questions and arrive at an agreed mark.

To pass the practical component of the examination the candidate should fulfill all following criteria

- I. An overall 50% of the entire practical component.
- II. Minimum of 45% marks for each sub component of the practical examination.(transfusion, coagulation, short cases and long cases)
- III. Minimum of 50% should be obtained from the combined short and long cases.

5.6.2.3 Viva voce

The viva voce examination will be structured and conducted by 2 panels of examiners, with a minimum of 2 examiners in each panel. Each examiner will independently award marks out of 10. Each candidate will be questioned for 15 minutes by each panel of examiners.

5.6.2.4 Final computation of marks

The final computation of marks shall be as follows:

Examination component	Marked out of	Percentage of final mark
Theory Paper I	400	20
Theory Paper II	600	20
Practical component	400	50
Viva voce	20	10
Total	1420	100

5.6.3 Requirements to pass the Postgraduate Diploma in Clinical Haematology examination

- A minimum of 50% for the entire examination,
AND
- A minimum of 50% for the theory component (Papers I and II)
AND
- Passed the practical component as per the requirements specified in 5.6.2.2

5.6.4 Award of Postgraduate Diploma in Clinical Haematology

The candidates who have passed the above examination will be awarded the Postgraduate Diploma in Clinical Haematology. They will be eligible to enter the training programme for the MD Clinical Haematology.

5.6.5 Repeat attempts

A candidate must complete the postgraduate Diploma examination within six (6) attempts in not more than 8 years from the first attempt at the Diploma examination.

A candidate who has passed the theory component and failed to obtain the required 50% in the practical component will be allowed to sit the next subsequent practical examination and viva voce. In such cases, the mark previously obtained at the theory component will be considered in the final computation of the marks.

If such a candidate fails this attempt, he or she will be required to sit the entire examination at the next subsequent attempt.

5.7 RECOMMENDED READING FOR THE POSTGRADUATE DIPLOMA IN CLINICAL HAEMATOLOGY

See Annex 5

6. MD IN CLINICAL HAEMATOLOGY WITH BOARD CERTIFICATION

Background to the programme:

The training programme of the MD in Clinical Haematology consists of 2 years of full time clinical training in several different fields of medicine. The rotations include general medicine, haematological oncology (both adult and paediatric), paediatrics, medical intensive care, cardiology, obstetrics and gynaecology, thalassaemia, bone marrow transplantation, and radiology in units approved by the Board of Study.

6.1. PROGRAMME AIMS

At the end of the training programme, trainees who are successful at the postgraduate MD in Clinical Haematology examination should have reached a level of competency to function as a consultant/specialist in clinical haematology.

6.2. LEARNING OBJECTIVES OF THE MD IN CLINICAL HAEMATOLOGY

Annex 6

6.3. ENTRY CRITERIA

In order to be eligible to enter the MD in Clinical Haematology training programme, trainees should have passed the Postgraduate Diploma in Clinical Haematology examination. The number to be enrolled will be indicated by a circular issued by the PGIM. Entry to the MD programme will be on merit order of the Postgraduate Diploma in Clinical Haematology examination.

6.4. FORMAT OF TRAINING PROGRAMME

This comprises of 2 years of in-service training in a hospital setting. Trainees will be allocated to units approved by the Board of study for training in the following clinical disciplines according to the merit list of the postgraduate diploma in Clinical Haematology examination. The training programme is given in table 4.

Table 4 - Format of training programme MD in Clinical Haematology

Specialty	Duration	Training centre
Adult medicine	9 months	Trainee's cluster of training
Medical Intensive care	1 month	Trainee's cluster of training
Adult Oncology	3 months	NCIM
Paediatric oncology	3 months	NCIM
Paediatric haematology	3 months	Lady Ridgeway hospital
Cardiology	1 month	Cardiology Unit, NHSL
Gynaecology & Obstetrics	1 month	Trainee's cluster of training
Bone marrow transplant	1 month	Symposium / lecture series / local or regional transplant centre
Thalassaemia	2 weeks	Teaching Hospital Kurunegala or

		Ragama
Radiology unit	2 weeks	Trainee's cluster of training

Credit rating of MD training programme

This is calculated on the basis that one credit is equivalent to 15 hours of lectures, and 45 hours of in-service training in the hospital setting. One week of training consists of 30 hours.

24 months of in-service training	69 credits
15 hours of lectures& discussions	1 credit
Total	70 credits

The lecture series of the MD course is given in Annex 7

6.5. CLINICAL TRAINING ROTATIONS IN THE MD CLINICAL HAEMATOLOGY PROGRAMME

Annex 8

6.6. DETAILS OF MD CLINICAL TRAINING

Annex9

Trainees' progress will be monitored by using the log book which will be periodically reviewed by the supervisors. Annex 10

6.7 IDENTIFICATION OF TRAINERS

Specialists with atleast 3 years experience after board certification in the fields relevant for the training programme of MD in clinical haematology will be appointed as trainers.

6.8 PORTFOLIO

Annex11

The trainees are expected to start maintaining a portfolio from diploma training onwards.

The objectives of maintaining a Portfolio are:

- To help the trainee to record his or her training in brief so that the experience acquired can be assessed and deficiencies identified and remedied.
- To help supervisors and assessors to evaluate the overall training and provide guidance in areas where it is needed.

Entries in the Portfolio should be made by the trainee at the time of acquiring the skill and authorized by the trainer or supervisor.

The trainee is expected to keep it updated regularly. The trainers will use the portfolio to assess the progress of the trainee and to provide a feedback at regular intervals during the training period. The trainers are expected to assess the level of competencies in different areas of training and provide advice and assistance to the trainees to achieve the expected levels of skills empowerment.

The portfolio should be kept as a ring binder document which will allow easy insertions by the Trainee.

The records entered should be certified by the supervisor regularly. Supervisor's signature taken at the end of the course is discouraged.

Trainees will be expected to submit their portfolios for inspection by the Board of Study on a yearly basis, commencing from the 1st year of Postgraduate Diploma training.

Candidates have to submit the completed and signed portfolio to the PGIM three months prior to the examination.

The portfolio should be based on the activities specified in the log book.

Please refer to annex10

At the time of submission the trainee should have the following essential items

1. Minimum of ten case records with practical skills/procedures. A mixture of all specialties adult and pediatric. Need not be confined to haematology. Direct observational practical skills (DOPS). Minimum of 20.
2. Case based discussions. Minimum of 5.
3. Clinical audits. Minimum of one.
4. Documentation on designed methods and techniques to improve the practice of diagnostic and clinical haematology in laboratories and in hospitals.
5. Reflection on their own personal and professional practice and development, assessment of their future development needs and plans for continuing professional development.

6.9 MONITORING OF PROGRESS

1. Progress reports every six months or after completion of each section of training. **(Annex12)**
2. Peer Team Rating every six months (**Annex–13**)

6.9.1 Progress Reports

Each completed section of the training programme should be followed by the submission of a progress report by the trainer. These reports should be received by the PGIM within one month of completing the relevant section of training.

The onus of ensuring that these reports are sent in time to the PGIM is entirely on the trainee. He or she should liaise with the trainers and make sure that the reports are received by the PGIM in time. Any grade of “average”, “good” or “excellent” would be a satisfactory evaluation result. The grading of “poor” would be considered an unsatisfactory evaluation result.

Suitable and appropriate action will be taken by the Board of Study in Pathology or the Specialty Board in Haematology and Transfusion Medicine according to the General Regulations and Disciplinary Code of the PGIM in the event of the receipt of an unsatisfactory progress report at any stage of training.

6.9.2 Peer Team Rating Reports(annex 12)

The trainee and trainer should ensure that the completed forms are submitted to the PGIM every six months according to the stipulated instructions in the form.

6.10. MD IN CLINICAL HAEMATOLOGY EXAMINATION

The trainee will be assessed by an end-of-course examination.

6.9.1 Eligibility to sit for MD in Clinical Haematology examination

In order to be eligible to sit for the end of course examination, trainees must have

- a. at least 80% attendance in the period of in-service training in each of the specified clinical training rotations.
- b. Submitted the completed portfolio documenting the training during the Postgraduate Diploma and MD training period
- c. Satisfactory progress reports
- d. Satisfactory Peer team rating reports.

If Peer team rating report is unsatisfactory, the candidate shall be advised to rectify the deficiencies identified and to resubmit a report within 3 months.

6.10 Format of Examination

The MD in Clinical Haematology examination will be conducted at the end of the training period.

It will have the following components:

1. Theory component
2. Practical component
3. Viva voce

An external examiner (clinical haematologist) will be present for the entire examination. A consultant Physician, Paediatrician or oncologist will be present for the clinical cases and case discussions of the examination.

6.10.1 Theory component

This will consist of 2 essay papers. Each paper will have 5 questions, out of which 4 questions must be answered in 3 hours. All questions will carry equal marks. The Panel of Examiners shall determine the expected answers and the proportionate allocation of marks. Each Question will be independently marked out of 100 by two examiners according to a predetermined marking grid and model answer script. The mark for each question will be the average of the two marks given by the two examiners based on the predetermined marking scheme for the expected answers, provided the two marks are within 15 marks of each other. If the two marks are more than 15 marks apart for any question, the two examiners will re-correct such questions and arrive at an agreed mark.

The contribution from the theory papers to the final mark will be 40%.

6.10.2 Practical Component

This will consist of the following:

- 1) OSPE: 10 - 15 stations in 2.5 hours. All questions to be answered.
- 2) 2 clinical cases – (atleast one will be haemato oncology) 1.5 hours
- 3) Data interpretation with case discussions including morphology – 3 hours.
- 4) Coagulation and transfusion data interpretation – 3 hours

To pass the practical examination the candidate should obtain

- An overall 50% of the entire practical component AND
- Minimum of 45% marks for each of the four sub components of the practical examination.

The contribution from the practical component to the final mark will be 50%.

6.10.3 Viva Voce component

The viva voce examination will be structured and conducted by 2 panels of examiners, with a minimum of 2 examiners in each panel. The candidates will be questioned for 20 minutes by each panel, with a total of 40 minutes for the viva voce examination. Each examiner will mark the candidate independently, out of 10.

The contribution to the final mark will be 10%.

6.10.4 Computation of marks

The final computation of marks shall be as follows:

Examination component	Marked out of	Percentage of final mark
Theory paper I	400	20
Theory paper II	400	20
Practical component	400	50
Viva voce	20	10
Total	1220	100

The format of the examination may be subject to modification, which will be notified to candidates in advance.

6.11 Requirements to pass the MD in Clinical Haematology Examination

In order to pass the MD Clinical Haematology examination, a candidate should have:

- A minimum of 50% overall for the entire examination,
AND
- A minimum of 50% for the theory component (Essay papers)
AND
- Passed the practical component as specified above in 6.10.2

The candidates who are deemed to have passed the examination will be eligible for award of the MD in Clinical Haematology.

6.12 Repeat attempts

A candidate will be allowed a maximum of 6 attempts at the MD examination, which should be completed within 8 years of the first attempt.

6.13 RECOMMENDED READING FOR MD IN CLINICAL HAEMATOLOGY

Annex13

7. POST MD TRAINING IN CLINICAL HAEMATOLOGY

The duration of the training period will be two years, one year in Sri Lanka and one year overseas at a centre recognized by the PGIM. During this period, the trainee is expected to

1. Continue training in clinical haematology, locally and overseas
2. Continue maintaining a portfolio
3. Submit regular, 6-monthly progress reports from the supervisor
4. Carry out a scientific research project and submit a report on it to the Specialty Board

7.1 POST MD LOCAL TRAINING

The trainee should undergo a 12 month training period in a training unit/s approved by the BOS under a trainer appointed by the BOS.

Aims

During this year, the trainee is expected to function as an assistant haematologist to the consultant haematologist(trainer) in the following aspects:

- Management of in-ward and outpatienthaematology patients
- Teaching and training of undergraduate, postgraduate and paramedical students
- The haematology laboratory work, quality control, laboratory management and accreditation

7.2 POST MD OVERSEAS TRAINING IN CLINICAL HAEMATOLOGY

The candidates who are successful at the MD Clinical Haematology examination should undergo a minimum of 12 months training attachment at a centre of excellence in Haematology recognized by the Board of Study in Pathology within 5 years of passing the MD examination. This attachment could be in the capacity of a Registrar, Lecturer, Visiting fellow or any other form acceptable to the Board of Study in Pathology. Training should include general haematology, haemato oncology, coagulation,transfusionand bone marrow transplantation underthe supervision of a clinical haematologist.

7.3 PORTFOLIO

Please refer to Annex 11 for details

This should comprise the following components:

- Documents related to post MD project (proposal, report)
- Documentation of all aspects of training and learning experienced by the trainee.
- Regular reflective entries on all aspects of patient care and professional training the trainee had locally and overseas.
- Exposure to new technologies.
- Details of Continuing Professional Development (CPD) activities.

- Records of scientific presentations made and the evidence of special training/exposure which the trainee had during the local and overseas training should be included.
- Direct Observation of Practical Skills (DOPS).
- Case Based Discussions (CBD).
- A record of individual activity base entries on the trainee's own experiences.

7.4 PROGRESS REPORTS

Should be submitted every six months, according to the format specified in Annex

7.5 SCIENTIFIC PAPER/RESEARCH PROJECT

See Annexes 15 - 20

Successfully carrying out a research project is a **mandatory requirement** for board certification.

It should be a prospective or a retrospective study which is either clinical case based or laboratory based. It may be observational or interventional in type.

All aspects of the study have to be assessed and deemed to be satisfactory by the BOS Pathology **before embarking on the proposed study**. Within three months of commencement of the post MD programme project proposal has to be submitted to the Board of Study in Pathology and approval obtained before commencing the study.

All projects would need informed written consent and interventional studies have to be registered with the Sri Lanka Clinical Trials Registry.

The project report, once completed should be submitted to the Specialty Board of prior to board certification.

The project report will be examined by a two-member panel of examiners appointed by the BOS Pathology and the Specialty Board in Haematology and Transfusion Medicine. The examiners will assess the project based on the following marking scheme

Title, Introduction & Literature Survey	15 marks
Objectives	10 marks
Method	15 marks
Results	20 marks
Discussion	20 marks
Conclusions	05 marks
References	05 marks
Overall presentation of the project	10 marks
TOTAL	100 marks

A minimum mark of 50 is necessary for the project to be accepted by the BOS. If the examiners request resubmission, irrespective of the mark obtained, the trainee will need to do so, prior to completion of local post-MD training period. If a mark of less than 50 is awarded the trainee will have to do the recommended corrections and resubmit for reexamination.

8. PRE-BOARD CERTIFICATION ASSESSMENT (PBCA)

This will take the form of a viva voce examination that focuses on the portfolio. The portfolio will be assessed by a panel of two examiners appointed by the BOS Pathology and the Specialty Board in Haematology and Transfusion Medicine. The panel will sit at a formal discussion with the trainee and evaluate the portfolio over a period of 45 minutes. The portfolio will be assessed by the examiners using the following rating scale:

Rating Scale

Grade	Descriptor	Percentage mark
Pass (P)	Includes all essential items	50 % or more
Fail (F)	All essential items are not included.	<49 %

It is mandatory to obtain a pass mark or above. A trainee who fails the portfolio viva will be advised by the panel on exactly how the portfolio could be improved to achieve a pass mark or more. In such a case, the necessary corrections and amendments have to be made by the trainee and the portfolio re-submitted to the same panel of examiners for a second evaluation. If a pass mark is still not obtained, a third evaluation by the same panel of examiners with a 3rd examiner nominated by the BOS will become necessary.

The date of Board Certification will be 2 years from the date of passing the MD in Clinical Haematology for trainees who pass the portfolio viva at the first or second evaluation (first attempt after counseling).

Board Certification shall be deferred if the candidate fails the PBCA at the second evaluation. A failed candidate should seek counseling within 3 months of the failed assessment and sit for the PBCA again within a period of one year. If unsuccessful, further training for a minimum period of six months in a unit allocated by the BOS is mandatory. The date of Board Certification will be the date of passing the subsequent assessment.

9 REQUIREMENTS FOR BOARD CERTIFICATION

The candidate should apply for board certification within 2 years of returning to Sri Lanka after completion of the compulsory post-MD overseas training.

The following criteria should be fulfilled for Board Certification.

- Passed the MD in Clinical Haematology examination
- Satisfactorily completed the post-MD training period of 1 year local training and 1 year overseas training
- Satisfactory progress reports
- Satisfactory completion of scientific research project
- Passed the Pre-Board Certification Assessment

If a candidate applies for Board Certification more than 2 years after returning to Sri Lanka, the period of delay of application for Board Certification would be added to the date of Board Certification.

Annexes

Annex 1

Subject Content for Selection Examination in Pathology

1. General Pathology

- Cell Injury and Cell Death
- Degeneration
- Acute Inflammation
- Chronic Inflammation
- Regeneration and Repair
- Pathological Calcification
- Pathological Pigmentation
- Circulatory Disturbances (hyperaemia, congestion and shock)
- Thrombosis
- Embolism
- Ischaemia and Infarction
- Amyloidosis
- Disorders of Growth

2. Tumour Pathology

- Introduction to Neoplasia
- Behaviour of Neoplasms
- Carcinogenesis
- Epithelial Tumours
- Connective Tissue Tumours
- Special Types of Neoplasms
- Germ Cell Tumours
- Clinical Manifestations of Neoplasia
- Investigations for Neoplasia

3. Respiratory Pathology

- Acute Pneumonia
- Pulmonary Tuberculosis
- Chronic Obstructive Pulmonary Diseases
- Chronic Diffuse Interstitial (Restrictive) Diseases
- Tumours of the Respiratory System
- Other Lung Disorders (Pulmonary vascular and pleural disorders)

4. Cardiovascular Pathology

- Arteriosclerosis
- Ischaemic Heart Disease
- Cardiomyopathy and Myocarditis
- Rheumatic Heart Disease
- Infective Endocarditis
- Cardiac Failure

5. Gastrointestinal Pathology

- Disorders of Oesophagus
- Non-neoplastic Disorders of the Stomach
- Neoplastic Disorders of the Stomach
- Infectious Diseases of the Intestines
- Inflammatory Bowel Disease
- Malabsorption and Appendicitis
- Neoplasms of Small and Large Intestines

6. Liver Pathology

- Introduction to Liver Pathology
- Hepatitis
- Toxin Induced Liver Cell Injury
- Circulatory Disturbances and Tumours of Liver

7. Renal Pathology

- Glomerular Diseases
- Tubulointerstitial diseases
- Vascular Disorders and Tumours of the Renal System

8. Central Nervous System Pathology

- Raised Intracranial Pressure - Causes and Effects
- Cerebrovascular Disorders
- Infections of the Central Nervous System
- Tumours of the Central Nervous System

9. Reticuloendothelial System Pathology

- Causes of Lymphadenopathy and Splenomegaly
- Lymphoma

10. Bone Pathology

- Acute and Chronic Osteomyelitis
- Neoplasms of Bone

11. Thyroid Pathology

- Multinodular Goitre and tumours

12. Breast Pathology

- Benign conditions and malignant tumours

13. Female Genital Tract Pathology

- Benign and malignant tumours

14. Male Genital Tract Pathology

Prostatic hyperplasia and tumours

15. Haematology

Haemopoiesis and classification of anaemia
Anaemia of chronic diseases and marrow infiltration
Iron Deficiency Anaemia
Megaloblastic Anaemia
Introduction to Haemolytic Anaemia
Hereditary Spherocytosis and G6PD deficiency
Thalassaemia
Acquired Haemolytic anaemia
Leukaemia & myelodysplastic disorders
Myeloproliferative neoplasms
Multiple myeloma
Introduction to Defects of Haemostasis
Idiopathic Thrombocytopenic Purpura and von Willebrand disease
Acquired Defects of Coagulation
Blood and Blood Products and Transfusion Reactions

16. Chemical Pathology

Disorders of Water and Electrolytes
Disorders of Acid Base Balance
Diabetes mellitus
Disorders of Lipid Metabolism
Plasma Proteins and Enzymes
Biochemical Investigations for Renal Disorders
Biochemical Investigations for Liver Disorders
Endocrine Disorders (Pituitary, Adrenal, Thyroid and Gonadal)
Disorders of Calcium and Phosphate Metabolism
Analysis of body fluids

Annex: 2

Contents of the Course in Basic Laboratory Sciences

1 Histopathology

1.1 Subject specific knowledge

1. General Pathological processes
2. Pathogenesis and morphological changes of these processes
3. Scientific basis of the steps involved in tissue fixation and processing in the laboratory.

1.2 Practical aspects

1. Transport of tissues to the laboratory for different types of histopathological and cytopathological studies.
E.g: routine histopathology, frozen sections, cytology, electron microscopy, molecular biology
2. Various procedures carried out in the laboratory with regard to Histopathology.
eg: Special histochemical and immunohistochemical stains.
3. Scope and limitations of the above procedures.
4. Laboratory errors and the ways to rectify them.

2 Haematology

2.1 Subject specific knowledge

1. The scientific basis of the basic Haematological investigations
2. A basic knowledge on the common Haematological diseases

2.2 Practical aspects

1. Venesection and collection of blood samples for Haematological tests
2. Preparation and staining of blood films.
3. Maintenance of laboratory registers and clinic registers.
4. Interpretation of basic changes in a blood film.
5. Laboratory safety and quality control
6. Detection of laboratory errors
7. Interpretation of analyzer reports
8. Communication with patients, laboratory staff and ward staff and the concept of team work

3 Chemical Pathology

3.1 Subject specific knowledge

1. A basic understanding of disease processes where Chemical Pathology tests are more commonly used.
2. Principles of quality assurance and application of this knowledge in the Chemical Pathology laboratory.

3.2 Practical Aspects

1. Venesection and collection of venous blood for routine Chemical Pathology tests
2. Giving instructions on preparation of patients for tests in Chemical Pathology.
3. Giving instructions on specimen transport and processing.
4. Basic steps involved in performing routine tests in Chemical Pathology.
5. The range of tests available in a Chemical Pathology laboratory.
6. A basic knowledge on the usage of basic laboratory equipment.
7. Interpretation of results of routine Chemical Pathology tests.
8. Laboratory safety.
9. Effective communication with the laboratory staff, patients and ward staff and the concept of team work.

4. Immunology

1. Normal Immunological mechanisms.
2. The Patho-physiological basis of immune mediated diseases including autoimmune disease and hypersensitivity reactions.
3. The HLA system and Immuno-pathological reactions involved in graft rejection
4. A basic knowledge on primary and acquired immune deficiency syndromes.
- 5. Microbiology & Parasitology**
 1. Identification and classification of micro organisms
 2. The normal flora of the human body
 3. Clinical presentation and diagnosis of common infections.
 4. Contribution of the laboratory to the diagnosis and management of infections.
 5. Limitations of Microbiology laboratory investigations in patient management.
 6. Safe laboratory practices.
 7. Main hospital acquired infections and control of such infections
- 6. Genetics and Molecular Biology**
 - 6.1 Basic knowledge of genetics**
 1. Cytogenetics (Chromosomal structure)
 2. Molecular genetics (DNA, RNA, etc.)
 3. Patterns of inheritance.
 4. Genetic nomenclature (HUGO nomenclature)
 5. Genetic data bases, resources, etc.
 - 6.2. Genetic basis of normal cell regulation and development of disease states**
 1. Regulation of the cell cycle
 2. DNA damage and repair mechanisms
 3. Molecular mechanisms of aging and cell death
 4. Mutagenesis – causes / mechanisms and its importance in disease
 5. Oncogenic mechanisms including epigenetic mechanisms (Histone methylation, DNA de acetylation, etc.)
 - 6.3 Genetic disorders**
 5. Cytogenetic abnormalities (inherited and acquired clonal abnormalities)
 2. Molecular genetic abnormalities (inherited and acquired clonal abnormalities)
 - 6.4 Laboratory Identification of Genetic Defects**
 1. Chromosomal abnormalities (karyotyping techniques, molecular cytogenetic techniques, microarrays, etc.)
 2. Molecular genetic abnormalities (PCR, ARMS-PCR, PCR/RFLP, DNA Sequencing, Triplet Repeat Expansions - PCR/Fragment Analysis, Deletion Duplication Analysis - Multiplex PCR, MLPA, etc)
 3. Newer Techniques - Next Generation sequencing (Whole Genome and Whole Exon)
 - 6.5 Practical issues in genetic testing**
 1. Specimen collection and transport
 2. Ethical issues (consent and counseling)
 3. Quality assurance
- 7. Statistics**
 1. The uses of research and statistics in biomedical sciences
 2. Definitions of the following terms: Quality assurance, quality control, standard, control material, accuracy, precision, descriptive statistics, inferential statistics, reference interval, random error, systematic error, dispersion, delta check, confidence interval, inter and intra observer variation, standard normal distribution
 3. Calculation of the following: sensitivity, specificity, efficiency, predictive value, mean, mode, median, range, correlation, variance and standard deviation.

4. The basic concepts of sampling and sampling methods and significance testing.

8. Embryology

8.1 Introduction to developmental embryology

1. The fundamentals in developmental Biology
2. The key terminology in developmental Biology
3. The key developmental mechanisms

8.2 Molecular developmental Biology

The tests that should be requested and other resources that could be utilized to investigate development anomalies encountered in a clinical setting.

9. Laboratory Management

1. The basic concepts of management of laboratory resources
2. Definition of quality management
3. The components of quality management
4. The value of quality policy statement for a laboratory
5. A basic understanding of quality manual and its contents
6. The value of internal quality control and external quality assessment
7. Basic concepts of laboratory accreditation
8. Pre-analytical and post analytical phases of quality assurance
9. The value of maintaining electronic records of patient data in terms of maintaining confidentiality and continuation of care (Laboratory informatics)
10. The components of a formal laboratory safety programme

Annex 3

Learning Objectives of Incourse Laboratory Training for the Postgraduate

Diplomain Clinical Haematology

1. Learning Objectives in General Haematology

At the end of this training period, trainees should be able to –

1.1 Theory

- a. Describe the pathogenesis in the causation of haematological disorders.
- b. Investigate and diagnose patients with haematological disorders
- c. Advise clinicians on investigations, diagnosis and management of haematological disorders.
- d. Describe the principles of special tests listed in the logbook

1.2 Basic tests

- a. Perform basic tests in a haematology laboratory
- b. Make smears of both blood and bone marrow and stain them using Leishman, Perls and Sudan Black B.
- c. Describe accurately the normal, and abnormal microscopic appearance of red cells, white cells and platelets
- d. Describe accurately the normal and abnormal microscopic appearance of cells of the bone marrow aspiration and trephine biopsy
- e. Perform and report blood pictures and bone marrow biopsies under supervision
- f. Describe and interpret haemoglobin electrophoresis and HPLCs in the diagnosis of haemoglobinopathies
- g. Prepare commonly used stains and reagents (Leishman, Drabkins, Perls, Sudan)

1.3 Laboratory safety

- a. Describe the principles of laboratory safety practices
- b. Work safely in a routine diagnostic haematology laboratory
- c. Practice safe techniques for haematology samples
- d. Dispose of biological materials safely
- e. Follow work practices which are safe

1.4 Microscopy

- a. Use and maintain a light microscope with due care
- b. Identify normal and abnormal blood and marrow cells by routine and special staining.

1.5 Quality assurance and laboratory accreditation

- a. Detail the principles of quality control (QC)
- b. Describe and use appropriate quality control practices
- c. Work towards achieving laboratory accreditation

1.6 Laboratory equipment and management

- a. Describe the principles and correct use of equipment commonly used in a haematology laboratory. E.g. automated haematology analyzer, automated coagulometer, centrifuges, pipettes, water baths and refrigerators.
- b. Be able to implement good laboratory practice in the management of a clinical haematology laboratory

1.7 Literature retrieval

Retrieve literature using the library, internet and other sources

Duration of training appointment: 9 months

2. HAEMATO ONCOLOGY

Learning objectives

At the end of this training period, trainees should be able to -

2.1 Theory

- a. Describe the principles of investigation, diagnosis and treatment options in haematological malignancies.
- b. Describe the molecular pathogenesis in haematological malignancies
- c. Describe the principles of flowcytometry in haematological oncology.
- d. Describe the principles of special stains and immunohistochemistry in haematological oncology.
- e. Describe the principles of special tests listed in the logbook

2.2 Basic tests

Interpret immunohistochemical stains, flowcytometry results, cytogenetics and molecular genetics reports

2.3 Laboratory equipment

Describe and correctly use the equipment used in a haematology laboratory, with respect to safety, optimum function, QC and maintenance: flowcytometer

Duration of training appointment: 3 months

3 TRANSFUSION MEDICINE

Learning objectives

At the end of this training period, trainees should be able to -

3.1 Theory

- a. Describe the scientific basis of transfusion and serology
- b. Describe the pathogenesis of transfusion reactions and principles in investigation, diagnosis, management and prevention of transfusion reactions
- c. Describe the principles of preparation and storage of components
- d. Describe the principles of therapeutic apheresis
- e. Advise clinicians on the appropriate use of blood and blood products.
- f. Describe the principles of special tests listed in the logbook

3.2 Skills

3.2.1 Be able to manage the donor section

- a. Criteria for selection
- b. Screening procedures
- c. Care of the blood donor
- d. Prevention and management of donor complications.

3.2.2 Be able to investigate and manage antenatal mothers with regard to Haemolytic Disease of New born (HDN), Neonatal Allo immune Thrombocytopenia (NAITP) and other allo immune conditions.

3.2.3 Be able to investigate and provide blood for patients with autoimmune haemolytic anaemia.

3.3 Basic tests

- a. Perform blood group and Rh of a given sample.

- b. Perform, describe accurately and interpret the results of immunohaematological investigations.
- c. Describe how samples are prepared for detection of unexpected antibodies
- d. Describe how samples are prepared for detection of antibody titres
- e. Describe accurately and interpret antibody titres
- f. Describe how samples are prepared for detection of thermal range of auto antibodies
- g. Describe accurately and interpret thermal range of auto antibodies

3.4 Quality control

Describe and use appropriate quality control practices blood grouping, donor screening, component preparation.

Duration of training appointment: 3 months

4 COAGULATION AND THROMBOSIS

Learning objectives

At the end of this training period, trainees should be able to -

4.1 Theory

- a. Describe the pathogenesis of bleeding disorders.
- b. Investigate, diagnose and manage patients with bleeding disorders
- c. Describe the pathogenesis of thrombotic disorders
- d. Investigate, diagnose and manage patients with thrombotic disorders.
- e. Advise clinicians on the management of patients requiring anticoagulation
- f. Describe the principles of special tests listed in the logbook

4.2 Basic tests

- a. Perform basic coagulation tests.
- b. Describe how samples and control samples are prepared for coagulation tests
- c. Describe and accurately interpret coagulation tests
- d. Describe and accurately interpret platelet function tests
- e. Describe and accurately interpret thrombophilia profiles

Duration of training appointment: 3 months

5. PAEDIATRIC HAEMATOLOGY

Learning objectives

At the end of this training period, trainees should be able to -

5.1 Theory

- a. Describe the pathogenesis, Investigate and diagnose patients with paediatric haematological disorders.
- b. Advise clinicians on the investigations, diagnosis and management of haematological disorders.
- c. Describe the principles of special tests listed in the logbook
- d. Describe the importance of age related normal values

5.2 Basic tests

- a. Be able to perform and report paediatric blood pictures and bone marrow biopsies under supervision
- b. Describe accurately the normal, and abnormal microscopic appearance of red cells, white cells and platelets with special emphasis to neonates, infants and

children

- c. Describe accurately the normal and abnormal microscopic appearance of cells of the bone marrow and trephine biopsies in neonates, infants and children.
- d. Describe and interpret haemoglobin electrophoresis and HPLCs with respect to thalassaemia
- e. Describe and interpret coagulation profiles with special emphasis to paediatric ranges
- f. Describe the laboratory practice required to handle paediatric samples

Duration of training appointment: 3 months

Annex 4

Logbook for the Postgraduate Diploma in Clinical Haematology

Contents

1. Introduction
2. Instructions to trainees
3. Instructions to trainer
4. Personal details of trainee
5. Details of basic tests performed
6. Principles of basic tests
7. Reading Assignments
8. Routine diagnostic reports
9. Clinic pathological presentations
10. Tutorial discussions
11. Rotation at National Hospital of Sri Lanka
12. Rotation at Lady Ridgeway Hospital for Children
13. Rotation at the National Cancer Institute Maharagama
14. Rotation at the National Blood Bank
15. Seminars Conducted by the PGIM

Introduction

The logbook is a key document in the formative assessment of the trainee during the Diploma in Haematology training programme. The trainee is expected to keep it updated regularly as the supervisor/s will use the logbook to assess the progress of the trainee. It is used to provide feedback at regular intervals during the training period. Supervisors are expected to assess the level of competencies in different areas of training as the trainee rotates through specialized training centres acquiring different skills.

The board of study expects the trainee and the trainer to make the best use of the logbook in order to achieve the objectives of the training programme.

Instructions to Trainees

The purpose of the logbook is:

1. To help trainees record his /her training in brief so that the experience acquired can be assessed and deficiencies identified early and remedied.
2. To help supervisors assess the overall training and provide guidance in areas where it is needed.

Entries in the logbook should be made by the trainee at the time of acquiring the skill and authorized by the supervisor. Therefore the trainee should possess the logbook with him or her at all times. The completed log book should be submitted after completion of training for the purpose of assessment.

Personal Details of Trainee

Last Name :

Forenames

Address :

Photograph

Postgraduate Institute of Medicine

Telephone : Email:
 Contact phone number in case of emergency :

Gender : Single / Married :

Date of Birth :

Date and place of graduating (e.g. MBBS) :

SLMC registration No.: Date of registration :

Date of completion of internship :

Date of completion of first post intern year :

Date of completion of Certificate in Basic laboratory Sciences :

Employer – Health department/ university / private sector institution

Basic Tests Performed

Technical procedures	Number	Period	Tutor's signature
Cell counts (manual)			
White cells			
Red cells			
Platelets			
Interpretation of coulter results			
Normal Red cells			
Platelets			
MCV			
MCH			
High Red cell count			
High Platelet count			
HCT			
Preparation of routine blood films			
Differential counts			
Examination for MP			
Thick films			
Thin films			
Blood picture			
Reticulocyte count			
PCV – macro method			
Micro method			
Haemoglobin estimation			
Bone marrow biopsy			
Trephine biopsy			
Preparation of slides			
Staining with Leishman			
Reporting of bone marrow films – with Leishman stain			
Reporting of bone marrow films – With special stains			
Perform ESR			
Investigation of haemolyticaemia			
Alkaline denaturation test			

Acid elution test			
Schumm test			
Osmotic fragility test			
Sickling test			
Acidified serum lysis test			
Screen for G6PD deficiency			
Donath Landsteiner Ab test			
Investigation for cold haemagglutinins			
Urine for haemosiderin			
Hb electrophoresis interpretation			
Special tests			
LE cell preparation			
Neutrophil alkaline phosphatase			
Quality control in the haematology lab			

Principles of basic tests

Trainees should know the principles and interpretation of the following tests and procedures and have observed their performance.

- ❖ Serum iron, total iron binding capacity and ferritin measurements
- ❖ Serum vitamin B12 assay and B12 binding
- ❖ Serum and red cell folate assays
- ❖ Schilling test
- ❖ Intrinsic factor antibody measurement
- ❖ Oxygen dissociation curve measurement
- ❖ Serum immunoglobulin measurement
- ❖ Immuno-electrophoresis and immuno-fixation of serum and urinary proteins
- ❖ Cryoglobulin and cryofibrinogen detection
- ❖ Serum complement measurement
- ❖ Anti nuclear antibody demonstration
- ❖ Beta 2 microglobulin
- ❖ Platelet factor 4 thromboxane b2 assay
- ❖ Cell surface marker studies by immuno-cytochemistry and or flow cytometry
- ❖ Serum lysozyme measurement
- ❖ Terminal deoxynucleotidyltransferase (TdT)
- ❖ Ristocetin co factor assay and von Willebrand factor antigen
- ❖ Test for platelet factor 3 availability
- ❖ Tests for hepatitis B surface antigen
- ❖ Tests for detection of HIV ANTIBODY
- ❖ Tests for the detection of hepatitis C antibody
- ❖ Blood grouping and antibody screening by automated techniques
- ❖ Elution of antibodies from red cells.
- ❖ Methods for the detection of platelet antibodies
- ❖ Drug related antibody tests e.g. heparin quinine

Postgraduate Institute of Medicine

- ❖ Preparation of blood components for transfusion purposes
- ❖ Basic principles in histocompatibility testing
- ❖ Chromogenic substrate assays
- ❖ Cytogenetic methods relevant to haematology
- ❖ ELISA assays
- ❖ Radio immune assay techniques
- ❖ Assay for coagulation inhibitors (e.g. antithrombin, protein C, protein S and factor V Leiden)
- ❖ Tests for the fibrinolytic system
- ❖ Platelet antibodies
- ❖ Complement component of clinical importance
- ❖ Lupus anticoagulant tests and anti cardiolipin antibody
- ❖ Basic principles of molecular biology as they apply to haematology/cytogenetics
- ❖ DNA preparation, use of restriction endonucleases, southern, northern and western blotting, gene rearrangement studies
- ❖ Polymerase chain reaction
- ❖ Radio isotope studies – red cell mass / plasma volume red cell survival and platelet survival studies
- ❖ Ferrokinetics
- ❖ Infectious mononucleosis screening test and the classical Paul Bunnell test
- ❖ Electron microscopic appearances in certain blood disorders e.g. CDA, AML M7

Trainees should have the experience of

Monitoring patients on warfarin

Management and follow up patients

- a. On chemotherapy
- b. With bleeding disorders
- c. With thrombo embolic diseases
- d. With benign haematological disorders

Other learning assignments

Reading assignments

Subject	Signature of tutors	Period	Date of mock test	Signature of supervisor

Routine diagnostic reports

Diagnoses	Number submitted month & year	Signature of tutor

Postgraduate Institute of Medicine

Clinico Pathological presentations (minimum of five (5) cases)

Diagnosis	Date, month & year	Signature of tutor

Tutorial discussions

Subject	Number submitted month & year	Signature of tutor

Rotations

Training at a specialized centre is essential and a minimum 80% attendance is compulsory.

National Hospital of Sri Lanka

Date of Commencement	Date of completion	Attendance	Signature of Consultant

Technical Procedures	Number	Period	Tutor's Signature
Investigation of a patient with bleeding			
Bleeding time			
Clotting time			
Prothrombin time			
APTT			
PTTK with correction			
Factor correction			
Thrombin time			
Plasma fibrinogen			
Russell viper venom time			
Kaolin clotting time			

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Factor XIII screening test			
Factor VIII, IX, V, VII, II assay			
Coagulation inhibitor tests			
Platelet adhesion & aggregation tests			
Clot retraction test			
Clot stability test			
Quality assurance in the coagulation laboratory			

Lady Ridgeway Hospital for Children, Colombo

Date of Commencement	Date of completion	Attendance	Signature of Consultant

Technical Procedures	Number	Period	Tutor's Signature
Bone marrow aspirations			
Trephine biopsy			
Coagulation factor assays			
Clot solubility assays			
Factor XIII assays			

National Cancer Institute Maharagama

Date of Commencement	Date of completion	Attendance	Signature of Consultant

Technical Procedures	Number	Period	Tutor's Signature
Bone marrow aspirations			
Trephine biopsies			
Immunohistochemistry (minimum 10)			
Flow cytometry (minimum 10)			
Special stains – Sudan Black B			
Periodic Acid Schiff			
Non specific esterase			
Neutrophil Alkaline Phosphatase score			

National Blood Bank

Date of Commencement	Date of completion	Attendance	Signature of Consultant

Technical Procedures	Number	Period	Tutor's Signature
Blood bank serology			
Donor screening and phlebotomy			
Blood grouping and cross matching			

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Anti A and Anti B haemagglutinin titre			
Rh phenotyping			
Antenatal serology			
Antibody screening and identification			
Principles of component preparation			
Investigation for transfusion reactions			
Cord blood grouping and exchange transfusion			
Quality control in blood banking			

Seminars Conducted by the PGIM

Date	Topic	Signature of Consultant
	Red cell disorders	
	White cell disorders	
	Coagulation disorders	
	Bone marrow failure	
	Transfusion	
	Quality assurance and Quality control	

Annex5

Recommended Reading for the Postgraduate Diploma in Clinical Haematology

The most recent editions of

1. Essential Haematology by A.V. Hoffbrand
2. Post graduate Haematology by A.V. Hoffbrand, Daniel Catovsky, Edward G.D. Tuddenham, and Anthony R. Green
3. Practical Haematology by Sir John B.V. Dacie and S.M. Lewis
4. Blood cells a practical guide by Barbara J. Bain
5. Haemoglobinopathy Diagnosis by Barbara J. Bain,
6. Leukaemia diagnosis by Barbara J. Bain
7. Bone marrow pathology by Barbara J. Bain, David M. Clark, Bridget S. Wilkins
8. Wintrobe's clinical haematology by John P. Greer, John Foerster, John N. Lukens
9. Williams Haematology by Ernest D. Beutler, Marshall A. Lichtman, Barry S. Coller, Thomas J. Kipps, Uri Seligsohn
10. Practical Transfusion Medicine by Mike Murphy, Derwood H. Pamphilon
11. Mollison's blood transfusion in clinical medicine by Harvey G. Klein and David J. Anstee
12. World Health Organization of tumours of haemopoietic and lymphoid tissues 2008

The most recent journals/periodicals

1. British Journal of Haematology
2. Blood
3. Transfusion Medicine
4. New England Journal of Medicine
5. Journal of Haemostasis and Thrombosis
6. Blood Reviews
7. Current Opinion in haematology
8. American society of Haematology – Education book
9. Seminars in Haematology

Annex 6

Learning Objectives of the MD in Clinical Haematology

At the end of the training of the post graduate MD in Clinical Haematology, trainees should be able to

- Describe the pathogenesis of haematological disorders.
- Investigate, diagnose, treat and prevent disorders of the haemopoietic and lymphatic systems with primary haematological diseases of both adult and paediatric patients.
- Investigate, diagnose, treat and prevent disorders of the haemopoietic and lymphatic systems in patients with disorders due to consequence of diseases in other systems in both adult and paediatric patients.
- Investigate, diagnose, treat and prevent disorders of coagulation and thrombosis in adults and children.
- Investigate, diagnose, treat and prevent disorders due to transfusions
- Manage transfusion dependent patients, both paediatrics and adult.
- Manage critically ill patients with multi system problems.
- Work closely with many professionals as a team in managing critically ill patients. E.g. laboratory technical staff, nursing staff, pharmacists, physiotherapists, dieticians, and other professionals allied to medicine.
- Provide optimum care for critically ill haematology patients with close liaison with medical specialists of fields such as microbiology, pathology, palliative care, renal medicine, ophthalmology, obstetrics, orthopedic surgery and intensive care.
- Manage haematology laboratories
- Teach and work as a team worker and leader
- Be able to discuss clinical governance and audit
- Be able to discuss the importance of research in improving clinical practice
- Be able to discuss the importance of continuous medical education activities and partake in such activities

Annex 7

Lecture series of the MD in Clinical Haematology

- 1 Pharmacokinetics and pharmacodynamics of drugs used in haematology (e.g. cytoreductive agents, immuno suppressive agents, thrombolytics, anti coagulants, antifibrinolytic agents, anti platelet agents, monoclonal antibodies used in haematology, haemopoietic agents)
- 2 Prescribing in patients with renal, hepatic impairment, cardiac and pulmonary decompensation
- 3 Principles, indications and side effects of radiation therapy in haematological disorders (short term and long term)
- 4 Clinical trials
- 5 Medical Statistics
- 6 Palliative care in haematological diseases
- 7 Principles of critical care and basic life support
- 8 Care of the immuno compromised patient
- 9 Rational use of antibiotics, antivirals and anti fungals

Annex 8

Clinical training rotations in the MD Clinical Haematology programme

1 Training in Adult Medicine

Training in adult medicine training will be at the trainee's cluster of training approved by the Board of study in Medicine. This training will consist of working in a medical ward (inclusive of on-call duties) under the supervision of a Consultant Physician for a period of 9 months. The approved training centres (subject to change) are as follows:

- National Hospital of Sri Lanka
- Teaching Hospital Kandy
- Teaching Hospital Karapitiya
- Teaching Hospital Peradeniya
- North Colombo Teaching Hospital
- Sri Jayawardenapura General Hospital
- Colombo South Teaching Hospital

2 Training in Medical Intensive Care

Training in Medical Intensive Care will be at the trainee's cluster of training. This training will comprise training under the direct supervision of a Consultant Anaesthetist/ Intensivist for a period of 1 month. All intensive care units within the approved clusters are recognized for this training.

3 Training in Adult Oncology

Training in Adult Oncology will be under the direct supervision of a Consultant Oncologist approved by the Board of Study in Oncology for a period of 3 months. The training shall be in both male and female adult wards in the National Cancer Institute Maharagama.

4 Training in Paediatric Oncology

Training in Paediatric Oncology will be under the direct supervision of a Consultant Oncologist approved by the Boards of Study in Oncology for a period of 3 months at the National Cancer Institute Maharagama.

5 Training in Paediatric Haematology

Training in Paediatric Haematology will be under the direct supervision of a Consultant Paediatrician approved by the Boards of Study in Paediatrics for a period of 3 months. The main hospital of training is the Lady Ridgeway Hospital for Children. However, where training clusters have a recognized paediatric unit (approved by the board of study in Pathology), the trainee may complete part of the training at the cluster but it is mandatory to train at the Lady Ridgeway Hospital for a minimum of 1 month.

6 Training in Cardiology

Training in cardiology will be under the direct supervision of a Consultant Cardiologist approved by the Board of Study in Medicine for a period of 1 month. The training shall be in both male and female adult wards. The main center of training is the cardiology unit and Cardiothoracic unit of National Hospital of Sri Lanka

7 Training in Gynaecology and Obstetrics

Training in Gynaecology and Obstetrics will be under the direct supervision of a Consultant Gynaecologist approved by the Boards of Study in Gynaecology and Obstetrics for a period of 1 month. This training will be at the trainee's cluster of training.

8 Training in Bone marrow transplantation

The training in bone marrow transplantation will be by a series of lectures/workshops/symposia and or at a regional or local bone marrow transplantation unit. (This training is subject to change when a bone marrow transplant centre is established in Sri Lanka)

Annex 9

Learning objectives of the Clinical rotations

1 GENERAL MEDICINE

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas.

1.1 History taking and clinical examination –

- Elicit a relevant history, clinical examination, record accurately, synthesize to establish a diagnosis or differential diagnoses and formulate a management plan. Recognize risk factors for conditions relevant to the presentation
- Recognize critical illness including organ failure (cardiac, hepatic, renal etc) and respond with due urgency

1.2 Therapeutics and safe prescribing –

- Prescribe, review and monitor appropriate therapeutic interventions.
- Describe indications, contraindications, side effects, drug interactions and dosages of commonly prescribed drugs
- List drugs requiring therapeutic range monitoring
- Describe effects of age, body size, organ dysfunction and coexistent illness on drug distribution and metabolism
- Recognize effects and adverse effects of medications
- Anticipate and avoid drug interactions
- Advise patients and carers regarding important drug interactions and adverse effects
- Prescribe safely in pregnancy and breast feeding
- Prescribe safely with appropriate adjustments in pathological and physiological changes. E.g. deteriorating renal or hepatic function
- Use expert advice, clinical guidelines and algorithms

1.3 Decision making and clinical reasoning -

- Construct a concise and applicable problem list with the available information.
- Construct an appropriate investigation and management plan with the patient, carers and the clinical team.

1.4 Team working and patient safety

- Recognize the importance of effective collaboration with different medical disciplines.
- Develop leadership skills and be able to deliver safer care

1.5 Infection control

- Discuss the principles of infection control
- Discuss principles of preventing infection in high risk groups and hospital antibiotic prescribing policy

1.6 Breaking bad news

- Recognise the fundamental importance of breaking bad news

1.7 Principles of medical ethics and confidentiality

- Describe the principles of medical ethics
- Follow guidance on confidentiality
- Ensure ethical research using relevant ethical guidelines

1.8 Audit

- Perform an audit in clinical practice and apply the findings into clinical practice
- 1.9 Teaching and training
 - Teach different audiences
 - Train different trainees
 - Plan and deliver training programme with appropriate assessment

Duration of training appointment: 9 months

2 TRAINING IN MEDICAL INTENSIVE CARE

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas:

- Assess and manage
 - an unconscious patient
 - a cardio respiratory arrest
 - patients in shock and anaphylaxis
 - sepsis with appropriate antimicrobials.
 - patients with seizures
 - patients with fulminant hepatic failure
 - patients with renal failure – both acute and chronic
- Identify patients who need intubation and be competent in intubation.
- Assess the need and institute cardiopulmonary resuscitation
- Insert a CVP line
- Identify patients who require intercostal drain insertion
- Recognize complications of intercostal drain insertions and monitor patients
- Perform blood gas analysis

Duration of training appointment: 1 month

3 TRAINING IN ADULT HAEMATO ONCOLOGY

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to acute and chronic leukaemia, lymphoid neoplasms, myeloproliferative neoplasms, multiple myeloma and other plasma cell dyscrasias (MGUS, solitary plasmacytoma, AL amyloid) and myelodysplastic syndromes in adults:

- Competently diagnose and manage patients.
- Describe the presentation, natural history, pathogenesis, diagnosis, and classification according to the WHO, staging, prognosis and management.
- Classify and indicate prognostic factors with implications for therapy
- Define principles of intensive and non intensive systemic therapy – chemotherapy, modes of action, side effects and interactions of agents used in the management
- Describe the role of radiotherapy
- Describe the role of palliative care
- Describe supportive care, management of short term and long term complications of chemotherapy and radiotherapy
- Describe the appropriate use of prophylactic and therapeutic antimicrobials

and blood products

- Describe prevention and management of tumourlysis syndrome
- Define indications for autologous and allogeneic haemopoietic stem cell transplantation
- Assess suitability for stem cell transplantation
- Explain the use of transplantation and its limitations to patients and carers.
- Describe clinical trials and their use in clinical practice
- Describe ethical considerations of informed consent
- Use appropriate laboratory investigations to establish a diagnosis
- Formulate and implement an appropriate management plan with a multi disciplinary team
- Clearly communicate management options to the patient and carers.
- Manage side effects of treatment and complications
- Perform a lumbar puncture safely to diagnose and administer intrathecal chemotherapy
- Use blood products and antimicrobial agents appropriately
- Obtain informed consent from patients and carers regarding clinical trials and therapy.
- Manage patients undergoing stem cell transplantation
- Identify complications of stem cell transplant including viral syndromes, graft versus host disease and long term side effects
- Describe the emergency management of spinal cord compression
- Describe the emergency management of hyperviscosity
- Describe supportive care in myeloma – prevention and management of renal dysfunction, bone disease, pain and marrow failure
- Describe the effects of chronic disease on patient and the family

Duration of training appointment: 3 months

4 **TRAINING IN PAEDIATRIC HAEMATO ONCOLOGY**

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas:

- Competently diagnose and manage patients with acute leukaemia
- Describe the presentation, natural history, pathogenesis, diagnosis and prognosis of acute leukaemia in neonates, infants and children
- Define principles of intensive and non intensive systemic therapy – chemotherapy, modes of action, side effects and interactions of agents used in the management of acute leukaemia
- Describe the role of palliative care
- Describe supportive care in the management of acute leukaemia
- Describe the appropriate use of blood products in acute leukaemia
- Describe prevention and management of tumourlysis syndrome
- Describe and manage medical emergencies and organ failure that occur with treatment of patients with haematological malignancy. (hyperviscosity syndrome, neutropenic sepsis, cord compression, renal failure, hepatic failure,

cardiac failure, pulmonary embolism, massive haemorrhage, etc)

- Describe prophylaxis and therapy with antimicrobials
- Define indications for autologous and allogeneic haematological stem cell transplantation in management of acute leukaemia
- Manage patients undergoing stem cell transplantation
- Identify complications of stem cell transplant including viral syndromes, graft versus host disease and long term side effects
- Explain the use of trials and importance of trials in acute leukaemia
- Perform a lumbar puncture safely to diagnose and administer intrathecal chemotherapy
- Describe the presentation, natural history, pathogenesis and diagnosis of Hodgkin and non Hodgkin lymphoma
- Classify lymphomas according to the WHO classification with staging and prognostic factors
- Describe therapy regimes and the role of radiotherapy and palliative care in the management of lymphoma
- Identify and manage side effects of radiotherapy
- Manage central venous catheters. i.e. Hickman lines, PICC lines
- Describe indicators for autologous and allogeneic haemopoietic stem cell transplantation in the management of lymphoma
- Work with a multi disciplinary team to manage complications of lymphoma and its treatment
- Assess suitability for stem cell transplantation.
- Discuss limitations of stem cell transplantation with the patient and carers.

Duration of training appointment: 3 months

5 TRAINING IN PAEDIATRIC HAEMATOLOGY

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas:

- Describe the pathogenesis, diagnosis and management of neonates with anaemia, coagulation disorders, haemorrhagic diseases of the newborn and haemolytic disease of the newborn.
- Describe haematological manifestations of paediatric diseases including tumours.
- Describe the pathophysiology, diagnosis and management in haemoglobinopathies, congenital and acquired thrombocytopenia, coagulopathies, thrombotic states, anaemias, disorders of leukocytes including neutropenia and lymphopenia, abnormal function, immune deficiency, leukaemia, myeloproliferative and myelodysplastic syndromes in paediatric practice, inherited and acquired bone marrow failure syndromes including haemophagocytic syndromes.
- Describe the paediatric aspects of stem cell transplantation
- Analyse and interpret paediatric laboratory results
- Analyse and interpret paediatric blood films and bone marrow smears.

- Evaluate and manage paediatric haematological disorders
- Advice on the prophylaxis and management of haemolytic disease of the newborn.
- Perform venipuncture, cannulation, bone marrow aspiration and lumbar puncture safely on infants and children
- Describe transfusion requirements of neonates and children with occasional or continued need and long term side effects
- Discuss the principles of genetic counseling and consent for testing.

Duration of training appointment 3 months

6 TRAINING IN CARDIOLOGY

Learning Objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas:

- Describe the aetiology, pathophysiology, natural history, presentation, diagnosis, prognosis and management of cardiac failure, cardiomyopathy etc.
- Describe indications, contraindications, side effects drug interactions and dosage of drugs commonly used in cardiovascular disease
- Describe list common drugs and their side effects that give rise to arrhythmias
- Recognize and manage patients with angina
- Identify and manage patients with valvular heart disease with special reference to anticoagulation
- Identify and manage critically ill patients with haemodynamic derangements
- Recognize and manage patients with pregnancy with cardiac complications
- Recognize and manage patients with cardiac failure
- Recognize and manage patients undergoing cardiothoracic surgery with respect to haematological complications
- Recognize common arrhythmias by ECGs
- Assess and manage a cardio respiratory arrest
- Identify patients who need intubation and be competent in intubation.
- Assess the need and institute cardiopulmonary resuscitation
- Be familiar with insertion of a CVP line
- Identify patients requiring temporary pace makers and be familiar with insertion of pace makers.
- Perform artificial ventilation

Duration of training appointment: 1 month

7 TRAINING IN OBSTETRICS AND GYNAECOLOGY

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas:

- Describe the normal physiological haematological changes in pregnancy and puerperium
- Describe the pathophysiology of haematological diseases occurring in

pregnancy and puerperium such as anaemia, thrombocytopenia, microangiopathic hemolytic anemia, thrombophilia in pregnancy and recurrent fetal losses due to haematological diseases.

- Prevent, diagnose and manage complications of pregnancy and puerperium in relation to haematological diseases.
- Haematological management of valvular heart disease in pregnancy

Duration of training appointment: 1 month

8 **TRAINING IN BONE MARROW TRANSPLANTATION**

Learning Objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas:

- Describe the principles and indications for autologous and allogeneic stem cell transplantation
- Assess suitability for stem cell transplantation.
- Explain the use of transplantation and its limitations to patients and carers.
- Manage patients undergoing stem cell transplantation
- Identify complications of stem cell transplant including viral syndromes, graft versus host disease and long term side effects
- Formulate and implement a management plan with a multidisciplinary team

Duration of training 1 month

9 **TRAINING IN THALASSAEMIA**

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas:

- Describe the molecular basis, presentation and natural history of abnormal haemoglobins and thalassaemia syndromes
- Describe techniques in the diagnosis of haemoglobin disorders
- Describe the rationale of the national screening programme
- Describe the diagnosis and management of specific major acute complications of sickle cell anaemia
- Describe appropriate use of transfusion in sickle and thalassaemia syndromes
- Describe the complications, assessment and treatment of transfusional iron overload
- Describe the long term complications of haemoglobin disorders (orthopaedic, ophthalmic, renal, pulmonary, endocrine and fertility) in the management in a multidisciplinary team setting.
- Describe the use of disease modifying agents in haemoglobin diseases
- Counsel patients on benefits and risks of screening
- Provide genetic counseling
- Interpret blood picture findings, electrophoresis and HPLC tracing in patients with haemoglobin diseases.
- Identify patients requiring molecular testing

- Establish a diagnosis and formulate a management plan for acute complications.
- Manage iron overload
- Interpret screening tools for chronic organ damage
- Discuss the implications of haemoglobin diseases on the patient and family
- Recognize the importance of multidisciplinary approach to managing these patients.

Duration of training period – 2 weeks

10 **TRAINING IN RADIOLOGY**

Learning objectives

At the end of this training period, trainees should be able to do the following in relation to each of the specified areas

- Describe and identify normal and abnormal anatomical structures related to haematological diseases

Duration of training appointment: 2 weeks

Annex 9

Log book for the MD in Clinical Haematology training programme

1. Introduction
2. Instructions to trainees
3. Instructions to trainer
4. Personal details of trainee
5. Attachment in General Medicine
6. Attachment in Oncology
7. Attachment in Paediatric Haematology
8. Attachment in Medical Intensive Care Unit
9. Attachment in Cardio thoracic unit
10. Attachment in Gynaecology and Obstetric Unit
11. Attachment in Bone marrow transplant unit
12. Attachment in Thalassaemia unit
13. Attachment in Radiography unit

Introduction

The logbook is a key document in the formative assessment of the trainee during the MD in Clinical Haematology training programme. The trainee is expected to keep it updated regularly as the supervisor/s will use the logbook to assess the progress of the trainee. It is used to provide feedback at regular intervals during the training period. Supervisors are expected to assess the level of competencies in different areas of training as the trainee rotates through specialized training centres acquiring different skills.

The board of study expects the trainee and the trainer to make the best use of the logbook in order to achieve the objectives of the training programme.

Instructions to Trainees

The purpose of the logbook is:

3. To help trainees record his /her training in brief so that the experience acquired can be assessed and deficiencies identified early and remedied.
4. To help supervisors assess the overall training and provide guidance in areas where it is needed.

Entries in the logbook should be made by the trainee at the time of acquiring the skill and authorized by the supervisor. Therefore the trainee should possess the logbook with him or her at all times. The completed log book should be submitted after completion of training for the purpose of assessment.

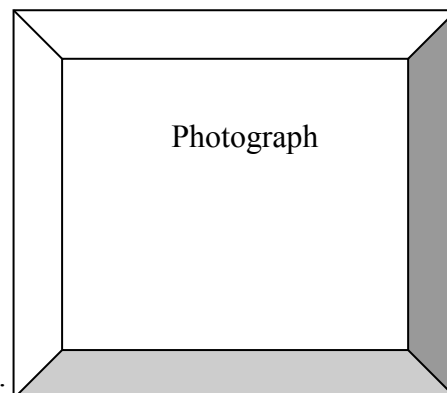
Instructions to Trainers

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The log book is to help guide trainees through their post graduate training course. It is the responsibility of the supervisor that the entries in this book are made regularly and are genuine.

Regular and accurate feedback should be given to the trainee on his or her training. It is important to identify factors that prevent trainees from attending teaching learning sessions. Deficiencies must be identified early and all attempts should be made to correct them well ahead in time with counseling and closely supervised further training.

Personal Details of Trainee



Last Name :
 Forenames
 Address :
 Telephone : Email:
 Contact phone number in case of emergency :

Gender : Single / Married :
 Date of Birth :
 Date and place of graduating (e.g. MBBS) :
 SLMC registration No.: Date of registration :
 Date of completion of internship :
 Date of completion of first post intern year :
 Date of completion of Certificate in Basic laboratory Sciences :
 Date of completion of the Diploma in Haematology :
 Employer – Health department/ university / private sector institution

Overall training schedule

Rotation	Duration	Training Centre/s	Date From – To	
Adult medicine	9 months	Training cluster		
Medical Intensive care	1 month	Training cluster		
Adult Oncology	3 months	NCIM		
Paediatric oncology	3 months	NCIM		
Paediatric haematology	3 months	Lady Ridgeway hospital		
Cardiology	1 month	Cardiology & Cardiothoracic Unit		
Gynaecology & Obstetric	1 month	Training cluster		
Bone marrow transplant	1 month	Symposium or lecture series		
Thalassaemia	2 weeks	Teaching Hospital Kurunegala or Ragama		

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Radiology	2 weeks	Training Cluster		
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Attachment in General Medicine – 9 months

Trainees are expected to work in both adult male and female wards.

Name of Unit :

Adult Male Ward

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Adult Female Ward

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their training centres/ wards:

All procedures listed are expected to be of skills level 3 (competent of the procedure) except where specified as ** Direct Observation of Practical Skills (DOPS)

	Number completed	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Management of Haematological disorders *		
Management of medical emergencies*		
Management and prevention of transfusion reactions*		

* Please provide specific details of the disorders managed above.

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Procedures performed under supervision:

	Date	BHT No	Supervisor's signature
Bone marrow aspiration			
Trephine biopsy			
Naso gastric tube insertion			
Lumbar puncture			
Cardio Pulmonary Resuscitation			
Liver biopsy			
Pleural aspiration			
Pleural biopsy			
Paracentesis			

	Number participated	Supervisor's signature
Journal clubs		
Case Presentations		
Lectures		
Symposia		
Radiology Meetings		
Endoscopy sessions		
Bronchoscopy sessions		
Grand Ward round		
Conferences		

Attachment in Oncology – 6 months

Trainees are expected to work in both adult (male & female) and paediatric wards

Name of Unit :

Adult Oncology Male Ward

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Adult Oncology Female Ward

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Paediatric Oncology Ward

Postgraduate Institute of Medicine

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their training centres/ wards:

	Number completed	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Bone marrow aspiration		
Trephine biopsy		
Liver biopsy		
Pleural aspiration		
Pleural biopsy		
Paracentesis		
Lumbar puncture		
Intra thecal administration of chemotherapy		
Hickman line insertion		
Hickman line care		
Management of Haemato oncology patients*		
Management of tumourlysis syndrome*		
Management of common drug reactions*		
Management of patient with neutropenia*		
Transfusion management of oncology patients including appropriate use of blood and components*		
Management of platelet refractoriness*		
Management of transfusion reactions*		
Management of the immuno compromised patient*		

* Please provide specific details of the disorders managed above.

Paediatric Oncology Ward

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their training centres/ wards:

	Number completed	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Bone marrow aspiration		
Trephine biopsy		
Lumbar puncture		
Intra thecal administration of chemotherapy		
Management of Haemato oncology patients*		
Management of tumourlysis syndrome*		
Management of common drug reactions*		
Management of patient with neutropenia*		
Transfusion management of oncology patients including appropriate use of blood and components*		
Management of platelet refractoriness*		
Management of transfusion reactions*		
Management of the immuno compromised patient*		

* Please provide specific details of the disorders managed above.

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	Number participated	Supervisor's signature
Journal clubs		
Case Presentations		
Lectures		
Symposia		

Attachment in PaediatricHaematology – 3 months

Name of Unit :

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their training centres/ wards:

	Number completed	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Management of HDN including exchange transfusions *		
Management of common Paediatric emergencies *		
Bone marrow aspirations		
Trephine biopsy		
Lumbar puncture		
Haemophilia clinics		
Counseling		
Management of PaediatricHaematological disorders *		

* Please provide specific details of the disorders managed above.

Postgraduate Institute of Medicine

	Number participated	Supervisor's signature
Journal clubs		
Case Presentations		
Lectures		
Symposia		

Attachment in Medical Intensive Care Unit – 1 month

Name of Unit :

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their intensive care units:

	Number participated	Supervisor's signature
Routine ward rounds		
On calls		
Cardio pulmonary resuscitation		
CVP line insertions & care		
Arterial blood gas analysis		
Lumbar puncture		
Femoral line		
Peritoneal dialysis		
Haemodialysis		
Plasma exchange		
Endotracheal tube insertion		

Attachment in Cardio thoracic unit with cardiac bypass centre – 1 month

Name of Unit :

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

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Trainees should actively participate / perform the following activities in their training centres/ wards:

	Number participated	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Anticoagulation clinics		
Cardio pulmonary resuscitation**		
CVP line insertions & care, **		
Investigative cardiology procedures**		
Angiograms**		
Stenting**		
Temporary pacemaker insertion**		
Cardioversion **		
Pericardial tap**		

** DOPS – Direct Observation of Practical Skills

Attachment in Gynaecology and Obstetric Unit – 1 month

Name of Unit :

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their training centres/ wards:

	Number participated	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Management of haematological emergencies in obstetric practice*		
Management of mothers with unexpected antibodies during pregnancy*		
Management of post-partum haemorrhage*		
Management of haematological diseases in pregnancy *		
Management of venous thromboembolism in pregnancy*		

* Please provide specific details of the disorders managed above.

Attachment in Bone marrow transplant unit – 1 month

Name of Unit :

Date of commencement of
Training:.....to.....

Name of
Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their training centres/ wards:

	Number participated	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Stem cell harvesting		
Conditioning		
Counselling of patients		
Management of the neutropenic patient*		
Management of line infections*		
Management of graft vs host disease*		

* Please provide specific details of the disorders managed above.

Postgraduate Institute of Medicine

Attachment in Thalassaemia unit – 2 weeks

Name of Unit :

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate / perform the following activities in their training centres/ wards:

	Number participated	Supervisor's signature
Routine ward rounds		
On calls		
Clinics		
Counseling of Parents		
Counselling of carriers		
Counselling of patients		
Management of iron chelation therapy*		
Management of regular transfusion programmes*		

* Please provide specific details of the disorders managed above.

Attachment in Radiology unit – 2 weeks

Name of Unit :

Postgraduate Institute of Medicine

Date of commencement of

Training:.....to.....

Name of

Consultant/s.....

Signature/s.....

.....

Trainees should actively participate in radiology reporting conference and be able to identify:

	Number Observed	Supervisor's signature
Abnormalities in a chest X ray		
Abdominal lymphadenopathy		
Splenomegaly		
Hepatomegaly		
Thymic enlargement		
Axillary lymphadenopathy		

Leave obtained

Period of Leave	Consultant's signature

Annex 11

Portfolio for postgraduate Diploma, MD and post MD training in Clinical Haematology

A portfolio is a *repository* (a place of storing) of one's personal and professional goals, achievements and method of achieving those goals. It is a collection of materials made by a professional that records and reflects events, learning experiences and processes in the professional career.

Reflection is an important concept in personal development. The fundamental basis of portfolio maintenance is reflective practice which is an important tool in postgraduate training. Reflective practice consists of :

- a) focused self assessment
- b) reflecting on experience
- c) reflecting on strengths, weaknesses and areas of development
- d) design of own strategies that leads to improvement in practice

A formal process of estimating the quality of training and review is important in medical training. Maintaining a portfolio for this process ensures

- adequate supervision during training,
- provides continuity between posts and different supervisors
- one of the main ways of providing feedback to trainees .

As the training in haematology is a clinical discipline in Sri Lanka from 2008 , the haematology trainee has to undergo a multidiscipline rotation under different consultants who are not directly your supervisors .It is very important to document the training you have undergone, and the growth you have acquired . This will enable your supervisors to know whether it is adequate for your future development as a clinical haematologist, if not they will give advice to improve.

Portfolio Induction

- 1 The portfolio induction should start at postgraduate diploma level ,
- 2 However, officially you will be assessed from the commencement of the MD training programme
- 3 It is documented evidence that should be maintained throughout the course of Postgraduate Diploma, MD, post MD local and overseas training up to pre board certification level.
- 4 The trainee and supervisor should have a portfolio/appraisal meeting at the very onset of the Postgraduate Diploma training and decide on a future plan for the trainee. After that every three months there should be an appraisal meeting .
For the Postgraduate Diploma the laboratory training with exposures to clinicals should be planned and documented as stated later, **but the Postgraduate Diploma portfolio will not be assessed. It is done as a preliminary exercise for the trainee.** For the MD mainly clinical training should be planned.
- 5 The log book should be your guide for procedures that have to be fulfilled for Postgraduate Diploma and MD.
- 6 At the beginning of each post (rotation) the trainee's learning objectives for the post ahead should be identified and the learning opportunities presented. Reviewing

progress through the curriculum will help trainees to compile an effective personal development plan of objectives for the upcoming post. This should be agreed during the induction appraisal.

- 7 Evidence should be given in the form of letters, articles, presentations, critical incident reviews, audit reports, review of literature. Evidence of participation at workshops, conferences, special training/exposure to new techniques, evidence of multi disciplinary team meetings conducted also can be included. At least one audit should be done during the training period and included at any one of the 3 levels of portfolio.
- 8 The portfolio will have 3 components (Postgraduate Diploma, MD and post MD training). The first components (Postgraduate Diploma) need not be submitted for assessment but should be checked by the trainee's own supervisor every 3 months.
- 9 The MD portfolio should be submitted with the application for the corresponding examination. The 3rd component; post MD component, should be submitted for the pre-board certification assessment
- 10 A panel of examiners will assess to give it a grade. The grade obtained will not be counted for the respective examination. However trainees should demonstrate their learning by obtaining a **Pass** grade or above.

Objectives for maintaining a portfolio

- 1 **The trainees and the supervisor to have a plan for the training** - laboratory and clinical depending on the year of training. This is very important as we have now deviated from a laboratory discipline to a clinical one.
- 2 The trainee should have
 - A used a wide and appropriate range of learning methods effectively to develop their knowledge, skills and attitudes in haematology.
 - B reflected on their own personal and professional practice and development, assessed their future development needs and made plans for continuing professional development
 - C developed personal and professional strategies appropriate to the constraints and opportunities of their working environment .
 - D evaluated their own work with self, peer and supervisor based monitoring and evaluation techniques.
 - E designed methods and techniques to improve the practice of diagnostic and clinical haematology in laboratories and in hospitals.
 - F provided support to the colleagues, peers and allied staff in providing training in haematology
 - G performed effectively in supporting the administrative tasks of the training unit.
 - H shown a commitment to work with and learn from colleagues, practiced equal opportunities and continued reflection on professional practice.

The portfolio should consist of

1. **A title page**
- 2 **A content page**
- 3 **Introduction to self; in the 1st person**
 - Your name ,designation,
 - Current work place

- Special interests you may have regarding your specialty
- 4 **Statement about your mission and vision as a clinical haematologist.**
(this will make you think on your own)
- Duties and responsibilities as a trainee haematology.
 - Your vision of a professional career in haematology.
- 5 **Logbook - Records of activities and practices that you have undertaken as a Postgraduate Diploma trainee / MD trainee in Clinical Haematology to achieve the objectives mentioned above. This should be in accordance with the log book that you have to complete for consultants signatures .**
- A ***Record of training appointment:***
- This should include **a report** that documents what you hoped to achieve at the beginning of the hospital based appointment /lab based appointment, and how much of this you had achieved by the end. The report should include in addition a self-evaluation carried out mid-way during the appointment that reviews your achievements to date, identifies problems that prevent you from reaching your goals, and what you plan to do to correct these deficiencies.
- B ***Direct observation of practical skills (DOPS)***
- As many a practical skill that is documented in your log book** should be attempted and succeeded during the taught course or hospital based training period. (eg bone marrows, liver biopsies, pleural aspirations paracentesis etc) A description of the procedure together with the details of the patient and diagnosis in a structured format should be included in the portfolio.
- C ***Other reports that can be included in the portfolio :***
- Descriptions of ward rounds performed during the hospital based training appointment, as well as participation in radiology/ clinicopathological conferences/hospital transfusion / infection control committee meetings and other relevant hospital based clinical events.
 - Description of teaching commitments undertaken by you during your training
 - Reports on presentations you have made at journal clubs, lectures, etc, and feedback received from peers or supervisors on such presentations.
 - Case records of patients that trainees have discussed with the trainer during their hospital training. Any interesting or rare diseases or presentations that you have come across can be documented.

Assessment

MD portfolios should be submitted two months before the PBCA.

Assessment of portfolios of trainees will be done at a viva voce examination conducted by a panel of three board nominated trainers/examiners. The viva will be conducted one month after the corresponding examination. The examiners can ask questions from the trainee related to his/ her submitted portfolio. A consensus overall grading will be given to the candidate and the shortcomings and merits of the submitted portfolio will be discussed with the candidate.

A candidate should acquire a pass mark for the portfolio. If not he will have to resubmit with the necessary alterations and training completed.

The resubmitted portfolio will be re-assessed at the next level of assessment of portfolio. For the pre-board certification component the common PGIM pre-board certification rules will be applied.

Portfolio – Postgraduate Diploma in Haematology

Essential items

Procedures with case based discussions

1. To have performed at least **ten full blood reports** with clinical history, examination, written down the differential diagnosis performed the relevant blood pictures and special haematological tests by the trainee herself/himself to arrive at a diagnosis. The trainee should obtain comments from the trainer and include them in the portfolio as evidence of competence achieved.
2. To have tackled at least **5 coagulation problems** of different categories (eg. hereditary and acquired bleeding disorders, hereditary and acquired thrombophilic conditions, platelet disorders, obstetric coagulation problems etc) with history examination differential diagnosis and relevant coagulation tests performed by the trainee himself. The trainee should obtain comments from the trainer and include them in the portfolio as evidence of competence achieved.
3. At least **3 paediatric haematological problems** with evidence of performance of procedures, differential diagnoses and case discussions.
4. At least **3 transfusion problems** tackled either in your general haematology appointment or transfusion appointment at the blood bank with discussion and evidence of performance of relevant tests.
5. Performed more than 20 bone marrow aspirations / trephine biopsies.
6. Evidence of reporting 10 flow cytometries and 10 immunohistochemistry slide interpretation

The records entered should be certified by the supervisor regularly. Supervisor's signature taken at the end of the course is discouraged.

Portfolio – MD in Clinical Haematology

Essential items:

1. Minimum of ten case records with practical skills/procedures mixture of all specialties adult and pediatric. Need not be confined to haematology
2. Direct observational practical skills (DOPS). Minimum 20.
3. Case based discussions. Minimum of 5.
4. Clinical audits at least one.
5. Documentation on designed methods and techniques to improve the practice of diagnostic and clinical haematology in laboratories and in hospitals.
6. Reflection on their own personal and professional practice and development, assessment of their future development needs and plans for continuing professional development

The records entered should be certified by the supervisor regularly. Supervisor's signature taken at the end of the course is discouraged.

Portfolio - Pre Board certification

Essential items:

- 1** Documents related to post MD project (proposal, report)
- 2** Publications, oral /poster presentations and the evidence of special training/exposure which the trainee had during the local and overseas training should be included.
- 3** A reflection on the training the trainee had locally and overseas.

This component of the portfolio will be assessed as part of pre-board certification assessment.

Pass	P	Include all essential items
Fail	F	All essential items are not included.*

Annex 12

POSTGRADUATE TRAINING IN CLINICAL HAEMATOLOGY- PROGRESS REPORT

(To be filled by the trainer/supervisor)

Name of the trainee:

Postgraduate training course:

Institution:

Period covered: from..... to.....

(Please tick [v] in appropriate cages)

Training modality	Excellent	Good	Average	Poor	Comments
Attendance & punctuality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Attitude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Honesty and integrity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Team player skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Self motivation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Presentation skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Application of knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Overall professional competence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

General / Specific comments

.....

.....

.....

.....

.....

.....

Name of the trainer/supervisor:-

Date:-

Signature:-

Annex: 13

PGIM PTR ASSESSMENT OF REGISTRARS/ SENIOR REGISTRARS

	Date of assessment (DD/MM/YY)	Year training
	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin-right: 5px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin-right: 5px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin-right: 5px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin-right: 5px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black;"></div>
Name of Rater		
(You can remain Anonymous)		

Please indicate your profession by filling in one of the following circles

- | | | | |
|--|----------------------------------|---|-------------------------------------|
| <input type="radio"/> Consultant | <input type="radio"/> Registrars | <input type="radio"/> SHO or HO | <input type="radio"/> Other Specify |
| <input type="radio"/> Allied Health Professional | <input type="radio"/> SR | <input type="radio"/> Clerical or Secretarial | |
| | | <input type="radio"/> Staff | |

Please mark one of the circles for each component of the exercise on a scale of 1 (extremely poor) to 9 (extremely good). A score of 1-3 is considered unsatisfactory, 4-6 satisfactory and 7-9 is considered above that expected, for a trainee at the same stage of training and level of experience. Please note that your scoring should reflect the performance of the trainee against that which you would reasonably expect at their stage of training and level of experience. You must justify each score of 1-3 with at least one explanation/example in the comments box, failure to do will invalidate the assessment. Please feel free to add any other relevant opinions about this doctor's strengths and weaknesses.

THE PTR IS NOT AN ASSESSMENT OF KNOWLEDGE OR PRACTICAL SKILLS

1.	Attitude to staff: Respects and values contributions of other members of the team			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED	
2.	Attitude to patients; Respects the rights, choices, beliefs and confidentiality of patients			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED	
3.	Reliability and punctuality			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED	
4.	Communication skills: communicates effectively with patients and families			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED	
5.	Communication skills: communicates effectively with healthcare professionals			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	

Postgraduate Institute of Medicine

	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
6. Honesty and Integrity, do you have any concerns?	<input type="radio"/> Yes	<input type="radio"/> No	

7. Team player skills: Supportive and accepts appropriate responsibility; Approachable			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
8. Leadership skills: Takes responsibility for own actions and actions of the team			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
9. OVERALL PROFESSIONAL COMPETENCE			
<input type="radio"/> Don't know	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED

Comments about the trainee (BLOCK CAPITALS PLEASE) – Write in English/ Sinhala/ Tamil

Trainee's

(You can remain Anonymous)

Signature:

Annex 14

Recommended Reading for MD in Clinical Haematology

1	Essential Haematology by A.V. Hoffbrand
2	Post graduate Haematology by A.V. Hoffbrand, Daniel Catovsky, Edward G.D. Tuddenham, and Anthony R. Green
3	Practical Haematology by Sir John B.V. Dacie and S.M. Lewis
4	Blood cells a practical guide by Barbara J. Bain
5	Haemoglobinopathy Diagnosis by Barbara J. Bain
6	Leukaemia diagnosis by Barbara J. Bain
7	Bone marrow pathology by Barbara J. Bain, David M. Clark, Bridget S. Wilkins
8	Wintrobe's clinical haematology by John P. Greer, John Foerster, John N. Lukens
9	Williams Haematology by Ernest D. Beutler, Marshall A. Lichtman, Barry S. Coller, Thomas J. Kipps, Uri Seligsohn
10	Practical Transfusion Medicine by Mike Murphy, Derwood H. Pamphilon
11	Mollison's blood transfusion in clinical medicine by Harvey G. Klein and David J. Anstee
12	World Health Organization of tumours of haemopoietic and lymphoid tissues 2008
13	Pediatric haematology, Robert J. arceci, Ian M. Hann, Owen P. Smith
14	Manual of pediatric hematology and oncology Philip Lankowsky
15	Clinical Pharmacology, D.R. Laurence, Peter N. Bennett, Morris J. Brown
	The most recent journals/periodicals
16	British Journal of Haematology
17	Blood
18	Transfusion Medicine
19	New England Journal of Medicine
20	Journal of Haemostasis and Thrombosis
21	Blood Reviews
22	Current Opinion in haematology
23	American society of Haematology – Education book
24	Seminars in Haematology

Annex 15

FORMAT OF DETAILED PROJECT PROPOSAL – MD CLINICAL HAEMATOLOGY

Section 1

1. Name of trainee
2. Name(s) of supervisor(s)
3. Training centre

Section 2

1. Project title
2. Background and justification
3. Objectives of study
4. Research plan
 - a. Design
 - b. Setting
 - c. Method
 - d. Sample size and sampling techniques
 - e. Outcome measures
 - f. Statistical analyses and plan of presentation of results
 - g. Ethical considerations
 - h. Work plan and time lines
5. References
6. Funding for study
7. Signature of trainee

Section 3

Recommended and forwarded by supervisor(s)

Signature of Supervisor 1

Signature of Supervisor 2

Date

Date

Section 4

Date of submission to PGIM

Date of approval by BOS

Signature of Secretary BOS

Annex 16

ASSESSMENT OF THE MD IN CLINICAL HAEMATOLOGY PROJECT PROPOSAL BY REVIEWERS

1. **Name of Trainee:**

2. **Training Centre:**

3. **Supervisor:**

4. **Reviewer:**

Name:

Designation:

Tel/Fax

Email

Address Official:

.....
.....
.....
.....

Title of Project:

.....
.....

The two reviewers appointed by the Board of study in Pathology / Specialty board in Haematology and transfusion medicine shall use the following guidelines and marking scheme to assess the project proposal of the candidate.

1. **1.1 Title and Introduction** : Rationale(Justification) – problem identified and quantified. Hypothesis and expected outcome, impact and relevance of the study.

Comments :.....
.....

- 1.2 Literature Review:** Adequacy (evidence of a systematic search for related. similar, relevant studies)

Comments :.....
.....

Marks (15):

2. **Objectives** : Clearly defined . relevant and stated in measurable terms .

Comments :.....
.....

Marks (10):

- 3. Method:** Appropriate study design to address the objectives with clear detailed description of subjects, sampling technique and sample size, interventions, data collection and management. The study should be, internally valid and reproducible. Where specific details are available in the literature, reference should be made to the original papers, and comments kept to a minimum. If modifications have been made to the published techniques, these should be described in full. Appropriate statistical tests planned should be mentioned and ethical issues addressed

Comments :.....
.....

Marks (15):

- 4. Ethical considerations / institution from where ethical approval will be / has been obtained:**

Comments :.....
.....

- 5. Order of presentation and appropriate presentation of results using tables, figures, graphs. Appropriate statistical analyses and interpretations**

Comments :.....
.....

Marks (20):

- 6. Discussion:** The findings of the study should be discussed taking into consideration findings of relevant studies, within and outside the country. The discussion should not be a repetition of the results only. Limitations should be included.

Comments :.....
.....

Marks (20):

- 7.1 Conclusion and recommendation:** Based on the results of the study and to address the objectives

Comments :.....
.....

- 7.2 Limitations:** Any inherent and / or inadvertent biases and how they were dealt with.

Comments :.....

.....
Marks (10):

8. **References:** According to the Vancouver system and relevant to the study. Properly documented in the Bibliography and appropriately cited in the text

Comments :.....
.....
Marks (05):

9. **Institution(s) where work would be carried out:**

Comments :.....
.....

10. **Overall presentation:** Overall presentation of the proposal (grammar, spelling, typographical mistakes etc.

Comments :.....
.....
Marks (05):

Recommendation of reviewer:

- Is the project proposal acceptable? Yes / No
- If No, What corrections are required? (Attach a separate sheet of paper if necessary)

.....
.....
.....

- Additional comments :

Total marks (100):

Signature : **Date :**

Recommendation of the BOS/Specialty board:.....

Signature of Chairperson/Secretary:

Date:

Annex 17

INSTRUCTIONS TO SUPERVISORS OF RESEARCH PROJECT– MD IN CLINICAL HAEMATOLOGY

- The research project for the MD in Clinical Haematology is based on a 12 month research project.
- Acceptance of the research project is a requirement for board certification in Clinical Haematology.
- The trainee should write up the research project work as a report conforming to the format approved by the Board of Study in Pathology and the specialty board in haematology and transfusion medicine.
- The supervisor should guide the student in planning and designing, carrying out the research and in presentation of the work.
- The supervisor should forward Progress Report(s) in the prescribed form at the end of 6 months and 12 months after the trainee commences work on the research project.

The objective of the research project is to prove the trainee's capability to plan, carry out and present his / her own research. The purpose of this training is to ensure maturity, discipline and scholarship in research.

- The project report should comprise the trainee's own account of his / her research.
- It must contribute to existing knowledge of haematological diseases relevant to Sri Lanka and afford evidence of originality as shown by independent, critical assessment and / or discovery of new facts in the area under study.
- It should be satisfactory as regards literary presentation.
- The project report should be certified by the supervisor as suitable for submission.
- General Comments on the contents: The objectives should be clearly stated and should be feasible to achieve within the time frame. Other published work relevant to the problem (both international and local) should be comprehensively covered and critically evaluated. An appropriate study design and method should be used to achieve the objectives stated. The results should be appropriately analysed, interpreted and presented effectively. The discussion should include comments on the significance of results, how they agree or differ from published work. If they differ, the probable reasons for these differences need to be discussed. Theoretical / practical applications of the results, if any should be given. The conclusions should be valid and be based on the results obtained on the study.
- Ethics: The candidate should confirm and document that procedures followed were approved by the Ethical Committee of the institution where the work was carried out and ethical approval was obtained by a recognized Ethical Review Committee.
- If at any time the supervisor is not satisfied with the work progress of the trainee, the trainee should be made aware of the deficiencies and corrective measures suggested. This should be conveyed in writing to the trainee with a copy to the BOS

or specialty board in haematology and transfusion medicine. In such instances, a follow-up report should be forwarded within three months or earlier if necessary to the BOS.

Annex 18

RESEARCH PROJECTSUPERVISOR CONSENT FORM – MD in Clinical Haematology

- 1. Name of Supervisor:**
- 2. Address**
- 3. Email:**
- 4. Phone Number:**
- 5. Training Centre:**
- 6. Name of trainee:**
- 7. Title of Project:**
- 8. Place where the Research Project will be carried out :**

I consent to supervise the above mentioned trainees' research project and project report.

Signature of supervisor :

Date :

Annex 19

RESEARCH PROJECT PROGRESS REPORT – MD in CLINICAL HAEMATOLOGY

To be forwarded by the supervisor to the BOS or Specialty board in Haematology and transfusion medicine at least once in SIX (6) months.

1. Name of trainee:

2. Training Centre:

3. Supervisor:

4. Title of project:

5. Description of work carried out to date:

(To be filled in by trainee): briefly describe progress in conducting the research project, lab / field work and report writing

.....

.

.....

.

.....

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.....

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.....

.

Supervisor's comments

6. Is the work on schedule? Yes / No

7. Progress in project report writing: satisfactory / unsatisfactory

8. Constraints (if any)

9. Recommendation of supervisor:

Signature:

Date:

10. Recommendation of the BOS:

Signature of Secretary :

Date:

Annex 20

PROJECT REPORT SUBMISSION FORMAT – MD in CLINICAL HAEMATOLOGY

General instructions

It is essential to start writing the report early and in all cases before the data collection is completed. At the same time, you should make arrangements to have your manuscript word-processed. Your supervisor should be consulted before you start to write and thereafter at regular intervals. It is much easier to make corrections if the draft is double-spaced and printed on only one side of the paper.

The past tense should be used. To avoid exceeding the given word limit, it is suggested that an approximate running total is kept. The metric system and the International System (SI) of units should be used whenever possible.

Length

An ideal length of text is approximately 8000 words, which equals to about 20 - 30 pages. With figures, references, etc., the total length is likely to be in the region of 30 - 40 pages.

Number of copies

Three copies should be submitted to the Director/ PGIM, spiral-bound in the first instance. One will be retained in the PGIM, one will be sent to the internal examiner and one to the overseas examiner. After acceptance (and necessary corrections), all three copies should be bound in hard covers (black) with the author's name, degree and year printed in gold on the spine. The front cover should carry the title, author's name and year printed in gold. One copy will be returned to the student, one retained by the supervisor, and the third housed in the PGIM library.

Layout

The project report should be word-processed and printed single-side only, on A4-size photocopying paper.

Layout of typescript

There should be 1.5" on left-hand and top margins, and 1.0" on right-hand and bottom margins. It is especially important that the left-hand (binding) margin is of the regulatory size.

Line spacing should not be less than 1.5.

Lettering should be in Times New Roman, font size 12.

All pages should be numbered consecutively throughout, including appendices. Page numbers should be inserted in the bottom right hand corner.

Tables, diagrams, maps and figures

Wherever possible, these should be placed near the appropriate text. Tables should be numbered in continuous sequence throughout the project report. Maps, graphs, photographs, etc., should be referred to as Figures. Each of these should also be numbered in a continuous sequence. Colour should be avoided in graphic illustrations (unless it is essential) because of the difficulty of photographic reproduction; symbols or other alternatives should be used instead.

Notes

Notes, if essential, should be inserted, in reduced font, at the foot of the relevant page. If too voluminous for this to be practicable, they should be placed in an Appendix. Notes may be typed in single spacing.

Abbreviations

Where abbreviations are used, a key should be provided.

Preliminaries

The preliminaries precede the text. They should comprise the following:

1. Title page

Title of Project Report
Author's name
MD in Clinical Haematology
Post Graduate Institute of Medicine
University of Colombo
Date of submission

2. Statement of originality: The work presented in the project report should be the trainee's own and no part of the report should have been submitted earlier or concurrently for any other degree. The statement should be signed by the author, and countersigned by the supervisor.
3. Abstract: Should be structured (introduction, objectives, method, results, conclusions)
Should not include figures, tables, graphs or references
Should be limited to 500 words or less
4. Table of contents: The table of contents immediately follows the abstract and lists in sequence, with page numbers, all relevant divisions of the project report, including the preliminary pages.
5. List of tables: This lists the tables in the order in which they occur in the text, with the page numbers.
6. List of figures: This lists all illustrative material (maps, figures, graphs, photographs etc) in the order in which they occur in the text, with the page numbers.
7. Acknowledgments

Text

The project report should be divided into clearly defined chapters. Chapters may be subdivided and a decimal number system can be helpful to identify sections and subsections. Topics of the sections should not be mixed, e.g. Results should not appear in the Materials and Methods.

Section 1 – Introduction: The current position and the reasons for carrying out the present work (Rationale /Justification and problem/s identified and quantified.) Hypothesis and expected outcome, impact and relevance of the study should be stated. Generally, only a few references should be cited here.

Section 2 – Literature Review: This section should be reasonably comprehensive, and most of the references to be quoted normally occur here. The relevant references dealing with

the general problems should be reviewed first and this should be followed by a detailed review of the specific problem. The review is in many cases approached as a historical record of the development of knowledge of the subject.

Section 3 – Objectives Clearly defined, general, specific and any subsidiary objectives should be stated

Section 4 – Materials and Methods: Appropriate study design to address the objectives with clear detailed description of subjects, sampling technique and sample size, interventions, data collection and management. The study should be, internally valid and reproducible. Where specific details are available in the literature, reference should be made to the original papers, and comments kept to a minimum. If modifications have been made to the published techniques, these should be described in full. Appropriate statistical tests planned should be mentioned and ethical issues addressed

Section 5 – Results: Presentation of data in a logical sequence commencing with the basic / baseline characteristics of the subjects. Summarize the data with a figure, table or graph when appropriate. Present appropriate statistical analyses and interpretations. Each figure, table or graph should be complete and clear without reference to the text. Concise explanations in legends and explanation of abbreviations are needed. The text should complement the figure, table or graph not simply describe them but should give valid interpretations of the results. Complete (raw) data should not be included but should be contained in tables in an Appendix if needed. Only data from the present study should be included and in particular no comparison should be made at this stage with results from other studies.

Section 6 – Discussion: Interpret and explain the results so as to provide answers to the study question(s). Comment on the relevance of these answers to the present knowledge of the subject. Consider alternate interpretations. Comment on interesting or unexpected observations and about the method. Critically compare the results with results and conclusions of other published studies within and outside the country, and explain possible reasons for any differences observed. Comment on unexpected outcomes. Comment on further follow-up research required on the subject.

Section 7 Limitations Any inherent and / or inadvertent limitations / biases and how they were dealt with should be described

Section 8 Conclusions and recommendations : Based on the results of the study and to address the objectives

References

These are given so that the reader can refer to the original papers for further study. Uniformity is essential, but errors and inconsistencies are very common and authors are advised to check the references most carefully. Examiners will mark students down for inconsistencies in their references, either omissions or failure to follow the recommended format as given in the following section.

References are very important and must be complete and accurate. All literature referred to should be listed in a consistent form and style, and must contain sufficient information to enable the reader to identify and retrieve them.

There are different styles of citing sources, listing references and compiling a bibliography. The Vancouver style is widely accepted in scientific writings, and is recommended for MD in Clinical Haematology project report .

List all references that are cited in the text, using the Vancouver System

Type the references double - spaced in the Vancouver style (using superscript numbers and listing full references at the end of the paper in the order in which they appear in the text). Online citations should include date of access. Use Index Medicus for journal names. If necessary, cite personal communications in the text but do not include in the reference list. Unpublished work should not be included .

References should be listed in the following style:

The arrangement of the references at the end of the project report should be in numerical order as they are cited in the text.

The order of the items in each reference should be:

- (a) for journal references: name(s) of author(s), title of paper, title of journal, year, volume number, page numbers.
- (b) for book references: name(s) of author(s) , title of book, edition,, volume , town of publication, publisher. year ,chapter and/or page number

Authors' names should be in roman letters, and arranged thus:

Smith, C.O., James, D.E.Frank, J.D.

Where an author's name is repeated in the next reference it should also be spelt out in full. The title of the paper is then included, without quotation marks The journal title should be unabbreviated, *in italics* , and be followed by year ; **volume number in bold** (the issue /number): and the first and last page numbers.

1 Mathiesen ER, Ringholm L, Damm P. Still birth in diabetes pregnancy. *Clinical Obstetrics and Gynaecology* 2011; **25**(1): 105 – 111.

2 Lestrud S. Bronch .Pulmonary Dysplasia. In: *Nelson Text Book of Pediatrics. 18thEd ,Vol 1*: Saunders, Elsevier New Delhi, India. 2008. p 1840-1841

3 World Health Organization. *Priority Medicines for Mothers and Children* 2011. Department of essential medicines and pharmaceutical policies. Geneva, World Health Organization 2011 (WHO/EMP/MAR/2011.1).

Websites

Author's name (if available) must be listed first, followed by the full title of the document in italics ,the date of publication or last revision (if available), the full http address (URL). and the date accessed in parentheses

Examples:

- 1 National Institute for Health and Clinical Excellence. *Induction of Labour NICE Clinical Guideline 70, 2008*. available at <http://www.nice.org.uk/CG070fullguideline> (Accessed 21 October 2011)
- 2 Hofmeyr JG. *Antenatal corticosteroids for women at risk of preterm birth: RHL Commentary* (last revised 2 February 2009) The WHO Reproductive Health Library 2011, Geneva, World Health Organization www.who.int/rhl . (Accessed 21 October 2011)
- 3 Crowther CA, Hardin JE. *Repeat doses of prenatal corticosteroids for women at risk of preterm birth for preventing neonatal respiratory disease*. Cochrane Data Base of Systematic Reviews 2007, Issue 3. Art .No: CD003935. DOI: 10.1002/ 14651858. CD003935 pub 2. (Accessed 21 October 2011)

Annex21

PROJECT REPORT ASSESSMENT AND MARKING SCHEME – MD in CLINICAL HAEMATOLOGY

Two examiners will be appointed by the BOS and specialty board in haematology and transfusion medicine to assess and award a mark independently out of 100 using the marking system described below. The final mark for the project report out of 100 shall be the mean of the sum of the marks given by each examiner.

1. Title
2. Author's name and address
3. Abstract (15)
4. Table of contents
5. List of tables
6. List of figures
7. Introduction
8. Objectives
9. Review of literature
10. Materials and methods (05)
11. Results (30)
12. Discussion (including limitations) (30)
13. Conclusion and recommendations(if any) (05)
14. Acknowledgements
15. References (05) (Vancouver system should be used)
16. The overall presentation (10 marks)

Total marks (100)

To Pass the Project report the trainee should score 40 % or more. If it is less than 40% the trainee should resubmit the Project report at a prescribed date attending to the recommended amendments and improvement for reassessment by the same pair of examiners. At the repeat assessment the maximum mark to be awarded shall be 40%. This process to be continued in the same manner until the minimum 40% is obtained.

Signature :

Name of Examiner :

Date :