"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. 4 of 2016 for Postgraduate Diplomas and Postgraduate Certificates and By-Laws No. 2 of 2016 for Degree of Doctor of Medicine(MD) and Board Certification as a Specialist"

PROSPECTUS

POSTGRADUATE DIPLOMA
AND
DOCTOR OF MEDICINE (MD)
IN
TRANSFUSION MEDICINE
AND
BOARD CERTIFICATION

SPECIALTY BOARD IN

HAEMATOLOGY AND TRANSFUSION MEDICINE
OF THE BOARD OF STUDY IN PATHOLOGY

POSTGRADUATE INSTITUTE OF MEDICINE

UIVERSITY OF COLOMBO, SRI LANKA

Contents	***Page***
1. SELECTION OF MEDICAL OFFICERS FOR THE POSTGRADUATE TRAINING PROGRAMME IN TRANSFUSION MEDICINE	
1.1 ELIGIBILITY CRITERIA	
1.2 FORMAT OF THE SELECTION EXAMINATION	
1.3 PASS MARK TO QUALIFY	
1.4 NUMBER TO BE SELECTED	
1.5 NUMBER OF ATTEMPTS	
2. OBJECTIVES OF TRAINING	
3. SCHEDULE OF TRAINING	
4. LEARNING OUTCOMES	
5. CALCULATION OF CREDITS	
6. MONITORING/EVALUATION PROCESS	
7. EXAMINATION	
7.1 ELIGIBILITY	
7.2 FORMAT OF THE EXAMINATION	
7.3 CHEME OF MARKING	
8. REQUIRMENTS TO PASS AND QUALIFY FOR THE POSTGRADUATE DIPLOMA EXAMINATION	
9. NUMBER OF ATTEMPTS	
10. RECOMMENDED READING	
11. TEACHING FACULTY	
ANNEXURE 1	
ANNEXURE 2	
ANNEXURE 3	
ANNEXURE 4	

POSTGRADUATE DIPLOMA IN TRANSFUSION MEDICINE

1. SELECTION OF MEDICAL OFFICERS FOR THE POSTGRADUATE TRAINING PROGRAMME IN TRANSFUSION MEDICINE

A Selection Examination for selection of prospective trainees for the postgraduate training in Transfusion Medicine will be held, and entry to the training programme will be on the basis of success at the Selection Examination. Candidates will be tested on the knowledge in Transfusion Medicine and related areas from a written examination of three hours duration.

Only a predetermined number of candidates from the state and non-state sectors, who pass the selection examination will be selected in the order of merit for training in Diploma in Transfusion Medicine. This number will be decided before each examination and indicated in the advertisement/circular calling for applications.

Candidates are informed that passing the Postgraduate Diploma in Transfusion Medicine does not give automatic entry to the MD training programme.

The selection of trainees for the MD Course of Study will be done in accordance with cadre requirements.

1.1. ELIGIBILITY CRITERIA

Prospective applicants for the selection examination to enter postgraduate training programme in transfusion medicine must satisfy the following requirements.

(a) A medical degree *registered* with the Sri Lanka Medical Council.
(b) Satisfactory completion of internship acceptable to the Sri Lanka Medical Council.
(c) Satisfactory completion of one year of post internship in Medical/Clinical practice or teaching in a university/public/private sector institution in Sri Lanka acceptable to the PGIM/*Senate*
(d) The criteria prescribed in paragraphs (a) to (c) must have been satisfied by the applicants as at the date of closure of applications, provided that where a shortfall has occurred due to any reasons including sick, maternity or other leave, the doctor concerned should complete such shortfall in order to become eligible to apply.

1.2 FORMAT OF THE SELECTION EXAMINATION

There shall be a Written Paper of Structured Essay Questions
Number of questions – 6 out of 8 questions should be answered.
All questions carry equal marks.

Total Marks	- 100
Duration	- Three hours

Each question will be marked by two examiners independently

1.3 PASS MARK TO QUALIFY

Pass mark for the Selection Examination will be 50% of the total aggregate of the six questions

1.4 NUMBER TO BE SELECTED

The number to be selected will be indicated in the circular calling for applications. Candidates who pass the selection examination will be selected on merit basis.

1.5 NUMBER OF ATTEMPTS

The number of attempts for the selection examination is unlimited.

2

2. OBJECTIVES OF TRAINING

The objectives *are* to train Diplomates' in Transfusion Medicine with knowledge and skills to undertake the following service responsibilities.

2.1 Administrative supervision and organization of the infra-structure of the Blood Transfusion Service.

2.2 Blood Donor management

2.3 Specific laboratory techniques related to Transfusion Medicine

- 2.3.1 Hematology
- 2.3.2 Biochemistry
- 2.3.3 Bacteriology and Virology in relation to quality assurance
- 2.3.4 Immunology

2.4 Blood Bank Technology

- 2.4.1 Blood Bank Serology
- 2.4.2 Blood Component Preparation
- 2.4.3 Reagent Preparations

2.5 Diagnostic interpretation of laboratory data for patient care in relation to blood and blood component therapy.

2.6 Clinical Transfusion Practices

2.7 Participation in clinical conferences and seminars

2.8 Teaching assignments

2.9 *Continuously educating* of medical students, technologists and nursing staff, PHI's and Public (on donor recruitment).

2.10 Maintenance of records (part of the portfolio) of laboratory data and retrieval of information.

At the end of the training, the candidate is expected to be well-trained in Transfusion Medicine; capable of undertaking the responsibilities and independent decisions and actions needed to *organize,* manage and direct a Blood Bank to provide 'Safe Blood and Blood Components'.

To achieve this, the candidate should:

a. Have professional competence in the following areas in relation to Transfusion Medicine.

   i. Immunohaematology
   ii. General Haematology
   iii. Routine Clinical Biochemistry
   iv. Clinical Microbiology
   v. Infection control
   vi. Quality assurance and quality control of laboratory tests.

b. Have general acquaintance with principles of medical statistics

c. Have knowledge of health and safety requirements in the laboratory environment and in the field in relation to Mobile Blood Donation Programmes.

d. Be able to undertake undergraduate and postgraduate teaching in Transfusion Medicine.

3. SCHEDULE OF TRAINING

The total duration of the training programme will be of one year (full-time)

The training programme will include *clinicals*, practicals, tutorials and lectures as listed below:

3.1 Seven and a half (7 1/2) months of fulltime in service training at the National Blood Transfusion Center. During this period the trainee will visit Intensive Care Units - MICU, SICU, Obstetric ICU, Paediatric ICU and NICU as and when required

3.2 Four and a half (4 1/2) months morning sessions of hospital-laboratory based practical in-service training in haematology, biochemistry, microbiology, immunology and virology.

During these 4 1/2 months, afternoon session would be an in-service training at the National Blood Transfusion Centre..

Haematology	One month	- Dept. of Haematology at NHSL
	Three weeks	- Dept. of Haematology at LRH
	Two weeks	- Dept. of Haematology at NCI, Maharagama.
Biochemistry	Two weeks	- Dept. of Chemical Pathology at NHSL
Microbiology	Two weeks	- Dept. of Microbiology at NHSL
	One week	- National STD/AIDS Control Programme
Immunology & Virology	One month	- Medical Research Institute

3.3 Weekly 2 hours tutorials (journal club/ case presentation, discussions) at the National Blood Transfusion Center

3.4 Twenty two hours of lectures **(Annex 1)**

4. LEARNING OUTCOMES

4.1 Haematology

4.1.1 Obtain knowledge of normal haemopoiesis in order to support clinicians in treatment of abnormalities in haemopoiesis, by providing blood and blood components when and where necessary, in adequate quantities.

4.1.2 Be able to perform common haematological laboratory tests and recognize the errors and limitation of the tests and instruments used.

4.1.3 Be able to implement and supervise a programme for quality assurance.

4.1.4 Be able to correlate clinical features, physical signs, and laboratory investigations, in order to evaluate need for provision of Blood and Blood Products.

4.1.5 Obtain knowledge of normal haemostasis Be able to manage disorders of haemostasis and platelet disorders in relation to transfusion medicine.

4.1.6 Have a knowledge of thrombosis and thrombolytic therapy. Management of patient on anticoagulant therapy requiring transfusion of blood and blood products.

4.2 Chemical Pathology

4.2.1 Be able to interpret biochemical investigations and explain how biochemical alterations are brought about by disease processes.

4.2.2 Be able to operate apparatus routinely used in the laboratories in the Blood Bank and check on investigational work delegated to technical staff.

4.2.3 Be able to implement and supervise quality control programmes.

4.2.4 Be able to comprehend and interpret data expressed in S.I. units.

4.3 Microbiology

4.3.1 Be able to advise on sterilization procedures and be able to carry out laboratory investigations with regard to checking sterility.

4.3.2 Be able to organize and supervise the carrying out of routine bacteriological investigations in a Blood Bank laboratory.

4.3.3 Be able to investigate for infections in relation to Transfusion Medicine.

4.3.4 Be able to investigate for common parasitic diseases transmitted via blood transfusion.

4.3.5 Be able to investigate for viral diseases transmitted via blood transfusion.

4.3.6 Be able to understand the concepts of waste disposal

4.4 Transfusion Medicine

4.4.1 Be able to organize and supervise the running of a routine blood bank services.

4.4.2 Be able to organize and conduct the blood donation campaigns static, mobile and emergency.

4.4.3 Be able to manage the donor session
(a) Criteria for selection
(b) Screening procedures
(c) Care of the blood donor

(d) Prevention and management of donor complications.

4.4.4 Be able to advise on production and strorage of blood components.
(i) Component manufacture and quality control
(ii) Clinical use of components.

4.4.5 Be able to perform and interpret the results of immunohaematological investigations.

4.4.6 Be able to perform therapeutic apheresis

4.4.7 Be able to investigate and manage transfusion related adverse effects.

4.4.8 Be able to advice on management of patients who require blood and blood component therapy.

4.4.9 Be able to investigate and manage antenatal mothers with regard to Haemolytic Disease of New born (HDN), Neonatal Alloimmune Thrombocytopenia (NAITP) and other alloimmune conditions.

4.4.10 Be able to provide blood for patients with autoimmune haemolytic anaemia.

4.4.11 Be able to advice and manage emergency and disaster situations.

5. CALCULATION OF CREDITS

The course consists of clinical training, practical training, tutorials and lectures that comprise the following credit hours.

Clinicals

7 ½ months

Total no days excluding week ends	*=225- 33×2=159*
Total no of hours	*=159×6 =954*
No of hours lectures	*=22*
Total no of hours excluding lectures	*= 954-22=932*
Credits	*= 932÷45=20.7*

Practicals

4 ½ months

No of days excluding week ends	*=136 - 20×2=96*
Total no of hours	*= 96×6 =576*
Total no of hours tutorials	*=104*

Total no of hours excluding tutorials = *576-104 = 472*
Credits = *472÷30=15.7*

Lectures =*22 hours*
Credits =*1*

Tutorials = *104 hours*
Credits =*104÷15=6.9*

Total credits **20.7+15.7+1+6.9 = 44.3** credits

One credit is equivalent *to* 15 hours of lectures/ interactive lectures/ tutorials; 30 hours of practicals and 45 hours of clinicals

6. MONITORING/EVALUATION PROCESS

6.1 Progress Reports at the end of each clinical appointment **(Annex 2)**

6.2 Peer Team Rating **(Annex 3)**

6.3 Portfolio
The Portfolio should be based on the activities specified in the log book (**Annex 4**) and should also comprise the following components;

- Diagnostic interpretation of laboratory data for patient care in relation to blood and blood component therapy.
- Participation in clinical conferences and seminars
- Teaching assignments
- Continuing education of medical students, technologists and nursing staff, PHI's and the public.
- Maintenance of records of laboratory data and retrieval of information.

7. EXAMINATION

7.1 ELIGIBILITY

7.1.1 Satisfactory completion of the one year in-service training programme in the training centre to which the trainee has been assigned by the Board of Study in Pathology

7.1.2 Acceptance of all progress reports by the BOS

7.1.3 A minimum of 80% attendance for each clinical/practical appointments and lectures

7.1.4 Submission of the Portfolio and acceptance by the BOS

7.2 FORMAT OF THE EXAMINATION

Examination shall consist of

a. Written papers
b. Practicals
c. Viva Voce.

(a) Written Papers –

Paper I - 8 questions of short answer type - 3 hours

Paper II - 12 questions based on data interpretation - 2 hours

Each question will be corrected by two examiners independently

(b) Practical - One problem based wet practical on a clinical case scenario (3 *hours*)

There will be two examiners and the marks will be given independently using a predetermined marking grid

(c) Structured Viva - 15 *min*.

A panel of at least two examiners.

7.3 SCHEME OF MARKING –

Written Papers	60 (Paper I – 30, Paper II – 30)
Practical	30
Viva Voce	10
Total Aggregate	100

8. REQUIREMENTS TO PASS AND QUALIFY FOR THE POSTGRADUATE DIPLOMA

A minimum total aggregate of 50% (50 marks)
AND
A minimum mark of 50% for written (30/60 marks) and the practical component (15/30 marks)

9. NUMBER OF ATTEMPTS

A candidate must complete the Diploma within **6** attempts in not more than 8 years from the date of passing the selection examination, unless the Senate has permitted extension for valid reasons.

Candidate may leave the training programme with the Postgraduate Diploma or go on to follow the MD training programme

10. RECOMMENDED READING

1. The British Committee for Standards in Haematology (BCSH) and National Blood Service (NBS) Guidelines
2. Immunology-by Abbas
3. Microbiology- Hospital Infection control Manual by Sri Lanka College of Microbiologists
4. Haematology-Essential Haematology by Hoff brand(Relevant chapters)
   - Practical Haematology- Dacie and Lewis (Relevant chapters)
5. Transfusion Medicine –Technical Manual/AABB
   -Hand Book of Transfusion Medicine
   -Practical Transfusion Medicine-M. Murphy
6. Serology-Modern Blood Banking

11. TEACHING FACULTY

Each appointment *shall be done* under a Board Certified Consultant in the respective specialty.

ANNEXURE 1

Diploma in Transfusion Medicine Lecture Course -

Time	Topic	Lecturer
2 hours	HIV	Consultant Venereologist
2 hours	Haemolytic Disease of the Newborn (HDN)	Consultant Haematologist
2 hours	Normal Haemopoiesis including regulation of haemopoiesis by Colony Stimulating Factors (C SFS) and erythropoietin	Consultant Haematologist
2 hours	Neonatal Alloimmune Thrombocytopenic Purpura (NAITP) /Thrombotic Thrombocytopenic Purpura (TTP) /Idiopathic Thrombocytopenic Purpura (ITP)	Consultant Haematologist
2 hours	Coagulation/bleeding disorders	Consultant Haematologist
2 hours	Adverse transfusions reactions	Transfusion Medicine Physician
2 hours	Haemoglobinopathies	Consultant Haematologist
2 hours	Haemolytic anaemia (Except haemoglobinopathies & AIHA)	Consultant Haematologist
2 hours	Autoimmune Haemolytic anaemia (AIHA)	Transfusion Medicine Physician/Haematologist
2 hours	Virology Hepatitis B and C	Virologist
2 hours	Immunology	Immunologist

ANNEXURE 2

POSTGRADUATE TRAINING IN PATHOLOGY/TRANSFUSION MEDICINE

Evaluation form / Progress Report

(To be filled by the trainer/supervisor)

Name of the trainee:
Postgraduate training course:
Institution:
Period covered: from..... to.....

(Please tick [√] in appropriate cages)

Training modality	***Excellent***	***Good***	***Average***	***Poor***
Comments				
Attendance & punctuality	☐	☐	☐	☐
Attitude	☐	☐	☐	☐
Communication skills	☐	☐	☐	☐
Honesty and integrity	☐	☐	☐	☐
Team player skills	☐	☐	☐	☐
Self motivation	☐	☐	☐	☐
Presentation skills	☐	☐	☐	☐
Application of knowledge	☐	☐	☐	☐
Overall professional competence	☐	☐	☐	☐

General / Specific comments

.....

.....

.....

.....

.....

.....

Name of the trainer/supervisor :-
Date :-

Signature :-

ANNEXTURE 3

PGIM PTR ASSESSMENT OF REGISTRARS/ SENIOR REGISTRARS

PGIM Roll No. **Date of assessment (DD/MM/YY)** **Year training**

PGIM/ | | | | | | **/** | | | **-** | | | | | | | | | | | | ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6

Name of Rater

(You can remain Anonymous)

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

○ Consultant ○ Registrars ○ SHO or HO ○ Other Specify

○ Allied Health Professional ○ SR ○ Clerical or Secretarial 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			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
2. Attitude to patients; Respects the rights, choices, beliefs and confidentiality of patients			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
3. Reliability and punctuality			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED

4. Communication skills: communicates effectively with patients and families			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
5. Communication skills: communicates effectively with healthcare professionals			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
6. Honesty and Integrity, do you have any concerns?	○ **Yes**	○ **No**	

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

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

Your (You can remain Anonymous) **Signature:**

ANNEXURE 4

POSTGRADUATE INSTITUTE OF MEDICINE UNIVERSITY OF COLOMBO
TRAINING PROGRAMME IN DIPLOMA IN TRANSFUSION MEDICINE
LOG BOOK(RECORD BOOK)

TRAINING PROGRAMME LEADING TO DIPLOMA IN TRANSFUSION MEDICINE

Name of trainee: …… Date of Birth:…… Sex:……

Date of obtaining degree of MBBS : …… SLMC Registration Number & Date : ……

Date of Completion of internship : ……. Date of completion of first Post inter year : ……

Permanent address : ……

Telephone : …… Fax : …… E-mail address : ……

Training programme : …….

Date of commencement : …….

Date of completion : …….

TRAINING FOR DIPLOMA IN TRANSFUSION MEDICINE

Each trainee will work in rotation in each of the following departments, Haematology, Chemical Pathology, Clinical Microbiology and at the Medical Research Institute (to obtain training in Virology and Immunology related to blood transfusion). The main part of the training will be at the Central Blood Bank.

FAMILIARISATION

The trainee will use the initial 2 weeks of each appointment to get acquainted with the staff and their general activities : using and maintaining equipment, preparation of reagents, presentation of samples received in the Laboratory, Maintenance of records, issue of reports and Laboratory safety routines.

BENCH WORK

In consultation with the Pathologist in the respective department, the trainee will by mutual agreement, prepare a roster to enable them to get adequate hands on experience in the technical procedures listed for each discipline during the period spent in each department.
The trainee will seek the guidance of the Pathologist as well as the SMLT of each department in acquiring knowledge and skills in these activities.

VIROLOGY

Blood transfusion hepatitis

Syphillis (TPHA) screening

HIV 1 + 2 screening

HBV screening

CMV screening and hyperimmune antibody procurement

Antibody procedure

HCV screening

Tutorial	Topic	Signature of Tutor
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

……
Signature of Consultant

HISTOCOMPATIBILITY AND IMMUNOGENETICS

HLA tissue typing

HLA antibody screening

DNA tissue typing techniques
PCR

Flow cytometry

Lymphocyte Immunoflorescence test

Platelet Immunoflorescence test

Solid phase cross matching for platelet antibodies

Tutorial	Topic	Signature of Tutor
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

……
Signature of Consultant

MICROBIOLOGY

Technical Procedures

Operation of autoclave

Preparation of articles for sterillisation

Gram stain

Dark ground microscopy examination

Blood culture for organisms

Plating speciments for culture

Subculturing for pure culture

Identification of bacteria in specimens

Antibiotic sensitivity testing

Serological tests for bacterial antigens

Surveillance of hospital acquires infections

Tutorial	Topic	Signature of Tutor
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

……
Signature of Consultant

CHEMICAL PATHOLOGY

List of technical procedures- observations of methods and interpretation of results

Urine -

Reducing substances	
Ketones	CalPo4
Protein	Creatinine
Bence Jones protein	Creatinine clearance
Microalbuminuria	Alkaline Phosphatase
Bile	Acid Phosphatase
Urobilinogen	AST
Deposits	ALT
Hb	CK,CKMB
PH, Specific gravity	Gamma GT.

Blood

Glucose	LDH

Urea
Total protein
Albumn
Globulin
Electolytes
Chloride

Bilrubin
Amylase
Cholesterol Urate
Chloride bicarbonate Ph

Tutorial	Topic	Signature of Tutor
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

…….
Signature of Consultant

HAEMATOLOGY

Technical Procedures
Observation of methods and interpretation
Interpretation of coulter results
WBC
Red Cells } High, normal, low
Platelets
Routine blood film
Differential count
Examination for MP-Thick and thin
Blood picture-normal
PCV
Hb estimation
Leishmanstain

E.S.R.
Acid elution test
Achumms test
Osmotic Fragilty test
Sickling test
Investigation for cold agglutinins

HAEMATOLOGY (Contd….)

Urine for haemosiderin
B.T.C.T.
Prothrombin time
Activated Partial thromboplastin time with correction
Quality control in Haematology

Tutorial	Topic	Signature of Tutor
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

…….
Signature of Consultant

BLOOD TRANSFUSION

Donor selection process-Reception Doctor
Questionnaire
Venepuncture-arm cleansing

Checking of tubes and packs
Managing blood and blood component stocks
Labeling and verification
Issue of blood and blood component
Cryo/FFP production
Routine platelets
Crypproduction
Batching
Quad. Packs
Pooling of platelets
QC of plasma components
Microplate techniques
ABO groping in tubes
Use of controls
ABO grouping in Microplates
ABO grouping rapid and routine
RHD grouping
ABO RhD typing anomalies
Ab detection techniques, enzymes
Antiglobulin techniques
Selection of screening cells
Cell washer, antiglobulin testing
Pre-transfusion testing ABO,RHD grouping
Antibody screening – cross matching
Resolving serological problems
Antibody identification
Investigating a positive DAT
(HDN/Autommune)

Tutorial	Topic	Signature of Tutor
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

…….
Signature of Consultant

MD AND BOARD CERTIFICATION IN TRANSFUSION MEDICINE

Contents	Page
1. ELIGIBILITY FOR REGISTRATION	
2. DURATION	
3. OBJECTIVES	
4. OUTLINE OF THE TRAINING PROGRAMME	
5. CURRICULUM	
6. TEACHING METHODS	
7. RESEARCH PROJECT LEADING TO A DISSERTATION	
8. PORTFOLIO	
9. EVALUATION/MONITORING	
10. ELIGIBILITY CRITERIA TO SIT FOR MD EXAMINATION	
11. MD IN TRANSFUSION MEDICINE EXAMINATION	
12. REQUIREMENTS TO PASS THE EXAMINATION	
13. POST MD TRAINING	
14. PRE-BOARD CERTIFICATION ASSESSMENT (PBCA)	
15.ELIGIBILITY CRITERIA FOR BOARD CERTIFICATION	
16. REFERENCES	
Annexure 1 - Lecture Course	

Annexure 2 – Log book	
Annexure 3 – Evaluation form	
Annexure 4 - Peer Team Rating	

1. ELIGIBILITY FOR REGISTRATION

1.1. In order to be eligible to register for the MD programme, the candidate should satisfy the following:

(a) A medical degree registered with the Sri Lanka Medical Council;

(b) Satisfactory completion of internship acceptable to the Sri Lanka Medical Council;

(c) Satisfactory completion of one year of post internship in medical practice in a University/Public Sector Institution /Private sector in Sri Lanka acceptable to the PGIM as at the date of closure of applications;

And

(d) Diploma in Transfusion Medicine conducted by the P.G.I.M., University of Colombo

1.2. Intake

- The entry to the MD programme will be on merit order of the Postgraduate Diploma in transfusion medicine. The number will be the cadre positions available by a circular issued by the Ministry of Health.
- After passing the Diploma in Transfusion Medicine Examination, the trainee should join the next available MD training slot to which he/she is eligible to join. If the trainee delays joining the training programme due to personal reasons, he/she will be placed at the bottom of the merit order of the batch he/she joins. The trainee is allowed to delay joining the training programme only for two years.

2. DURATION

2 Years (Pre MD) full time in-service training

3. OBJECTIVES

The purpose of the course is to provide education and practical training in all aspects of blood transfusion technology, to develop the knowledge required to analyze blood bank

policies such as donor recruitment, collection, storage, preservation, administration of blood and blood components and to develop those qualities needed for competent managerial and academic responsibilities. The mission of the course will be;

3.1 To impart composite training in fundamental and applied aspects of transfusion Medicine at Postgraduate MD level.

3.2 To provide consultants and teachers in Transfusion Medicine in Transfusion Centers to operate well organized and efficient transfusion services.

3.3 To impart training and stimulate interest in research in the field of Transfusion Medicine.

4. OUTLINE OF TRAINING PROGRAMME

The programme is designed to provide comprehensive training in all aspects of Blood banking, recruitment, donation, screening, processing, storage, component preparation, immunohaematological procedures, apheresis techniques and transfusion management.

It is expected that blood transfusion specialists will be specifically equipped for the following tasks:

4.1 Programme and organization of the collection, preparation, storage, distribution and use of blood and blood products

4.2 Blood donor management

4.3 Clinical transfusion practices

4.4 Scientific and technical knowledge of transfusion medicine

4.5 Organization of a quality control programme

4.6 Promotion of optimum use of blood and blood products and development of a system for the clinical control of their use

4.7 Participation in research on blood transfusion, Immuno-genetics, immunohaematology

4.8 Organization of training programme for manpower development

5. CURRICULUM

This will consist of four Modules. These are described below;

Module – I

INTRODUCTORY MODULE (BASIC CONCEPTS)

1. HISTORY OF TRANSFUSION MEDICINE

1.1 Landmarks in the evolution of transfusion medicine
1.2 Changing trends in the practice of Transfusion Medicine
1.3 Development of Transfusion Medicine during wars in different countries

2. PHYSIOLOGY AND BIOCHEMISTRY OF BLOOD

2.1 Metabolism of R.B.C.& red cell enzymes
2.2 Haemoglobin structure and functions
2.3 Red cell membrane structure and their relation with blood group antigens
2.4 Structure, kinetics and functions of cellular elements of blood
2.5 Mechanism of haemostasis
2.6 Haemodynamics of circulation
2.7 Pathophysiology of blood donation
2.8 Pathophysiology of haemorrhagic shock
2.9 Pathophysiology of DIC
2.10 Biochemical and haematological alteration during storage of blood and blood products

3. GENETICS

3.1 Principles of genetics and inheritance
3.2 Immunogenetics and blood groups
3.3 Phenotypes and genotypes
3.4 Applied genetics

4. IMMUNOLOGY

4.1 Fundamentals of immunology and immunological techniques
4.2 Immune response and immunoglobulins
4.3 Antigens, antibodies, complement and immune response
4.4 Cells of immune system & cytokines
4.4.1- Lymphocytes- sub types, function, significance
4.4.2- Phagocytic cells & macrophages
4.5 Effects of transfusion on immune system- immune modulation
4.6 Immunodeficiency syndromes
4.7 Transplant immunology
4.8 Immunological basis of iso-sensitization
4.9 Genetic control of immune response
4.10 Hypersensitivity and autoimmunity

5. STATISTICS

Module – II

IMMUNOHAEMATOLOGY

1. FUNDAMENTALS OF IMMUNOHAEMATOLOGY

1.1 Bio-Chemical properties and characteristics of blood group antigens and antibodies
1.2 Identification of natural and immune antibodies
1.3 Plasma protein serology
1.4 Leucocyte antigens and antibodies
1.5 Platelet antigens and antibodies
1.6 HLA system

2. BLOOD GROUP SYSTEMS

2.1 Blood groups- ABO, Rh and others
2.2 Blood groups and disease associations
2.3 Serological techniques for blood group antigens and antibodies
2.4 Blood group substances

3 REAGENTS AND PRESERVATIVE SOLUTIONS

3.1 Blood group reagents : Polyclonal and monoclonal antibodies and lectins
3.2 Anticoagulant solutions
3.3 Cell panels
3.4 Immune sera of human origin
3.5 Immune sera of animal origin
3.6 Potentiating media
3.7 Monoclonal antibodies

4 PRETRANSFUSION TESTING

4.1 Basic procedures for compatibility testing
4.2 Techniques for determining compatibility
4.3 Emergency and elective techniques
4.4 Type and screen
4.5 Micro plate techniques for cross matching
4.6 Automation

Module – III

BLOOD TRANSFUSION SERVICE OPERATIONS

1. A ORGANIZATION AND MANAGEMENT OF TRANSFUSION SERVICE

1.1 Planning and development of transfusion services
1.2 Organization and functions of blood centers
1.3 Donor motivation and voluntary blood donation programs
1.4 Operation of blood mobiles and transportation
1.5 Donor room procedures
1.6 Records and statistics
1.7 Computerization of blood banks
1.8 Cost efficiency – Budget and economic considerations, procurement of supplies
1.9 Equipment procurement and maintenance
1.10 Personnel management and training, proficiency testing
1.11 Inventory management – Blood stocks, reagents and bags etc.
1.12 Medical audits
1.13 Accreditation of Blood banks
1.14 Organization of blood bank for national emergencies & disasters
1.15 Universal biosafety precautions

1. B TOTAL QUALITY MANAGEMENT

1.1 Quality systems
1.2 SOP
1.3 G.M.P.
1.4 Clinical Trials
1.5 Quality Control of equipments, reagents, procedures
1.6 Automation and computerization in transfusion practice
1.7 Hospital transfusion committee

2. BLOOD COLLECTIONS AND PROCESSING

2.1 Management of blood donation, criteria for selection, screening procedures, care of blood donor, and prevention and management of donor complications
2.2 Blood collection procedures – Mobiles, Apheresis,
2.3 Strategies of donor recruitments - Different categories of donors- voluntary, paid, directed and autologuos
2.4 Screening of collected blood for infectious diseases – Different methods used in testing Eg : Elisa , RIA, PCR etc
2.5 Preparation of blood Components –methods
2.6 Preservation and storage of blood and components

2.7 Methods and standardization of blood components
2.8 Plasma fractionation – Principles, standards of safety and viral inactivation and product specificity
2.9 Cryopreservation - principles

3 ARTIFICIAL BLOOD AND BLOOD SUBSTITUTES

3.1 Synthetic Oxygen carrying compounds and other substitutes
3.2 Volume expanders, Crystalloids, natural & synthetic colloids

4 MEDICOLEGAL CONSIDERATIONS

4.1 Limitations and problems of dispute paternity
4.2 Medicolegal considerations in transfusion practice – Informed consent, confidentiality, counseling, notification, look back and product liability
4.3 Forensic serology
4.4 Ethics

5 MOLECULAR BIOLOGY

5.1 Diagnostic principles and applications
5.2 Therapeutic principles and applications

Module – IV

CLINICAL ASPECT OF TRANSFUSION MEDICINE

1. TRANSFUSION OF BLOOD AND BLOOD COMPONENTS

1.1 Administration of blood and blood products
1.2 Indications, dosages and administration of whole blood, red Cells, platelets, cryoprecipitate and other components
1.3 Optimum use of blood and blood components
1.4 Emergency indications for massive transfusion, haemorrhagic shock and traumatology
1.5 Coagulopathies, thrombocytopenia, leukaemia and aplastic anaemia
1.6 Neonatology, Paediatrics and Obstetrical services
1.7 Cardiopulmonary bypass
1.8 Haemodialysis
1.9 Exchange transfusion
1.10 Haemolytic anaemias and their transfusion management

2 HAZARDS OF BLOOD TRANSFUSION

2.1 Aetiology,investigations & management of transfusion reactions and it's pathophysiology
2.2 Transmissible diseases – Hepatitis, AIDS, Syphilis, Malaria etc.

3. APHERESIS

3.1 Plasmapheresis – manual & machine
3.2 Cytapheresis – Donor selection, procedure and complications, different applications of cytopheresis
3.3 Therapeutic apheresis
3.4 Plasma exchange
3.5 PBSC – Preparation and processing
3.6 Cord blood stem cells

4. AUTOLOGOUS TRANSFUSION

4.1 Relevance of Autologous transfusion – Principle, indications and contraindications
4.2 Predeposit, haemodilution and intraoperative and post operative conservation of blood

5. AUTOIMMUNITY

5.1 Autoimmune diseases - Classification, pathogenesis, diagnosis and transfusion management
5.2 Auto immune haemolytic anaemia and drug induced haemolytic anaemia
5.3 Immune neutropaenia, immune thrombocytopenia and NAITP

6. HAEMOLYTIC DISEASE OF THE NEW BORN

6.1 Aetiology, pathogenesis, investigations and management
6.2 Antenatal serology and Rh immunization
6.3 Exchange transfusion – Indications, methodology and complications
6.4 IUT – Indications, methodology and complications
6.5 Role of immunoglobulin in prevention of HDN

7. TRANSPLANTATION

7.1 HLA typing
7.2 Transfusion practice in transplantation
7.3 Organ transplantation
7.4 Bone Marrow and PBSC transplantation and irradiation of blood products
7.5 Graft versus host reaction
7.6 Cord blood transplantation

6. TEACHING METHODS

This is a two years fulltime in-service training programme. This will consist of clinical training, practicals, tutorials and lectures.

- Forty (40 *hours*) of lectures **(Annex 1)**
- Weekly 2 hour tutorials (journal club/ case presentation, discussions) at National Blood Transfusion Center)
- Daily Clinical and Practical training from *08.00 H to 16 H* at National Blood Transfusion center and selected Teaching Hospitals and Universities under a board certified consultant

7. RESEARCH PROJECT LEADING TO A DISSERTATION

Successfully carrying out a research project supervised by the trainer is a **mandatory requirement** that needs to be fulfilled to be eligible to appear for the MD Examination. It should be a prospective or a retrospective study which is either hospital based or transfusion centre based. It may be observational or interventional in type.

Within three months of commencement of the 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, once completed should be submitted to the board 6 months prior to the MD Examination.

It should be accepted by a two member panel of examiners appointed by the BOS Pathology. The examiners would assess the project based on the following marking scheme:-

• Title, Introduction and 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 pass mark of 50 is necessary for the research project to be accepted by the BOS. If a mark of less than 50 is awarded the trainee will have to do the recommended corrections and resubmit for reexamination.

8. PORTFOLIO

The objective of maintaining a Portfolio is:

- 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.

  And;
- To help trainer 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 development.
It is the responsibility of the trainees and the trainers to ensure that the entries in the Portfolio are authentic and made regularly. It is essential to provide the trainee with accurate feedback on his or her views about his or her performance during the training period.

The Board of Study expects the Trainee and the Trainers to make the best use of the Portfolio in order to achieve the objectives of the training programme. The portfolio should be kept as a ring binder document which will allow easy insertions by the Trainee.

Candidates have to submit the completed and signed Portfolio to the PGIM two months before the examination

The Portfolio should be based on the activities specified in the log book – (A**nnex 2)** and should comprise of the following components;

- Documentation of all aspects of training and learning experienced by the trainee. This should include a minimum of ten case records and minimum of ten procedures and practical skills.
- Regular reflective entries on all aspects of patient care and professional training.
- Exposure to new technologies.
- Details of Continuing Professional Development (CPD) activities. A minimum of twenty.
- Records of scientific presentations made. A minimum of five.
  Direct Observation of Practical Skills (DOPS). A minimum of ten.
- Case Based Discussions (CBD). A minimum of five.
- A record of individual activity base entries on the trainee's own experiences.
- At least one clinical audit.

9. EVALUATION/MONITORING

1. Progress reports every six months or after completion of each section of training. **(Annex 3)**

2. Peer Team Rating every six months **(Annex 4)**

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 an unsatisfactory result.
Suitable and appropriate action will be taken by the Board Of Study - Pathology according to the General Regulations and Disciplinary Code of the PGIM in the event of the receipt of an unsatisfactory/poor progress report at any stage of training.

Peer Team Rating Reports

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

10. ELIGIBILITY CRITERIA TO SIT FOR THE MD EXAMINATION

10.1 Over 80% attendance in all training activities

10.2 Satisfactory progress reports

10.3 Satisfactory PTR reports

10.4 Satisfactory completion and acceptance of the dissertation

10.5 Satisfactory completion and acceptance of portfolio.

11. MD IN TRANSFUSION MEDICINE EXAMINATION

There shall be three components:

A. Two Theory papers-Essay type - 40 marks; Each paper will get 20 marks.
Each paper is marked out of 100 and the 40% of total aggregate is taken

B. Practicals - 50 marks
C. Viva - 10 marks

A. Theory Papers - Essay **2 Papers Marks=40.** **Each question will be marked independently by two examiners using a modal answer with a marking grid.**		
1.	• Basic Sciences ➢ Immunology ➢ Genetics ➢ Hematology ➢ Microbiology ➢ Parasitology • Immunohematology ➢ red cells/platelets/white cells	3 *hours* 5 to be answered out of 6 questions. The type of question will be either a single question or in parts or short notes; each question will be marked out of 100.
2.	• Blood Center Operations • Clinical Transfusions/Recent Advances.	3 *hours* 5 to be answered out of 6 questions. The type of questions will be either a single question or in parts or short notes; each question will be marked out of 100.
B. Practicals **50 marks**		

The practical examination has 3 components (1,2 and 3). Each practical will be marked independently by two examiners according to a marking grid. Each practical is marked out of 100 and the total of 300 marks will contribute to 50 marks in the final calculation.			
1.	Clinical Case Discussion (Paper work)	3 *hours*	Problem based 14 data interpretation questions
2.	Hematology exercises related to transfusion	3 *hours*	Consists of three parts each carrying equal marks, part 1-morphology, slides or pictures part 2-A wet practical on quality assessment on blood products . part 3-A wet practical on coagulation on a case based scenario
3.	Immunohaematology exercise – Red cell serology exercise	3 *hours*	A wet practical on a problem based case scenario
C. Viva voce – 30 min **10 marks** Two panels with at least two examiners in each			
Total Marks **100 marks**			

PS: An External Examiner will be present for all components of the examination.

12. REQUIREMENTS TO PASS THE EXAMINATION

A candidate should score 50% or more of the total mark given for the examination
AND
50% or more for theory
AND
50% or more for practical
AND
50% or more for each of the Clinical Case Discussion and Immunohaematology exercise components of the practical
AND
45% or more for the *Haematology* exercises related to transfusion
AND
40% or more for the viva voce examination

Those who are successful at the MD examination will be awarded MD in Transfusion Medicine.

13. POST MD TRAINING

The duration of the training period will be two years, one year in Sri Lanka and one year overseas in approved training centres. During this period the trainee is expected to maintain the following;

1. **A Portfolio**.
   To be prepared by the trainee according to the assignments given below as well as comprising of the following components;

- Documentation of all aspects of training and learning experienced by the trainee.
- Regular reflective entries on all aspects of patient care and professional training.
- Exposure to new technologies.
- Details of Continuing Professional Development (CPD) activities.
  Records of scientific presentations made.
- Direct Observation of Practical Skills (DOPS).
- Case Based Discussions (CBD).
- A record of individual activity base entries on the trainee's own experiences.
- At least one clinical audit.

2. **Progress reports -** every six months

Post MD local training

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

This should include:

- 6 months of General Transfusion medicine at the Transfusion Center in a Teaching hospital approved by the BOS
- 3 months of Oncology at the Transfusion Center in a Teaching hospital approved by the BOS (minimum of one month at CIM)
  and
- 3 months of Pediatric transfusion medicine at the Transfusion Center in a Teaching hospital approved by the BOS (minimum of one month at Lady Ridgeway Hospital)

with special emphasis on the relevant specialty.

Assignments for Post MD trainees

The Senior Registrars appointed in teaching hospital blood banks is expected to assess the current situation and implement strategies as given below during their assigned period to improve the technical and clinical areas in the hospital.

Technical Improvements

- Layout plan – Is it as per work flow? Can it be redesigned or improved upon.
- Equipment - Is there an inventory? If not prepare it.
  - Are the equipment in working order? Introduce a maintenance plan.
- Staff – Prepare a training schedule for staff.
  - Take proficiency test and assess training needs.
  - Provide technical guidance
- Documentation – Introduce SOPs
  - Introduce proper formats for records.
  - Introduce inventory control system like stock cards for all consumables.

Clinical Improvements

- Hospital Transfusion Committee (HTC) – Is it established and working? Follow implementation.
- Medical Audits – Introduce audits of optimum usage of blood and blood products
- MSBOS – develop and implement its use.
- Thalassemia and Hemophilia – Introduce the formats prepared for maintaining treatment records of these patients.
- Regular discussions with the haematologist regarding management and requirement of any special needs for specific clinical situations.
- Apheresis – Is there a need for apheresis platelets? Is a cell separator required? If it is already available how many procedures are carried out per month?
  - Is Therapeutic plasma exchange in use? If not is it required? Introduce if there is a need.
- Clinical interface – Introduce guidelines, SOPs and record formats.

It would be important to develop a long term improvement plan in consultation with the haematologist/transfusion consultant and other senior clinicians or HTC members. This should be submitted to Director/NBTS for further action.

Overseas training

Candidates should undergo a 12 months training attachment at an overseas centre in Transfusion Medicine. Training centre has to be recognized by the Board of Study in Pathology.

Trainees are expected to cover following areas during their one year training abroad. This programme will enable them to get trained in general transfusion medicine

1. Blood centre management
2. Principles and practices of whole blood donations, Mobile and static clinics.
3. Component collection by apheresis
4. Preparation and quality monitoring of blood components and the use of components.
5. Transfusion microbiology – TTI testing with quality monitoring, confirmation of screening positives, donor look back.
6. Quality management of a blood bank.
7. Transportation, storage and blood stock management.
8. Reference Immunohaematology
9. Platelet and granulocyte immunology
10. Stem cell transplantation – Bone marrow registries, Selection of donors for kidney and bone marrow transplants, Stem cell harvest, Cord blood banking, Cryopreservation of stem cells.
11. Histocompatibility and immunogenetics
12. Clinical practices of transfusion medicine
13. Hospital transfusion committee meetings
14. Therapeutic apheresis

14. PRE-BOARD CERTIFICATION ASSESSMENT (PBCA)

1. Portfolio viva-30-45 minutes by a Panel of two examiners appointed by the BoS (marking grid given below)

   The panel will sit at a formal discussion with the trainee and evaluate the portfolio over a period of 45 minutes.

   At the 45 minute portfolio *viva voce* the performance of the trainee will be marked by the examiners using the following rating scale:

   Rating Scale

Grading	Mark
Bad Failure	7
Borderline failure	8
Pass	**9**
Good pass	**10**
Excellent pass	**11**

2. It is mandatory to obtain a minimum pass mark of 9. A trainee who would score a mark of less than 9 will be advised by the panel on how the portfolio could be improved to achieve a mark of 9 or more. In such a case, the necessary corrections and amendments have to be made by the trainee and the portfolio submitted preferably to the same panel of examiners for a second evaluation. If a mark of 9 or more is not obtained, a third evaluation by the same panel of examiners will become necessary.

3. Board certification shall be deferred if the candidate fails the *PBCA*. A failed candidate would need to follow a Counseling Session within 3 months of the failed examination and sit for the PBCA again within a period of one year. The candidate would need to repeat only the component/s in which he or she failed to achieve 40 per cent. In the repeat examination, the candidate should achieve a mark of 50 per cent, in the component in which he or she was earlier unsuccessful, to qualify.
   On successful completion at the first attempt after counseling, the date of Board certification shall be backdated. If unsuccessful, the date of Board certification will be the date of passing the subsequent assessment following further training for a minimum period of six months in a unit allocated by the BOS.

15. ELIGIBILITY CRITERIA FOR BOARD CERTIFICATION

The following criteria should be fulfilled for Board Certification.

15.1 Candidate should pass the MD Examination.
15.2 Candidate should satisfactorily complete 1 year training locally and 1 year overseas.
15.3 Satisfactory progress reports
15.4 The completed portfolio, its satisfactory assessment by the BOS Pathology and a minimum pass grading
15.5 Presentation to the Board of Study on training received and future vision. Duration 20-30 minutes

16. BOOKS FOR REFERENCE

1. The British Committee for Standards in Haematology (BCSH) and National Blood Service (NBS) Guidelines and other relevant Guidelines and Journal articles
2. Transfusion Medicine
   - Technical Manual AABB
   - Modern Blood Banking
   - Mollison's Blood transfusion in Clinical Medicine
   - Hand Book of Transfusion Medicine – National Blood Service (NBS) /UK Guidelines
   - Practical Transfusion Medicine - M. Murphy
3. Essential Haematology by Hoffbrand
4. Practical Haematology- Dacie and Lewis
5. Hospital Infection Control Manual by Sri Lanka College of Microbiologists

Annexure 1

MD in Transfusion Medicine Lecture Course -

	Time	Topic	Lecturer
	1 ½ hours. 1 ½ hours	Statistics Statistics	Lecturer from com. Medicine
	During the Quality assurance appointment at MRI – 3 hours	Quality assurance	Chemical pathologist
	2 hours	Sterilization and disinfection. Collection & transport of samples. Processing and interpretation of results	Microbiologist
	During the genetic appointment – 3 1/2 hours -	Introduction to Molecular- biology	Lecturer from genetic department
	2 hours.	Neonatal Alloimmune Thrombocytopenic Purpura (NAITP) /Thrombotic Thrombocytopenic Purpura (TTP)	Haematologist
	2 hours 1 ½ hours	Bacterial organisms causing infections of blood & blood products Statistics	Microbiologist Lecturer from com. Medicine
	2 hours	Auto Immune Haemolytic anaemia (AIHA)	Haematologist/ Transfusion Medicine Physician
	2 hours	Bacterial organisms coursing infections of blood & blood products	Microbiologist
	2 hours. 1 ½ hours	Malaria Toxoplasma Leishmaniasis Trypanosoma Microfobria, Babesia	Parasitologist
	1 ½ hours 1 ½ hours.	Statistics	Lecturer from com. Medicine

	2 hours 2 hours 1 hour.	Fundamentals of immunology Ab. Complement Immune response including immunological reactions in Transfusion Medicine. HLA antigens and antibodies	Immunologist

Lectures can vary depending on the availability

MD in Transfusion Medicine Special Lecture Course
Lectures from November

Date	Time	Topic	Lecturer
	2 hours	Fractionation and viral inactivation	Transfusion Medicine Physician
	2 hours 2 hours	Transplant immunology (Bone marrow and solid organ) Transfusion support in bone marrow and solid organ transplantation	Transfusion Medicine Physician
	2 hours	Haemovigilance and shot reporting system Better blood transfusion	Transfusion Medicine Physician

Annexure 2

Log book

Name of trainee : …….……

Date of Birth : ……. Sex: …….

Date of obtaining degree of MBBS: ……..

SLMC Registration Number & Date: ……

Date of completion of internship: ……..

Date of completion of first post intern year: ……

Employer : Health Department/University/Private Sector Institution: …..……

…….……

Permanent Address : ……..

……

Telephone : ……Fax: ……..……

E'Mail Address : ……...

Contact telephone No. in case of emergency: ……...

Training Programme	D. Path.	MD	Post MD Local	Post MD Overseas
Date of commencement				
Date of completion				
Date of passing examination				
Date of submission of Case Book				
Date of submission of dissertation				
Date of viva prior to Board Certification				

TRAINING FOR MD TRANSFUSION MEDICINE

Trainees are expected to get practical training in all aspects of blood transfusion technology and to develop knowledge required to analyze the blood bank policies such as donor recruitment, collection, storage, preservation and administration of blood and blood components.

They are expected to work in rotation in haematology, genetics, microbiology, parasitology, and immunology. At the end of training they should have a sound knowledge in clinical and laboratory aspects of transfusion medicine.

During the training period trainees should do a dissertation and it should be submitted to the supervisors six months prior to the examination; topic should be selected within the first three months of the training period.

Rotational Schedule

	Activity	Duration	Number/Remarks	Signature
01.	**Administrative functions** 1. Active involvement with organization and management of BTS 2. Documentation 3. Inventory management of all consumable equipment 4. Use of computers	3 weeks NBTC		
02.	**Blood procurement division** 1. Active participation in donor recruitment and retention 2. Donor selection and counseling 3. Donor management 4. Mobiles	12 weeks NBTC		

	5. Blood Collection 6. Active involvement in transportation, storage & blood stock management			
03.	**Apheresis section** Component production – At least 2 should be done, 3 to be observed. Therapeutic apheresis – At least 2 to be done, 4 to be observed.	3weeks NBTC 3 weeks NHSL		
04.	**Blood component section** 1. Production and storage of • FFP • Cryo • Buffy coats • Platelets 2. QC of each component 3. Clinical use Discussions regarding: • Plasma derivatives (Fractionation) • Uses of factor viii, Ig • Cryopreservation	9weeks NBTC 3 weeks NBTC 3weeks NHSL		
05.	**Quality Management** Understand basic concepts of laboratory quality control OQC/EQC – (Establish and participate) Documentation – writing of 3 SOPs Audits – At least one to be	1 week MRI 4weeks NBTC		

	done Accreditation (discussions) Equipment management – to observe Lectures to any category of staff (2) Human resource development (discussions)			
06.	**Immunohaematology** Red cell serology • Blood groups and their techniques – 50 blood groups manually discuss automation • Pre – transfusion testing – 50 compatibility tests • Antenatal serology – 5 cases • Reference laboratory – Ab screening & identification, various procedures – 5 samples To discuss Platelet serology White cell serology	15 weeks NBTC		
07.	**Microbiology** TTI testing – various methods, validation procedures. ELISA semiautomated; fully automated (to observe). Evaluation of TTI reagents	4weeks NBTC		
08.	**Bacteriology** Operation of autoclave Preparation of articles for sterilization Sampling for microbiological exam Gram stain & examination of smear Ziehl-Nelson stain & examination of smear, TB, Leprosy Fluorescent antibody staining	2weeks NHSL 2weeks UOC		

	and examination Dark ground microscopy examination To observe Preparation of media and pouring of plates Blood culture for organisms Plating specimens for culture Anaerobic culture Subculturing for pure cultures Examination of cultures and bacterial diagnosis Identification of bacteria in suspensions Antibiotic sensitivity testing Preparation, staining and examination for fungi SAT Other serological tests for bacterial antigens Preparation and staining of smears for pathogenic parasites – Faeces, blood, other body fluids Virology – Reference work - to observe	1week MRI		
09.	**Parasitology** Preparation of thick and thin smears Staining of smears - Macroscopic examination of malarial parasite (various stages) - Microscopic examination of other parasites - Serological tests to diagnose malaria - Understanding life cycles of malaria, toxoplazsma, leishmaniasis, trypanosomaisis (Discussions)	1week UOC	,	
10.	**Hematology** Clinical hemotherapy	2weeks TH		

	• Use in Paediatric • Use in Gynaecology & Obstetrics • Oncology • General surgery Active participation in deciding what products to be given and the dose to be given in different clinical situations Investigation of transfusion reactions Exchange transfusion Lab hematology • Preparation of blood films • Staining of blood films Preparation of supravital stained blood films • Interpretation of blood films • Preparation and interpretation of thick blood films for demonstra-tion of malarial parasites and filarial worms • FBC • Spun microhaematocrit • Coagulation parameters – PT, APTT, Factor Assaya	2Weeks USJ 3 weeks LRH 2weeks DMH 3 weeks CIM		
11.	**Immunology** To observe and discuss - Basic concepts and procedures - Diagnosis of autoimmune diseases & management - Ig levels for diagnosis - CD markers - Complement system - Cross matching for transplants	2weeks MRI		
12.	**Tissue Typing** Basic procedures - Serological test Reading of results Interpretation of results Selection of donors for	4 weeks NBTC		

	transplant			
13.	**Genetics** To observe and discuss - Principles of Molecular biology - Study of chromosomes, PCR and DNA testing - Paternity testing	1week UOC		
14	Reagents	4weeks NBTC		

Trainees should have a journal club at least once a month supervised and signed by the trainer.

Name of Journal & Volume	Title of Article	Date	Name of presenter	Tutor's Signature

Leave Record

Month	Date	Reason for leave	Signature of supervisor

Annexure 3

POSTGRADUATE TRAINING IN PATHOLOGY/TRANSFUSION MEDICINE

Evaluation form/ Progress report

(To be filled by the trainer/supervisor)

Name of the trainee:
Postgraduate training course:
Institution:
Period covered: from..... to.....

(Please tick [√] in appropriate cages)

Training modality	***Excellent***	***Good***	***Average***	***Poor***
Comments				
Attendance & punctuality	☐	☐	☐	☐
Attitude	☐	☐	☐	☐
Communication skills	☐	☐	☐	☐
Honesty and integrity	☐	☐	☐	☐
Team player skills	☐	☐	☐	☐
Self motivation	☐	☐	☐	☐
Presentation skills	☐	☐	☐	☐
Application of knowledge	☐	☐	☐	☐
Overall professional competence	☐	☐	☐	☐

General / Specific comments

.....

.....

.....

.....

.....

.....

Name of the trainer/supervisor :-

Date :-
Signature :-

Annexure 4

PGIM PTR ASSESSMENT OF REGISTRARS/ SENIOR REGISTRARS

PGIM Roll No. **Date of assessment (DD/MM/YY)** **Year training**

PGIM/ ☐☐☐☐☐/☐☐-☐☐☐☐☐ ☐☐ ☐☐ ☐☐ ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6

Name of Rater

(You can remain Anonymous)

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

○ Consultant ○ Registrars ○ SHO or HO ○ Other Specify

○ Allied Health Professional ○ SR ○ Clerical or Secretarial 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			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
2. Attitude to patients; Respects the rights, choices, beliefs and confidentiality of patients			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
3. Reliability and punctuality			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
4. Communication skills: communicates effectively with patients and families			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9

	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
5. Communication skills: communicates effectively with healthcare professionals			
○ Don't know	○ 1 ○ 2 ○ 3	○ 4 ○ 5 ○ 6	○ 7 ○ 8 ○ 9
	UNSATISFACTORY	SATISFACTORY	ABOVE EXPECTED
6. Honesty and Integrity, do you have any concerns?	○ **Yes**	○ **No**	

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

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

Your (You can remain Anonymous) **Signature:**