



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

## **PROSPECTUS**

**MD in Forensic Medicine  
&  
Board Certification in Forensic Medicine  
Board Certification in Forensic Medicine with Special interest in  
Clinical Forensic Medicine  
Forensic Toxicology  
Forensic Paediatric and Perinatal Pathology  
Forensic Histopathology  
Forensic Anthropology**

*(To be effective from the year 2017)*

## **BOARD OF STUDY IN FORENSIC MEDICINE**

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*BOM – 01.10.2016  
Senate – 26.10.2016*

## Contents

1	By-Laws .....	3
2	Nomenclature .....	3
3	Background to the programme .....	3
4	The aims of the MD (Forensic Medicine) programme .....	4
5	Learning outcomes .....	5
6	Eligibility criteria for entry to the training programme.....	6
7	Selection examination .....	6
8	Pre-MD training programme.....	8
9	Learning activities.....	10
10	Monitoring progress .....	11
11	Research project .....	16
12	Pre MD rotational appointments .....	17
13	Eligibility to sit for the MD Forensic Medicine examination .....	17
14	Format of the MD Forensic Medicine summative examination .....	18
15	Repeat candidates and repeat attempts.....	20
16	Post MD Training and Board Certification .....	21
17	Broad Learning Outcomes for Post-MD Training (Local& Overseas).....	21
18	Objectives for post MD training (overseas) .....	22
19	Scheduled Post MD training activities .....	23
20	Post MD training in Forensic Medicine .....	24
21	Details of pre-board certification assessment (PBCA) .....	26
22	Suggested reading material and other resources (selected).....	28
23	Acknowledgements .....	29
24	The Prospectus development sub-committee .....	29
Annex 01	Curriculum for the selection examination.....	31
Annex 02	Curriculum for MD in Forensic Medicine .....	34
Annex 03	Scheduled teaching learning activities .....	53

Annex 04	Small group discussions (SGD) /Tutorial .....	58
Annex 05	problem based learning (PBL) .....	59
Annex 06	Workshops/Study Half Days/Centre Based Training.....	60
Annex 07	Portfolio.....	62
Annex 08	Portfolio marking grid .....	86
Annex 09	Progress reports on trainees – Pre MD .....	89
Annex 10	Format of internal periodic in-service training assessments – IPISTA.....	90
Annex 11	Format of external periodic in-service training assessments (EPISTA) .....	93
Annex 13	Forensic histopathology for MD Forensic Medicine trainees .....	97
Annex 14	Peer team rating for assessment of registrars/ senior registrars .....	115
Annex 15	Trainee evaluation of MD training programme .....	116
Annex 16	Format of the detailed project proposal – MD Forensic Medicine .....	117
Annex17	Assessment of the MD Forensic Medicine project proposal by reviewers .	119
Annex 18	Instructions to dissertation supervisors .....	121
Annex 19	Dissertation supervisor consent form – MD Forensic Medicine.....	122
Annex 20	Dissertation progress report .....	123
Annex 21	Dissertation submission format.....	124
Annex 22	Dissertation assessment and marking scheme.....	129
Annex 23	Progress report on trainees – Pre MD Rotational Appointments .....	130
Annex 24	Format for progress reports of post-MD training.....	131
Annex 25	Post MD training programme in Forensic Medicine.....	132
Annex 26	MD with special interest in clinical Forensic Medicine.....	137
Annex 27	Special interest in Forensic Toxicology .....	144
Annex 28	Special interest in forensic histopathology.....	150
Annex 29	Special interest in paediatric and perinatal pathology.....	156
Annex 30	Special interest in forensic anthropology .....	165
Annex 32	Documents to be incorporated into the post MD portfolio .....	174
Annex 33	Post MD Portfolio and pre-board certification assessment.....	177

## **1 By-Laws**

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.

## **2 Nomenclature**

- 1.1. Name of the degree programme - MD in Forensic Medicine
- 1.2. Full title - Doctor of Medicine and Board Certification in Forensic Medicine
- 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 Forensic Medicine (BOS) PGIM, University of Colombo, Ministry of Health, Ministry of Justice, Police department, Govt. analyst's department, Universities, College of Forensic Pathologists of Sri Lanka.
- 1.6. Abbreviated title -MD For.Med.

## **3 Background to the programme**

### **3.1 Rationale**

The specialists in Forensic Medicine in Sri Lanka provide their expertise and expert opinion both in criminal and civil investigations and court trials in an increasingly complicated world of crimes. Unlike in some developed countries, they provide their services both in the spheres of Forensic Pathology and Clinical Forensic Medicine. As a result of the rapidly changing complex political situation in the country, they should not only work impartially and independently but also it should be seen as such by the public. Ability to work as a competent specialist in the field of Forensic Medicine is underpinned by the subject expertise, personal virtues and professional qualities of honesty, integrity, accountability as well as respect for good medical practice and human rights. Therefore, the Specialist in Forensic Medicine needs to acquire an expert knowledge in theory and competence in technical skills of the art of Forensic Medicine as well as solid attitudes in personal virtues, medical ethics and human rights.

### **3.2 Mission of the Board of Study in Forensic Medicine**

The mission is to promote excellence in the practice of Forensic pathology and Forensic Medicine in Sri Lanka and the region, and to be responsible for maintaining standards through training, assessments, examinations and professional development.

### 3.3 Justification

An accredited MD in Forensic Medicine training programme and examination leading to Board Certification as a specialist in Forensic Medicine is for Sri Lanka to provide a standard medico-legal service throughout the country on par with the global developments in the field. Presently majority of the 20 million population do not have access to the services of a specialist in Forensic Medicine. Therefore, this should be a sustainable programme to ensure continuous availability of experts with a comprehensive specialised training in Forensic Medicine to assist the administration of justice. This MD in Forensic Medicine is structured and comprehensive and is offered at postgraduate level in Sri Lanka.

Recently changes have been introduced to the postgraduate training programmes locally as well as globally so that expectations of the patients, clients, criminal justice system, employers and Higher Education sector are fulfilled. When developing this MD in Forensic Medicine programme several concerns were taken into account. They included the proper administration of justice by maintaining a specialised medico – legal service, contribution of specialists' expertise for the advancement of the specialty in Sri Lanka, to provide necessary advice to policy makers on the furtherance of the discipline with a view of upgrading the human rights status in Sri Lanka. In order to achieve these, UGC and PGIM guidelines and recommendations, comments and suggestions made by the external examiners of MD Forensic Medicine have also been taken into account. The MD is the highest academic qualification which is a prerequisite to undergo post MD senior registrar training (local and overseas) and obtain board certification as a specialist in the subject. The board certified specialist in Forensic Medicine is the authority of the subject.

Previously, entry into the MD training programme was provided automatically to all those who successfully completed the Diploma in Legal Medicine. Entry to the proposed standalone MD Forensic Medicine training programme will be through a separate selection examination, since the one year Postgraduate Diploma in Legal Medicine programme which commenced in 2015 is now distinct from the MD Forensic Medicine and provides the candidate with a basic post graduate training to handle ordinary medico-legal work. Furthermore they could be attached as assistants to Board Certified Specialists in institutes where the workload is high. The selection examination for the diploma has less stringent criteria due to this distinction between the two.

## 4 The aims of the MD (Forensic Medicine) programme

The aim of the MD (Forensic Medicine) programme is to provide the trainee the

1. experience required to become technically competent in practical work and to master the underlying analytical and clinical principles of forensic pathology and clinical Forensic Medicine
2. Opportunity to gain knowledge of and some basic skills in the specialist fields of forensic dentistry, forensic science, and forensic anthropology.
3. training in the communication and teaching skills necessary for effective practice
4. opportunity to develop to the required standard of a specialist, the ability to provide expert opinion in Forensic Medicine
5. opportunities to acquire the management skills to lead a centre/department providing an effective service
6. experience of research and development projects and critical assessment of published work so as to contribute in a team and individually to the development of the service and specialty
7. the framework for continued professional development (CPD) including life-long habits of reading, literature searches, consultation with colleagues, attendance at scientific meetings and the presentation of scientific work
8. Practical experience of clinical governance and audit (specialist and multidisciplinary) through evaluation of practice against the standards of evidence-based medicine.
9. opportunity to cultivate the personal virtues and traits of professionalism such as honesty, integrity, responsibility, accountability etc. to practice as a professional in the field of Forensic Medicine
10. experience which emphasizes the importance of medical ethics and human rights in the practice of Forensic Medicine
11. Opportunity to acquire the skills of leadership at appropriate levels, and team work necessary to work in teams of criminal investigations and prosecution.
12. opportunity to experience the importance of 'clinical governance' and the individual institutions accountability and responsibility for continuously improving the quality of their services and safeguarding high standards of care, by creating an environment in which excellence in clinical care will flourish'.
13. Opportunity to be familiar with the lines of accountability, quality improvement programmes, clinical audit, evidence-based practice, clinical standards and guidelines, managing risk and quality assurance programmes.

## **5 Learning outcomes**

On completion of the three year in-service training period the candidates should have achieved the following learning outcomes at the desired level of a specialist.

1. Holistic medico – legal management
2. Subject or Theoretical knowledge
3. Practical knowledge and application
4. Clinical skills
5. Scientific reasoning, creativity and problem solving

6. Issuing a quality report
7. Expert medical witness
8. Manager [includes managerial entrepreneurship, communicator, collaborator, leader, team leader]
9. Researcher, self-updating lifelong learner/scholar/teacher with vision for life
10. Ethics and professionalism (includes personal development, attitudes and values)
11. System based practice
12. Networking and social skills
13. Adaptability and flexibility

## **6 Eligibility criteria for entry to the training programme**

To be eligible to sit for the Selection Examination, applicants must satisfy the following requirements:

- a) Hold a medical degree and be registered with the Sri Lanka Medical Council\*.
- b) Completion of internship recognized by the Sri Lanka Medical Council.
- c) Completed one year work experience in Sri Lanka in the medical field after internship acceptable to the Board of Study.
- d) The criteria prescribed in paragraphs (a) to (c) must have been fulfilled by the applicant as at the date of closure of applications for the selection examination.
- e) Produce a medical certificate from a specialist physician to confirm general mental and physical fitness.
- f) Comply with any other PGIM regulations.

\* Foreign nationals who seek to apply to sit the selection examination should possess a medical degree registrable with the Sri Lanka Medical Council.

## **7 Selection examination**

The selection examination will test basic knowledge in Forensic Medicine and core knowledge in medical sciences to commence training in Forensic Medicine:

Applied and clinical anatomy, Normal histology, physiology, biochemistry, Pharmacology, medicine, surgery, gynaecology and obstetrics, Paediatrics, General and systemic Pathology and psychiatry which are relevant to the practice of Forensic Medicine and Pathology.

The minimum required knowledge will be on par with the undergraduate medical curriculum. Details are given in [Annex 1](#).

## **7.1 Format of the Selection examination**

The selection examination will consist of a theory paper and an objective structured practical examination.

### **7.1.1 Theory Paper**

This will take the form of a MCQ paper with 30 multiple choice questions of the true/false type, 15 single best answer 15 extended matching questions, to be answered in 150 minutes.

The questions will be based from subject areas relevant for the practice of Forensic Medicine

- a. Macroscopic and microscopic Anatomy and Physiology – 15
- b. Pharmacology and Biochemistry - 03
- c. General and systemic Pathology – 20
- d. Medicine, Surgery, Gynaecology and Obstetrics, Paediatrics and Psychiatry – 10
- e. Basic Forensic Medicine – 10
- f. Basic medical ethics – 02

In marking the MCQs of the true/false type, each correct response will be awarded +1 mark; each incorrect response will be awarded -1 mark; and zero marks will be awarded if there is no response. There will be no negative carry over from one question to the next.

In marking MCQs of the single best answer or extended matching question type, each correct response will be awarded +3 marks; incorrect responses and no responses will be awarded zero marks.

The theory paper will contribute 60 % of the final overall mark.

### **7.1.2 Objective Structured Practical Examination**

There will be 10 OSPE stations over a period of 60 minutes, to test whether the candidate has the background knowledge and core skills needed to undergo the training programme and achieving the learning outcomes at the end. Eight stations will be based on any of the subjects listed above under 6.1.1. Examples include identification of tissue (gross Anatomy), identification of injuries and identification of gross pathology. One station will test the ability to communicate effectively and another station on skills in writing summaries. All except the station on communication skills will be marked by a panel of examiners and each station marked out of 10. Two examiners would be independently marking the station on communication skills which is also marked out of 10.

The OSPE will contribute to 40 % of the final overall mark.



## **7.2 Requirements to pass the selection examination**

In order to pass the Selection Examination, a candidate should obtain a total overall mark of 50% or more, and a mark of 40% or more in each of the two components of the examination.

## **7.3 Number to be selected**

Maximum number enrolled will be the number indicated in the circular/newspaper advertisement calling for applications and will depend on the requirements of the Ministry of Health, the Universities and will depend also on the training facilities available. The number may vary from year to year. If more than the above number passes the selection examination, the selection for the programme will be based on rank order of the final overall mark obtained at the selection examination.

## **7.4 Number of attempts**

Number of attempts for the selection examination for the MD in Forensic Medicine is unlimited.

## **7.5 Examiners for the selection examination**

The chief examiner and the other examiners will be appointed by the Board of Management of the PGIM and approved by the senate of the University of Colombo on the recommendation of the Board of study in Forensic Medicine. The panel of examiners shall include Specialists in Forensic Medicine, Histopathology as well as any other relevant medical specialists.

# **8 Pre-MD training programme**

The total duration of the course will be 36 months of full-time, in-service training, including assessments.

## **8.1 Structure and Design of Curriculum and Course modules**

The curriculum shall consist of a taught course with nine core modules in the 1<sup>st</sup> year of training (which will encompass the basic background to practise as a medico-legal expert. The teaching-learning methods of the course will include lectures, practical classes, tutorials, small group discussions, (role plays, simulated patients, mock trials), seminars, assignments, study half days, computer-assisted learning sessions and on-line self-learning sessions), and experiential learning, organized in several streams, as shown below (details are given in [Annex 2](#)).

1. Forensic Pathology, including paediatric pathology, stream(year 1,2, 3)
2. Clinical Forensic Medicine stream(year 1,2, 3)
3. Morbid anatomy and Histopathology stream(year 1,2, 3)

4. Forensic sciences and Forensic Toxicology stream (Year 2 and 3)
5. Rotational appointments (medical units and institutions of the criminal justice process (7<sup>th</sup> to 24<sup>th</sup> month)
6. Related forensic subspecialties- Forensic anthropology, odontology, forensic archaeology and other subspecialties (Year 2 and 3)

### **8.2 In service training attachment for MD in Forensic Medicine**

Trainee will be appointed for 36 months to two training centres accredited by the BOS, for MD training. Out of this, a minimum of 12 months should be spent in a medico legal unit in the health ministry and a minimum of 12 months should be spent in a Department of Forensic Medicine in a medical faculty of a state university. The training units should have a Specialist in Forensic Medicine with at least 3 years of experience post Board Certification, access to a Histopathology laboratory with full facilities overseen by a board certified specialist in Histopathology, and a minimum autopsy turnover rate of 250 per annum at the institution.

The centres listed below are currently accredited by the PGIM for MD training. This list will be updated as new training centres are accredited by the Board of Study.

- 1) Institute of Forensic Medicine and Toxicology, Colombo.
- 2) Department of Forensic Medicine and Toxicology, Faculty of Medicine, University of Colombo.
- 3) Office of the Consultant Judicial Medical Officer, Colombo South Teaching Hospital Kalubowila.
- 4) Department of Forensic Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura.
- 5) Office of the Consultant Judicial Medical Officer, Colombo North Teaching Hospital Ragama.
- 6) Department of Forensic Medicine, Faculty of Medicine, University of Kelaniya.
- 7) Office of the consultant Judicial Medical Officer, Teaching Hospital, Karapitiya, Galle.
- 8) Department of Forensic Medicine, Faculty of Medicine, University of Ruhuna
- 9) Office of the consultant Judicial Medical Officer, Teaching Hospital Kandy
- 10) Department of Forensic Medicine, Faculty of Medicine, University of Peradeniya
- 11) Office of the consultant Judicial Medical Officer, General Hospital, Rathnapura.
- 12) Office of the consultant Judicial Medical Officer, Teaching Hospital Anuradhapura

### **8.3 Training units and resources**

1. Training centres in Forensic Medicine approved by the BOS listed above
2. Forensic Pathology and other relevant Museums in the Universities and Ministry of Health
3. Libraries e.g. PGIM, SLMA, Universities, Hospital units, ILMT Colombo.
4. IT laboratories, e.g. PGIM IT lab, CAL labs in Universities

5. Government Analyst's Department, Colombo
6. Scenes of crime during the appointments to the training units
7. Scene of crime officer's Units
8. Attorney General's Department
9. Specialised branches in the Police Department e.g. Narcotics Bureau, Police training college Kalutara
10. High courts and coroner's courts of Sri Lanka.
11. International websites e.g. Cochrane, Pub Med, Hinari
12. Diagnostic laboratories, e.g. Pathology laboratories of the Ministry of Health and Molecular biology laboratories - e.g. Institute of Molecular biology and Bio technology, University of Colombo, Genetic lab of Parasitology Department of Faculty of Medicine, Ragama, Genetech, Colombo 08, Forensic Medicine laboratories of IFMT, and university Forensic Medicine units
13. Skills laboratories e.g. University of Colombo, Ruhuna, Sri Jayewardenepura University
14. Books and journals, Digital literature, Social and academic online networks.
15. Faculty of Law, University of Colombo
16. Any other learning/training centres and resources deemed acceptable by the BOS
17. Moot courts
18. Gender based violence desks
19. Mithuru Piyasa and Lama Piyasa of Hospitals, Psychosocial rehabilitation units for victims of crime
20. Any other relevant institution considered to be necessary for MD training according to opinion of the Board of Study.

#### **8.4 Allocation of units**

The BOS in Forensic Medicine shall allocate the training units. Allocation shall be done by an allocation committee appointed by the BOS based on the guidelines made by the BOS, and according to the rank order of marks obtained by trainees at the selection examination.

### **9 Learning activities**

1. Lectures – Schedule with topics in [Annex 03](#)
2. Clinical training(CT) in wards, autopsy room, scenes of crime, court rooms, coroner's office
3. CBT – Centre based training - includes experience gained teaching undergraduates/ nurses/ attendants and examination of undergraduates/police
4. FLM - Fixed learning modules - consist of posters, specimens, and reportsetc. which are stationed for a specified period of time.
5. SGD – Small group discussion/Tutorial (Schedule with topics in [Annex04](#))
6. PBL - Problem based learning [Annex 05](#)
7. Entrustable professional activities(TASKS) EPA(autopsy, scene and clinical)

8. ICPA - In course practical assessments(formative only)
9. SCT - Supervised clinical training in wards/autopsy rooms/Institution
10. Workshops/study half days - Schedule with topics in [Annex 06](#)(To be done in collaboration with college of forensic pathologists)
11. Research project proposal
12. Portfolio writing
13. Journal clubs and case presentations
14. Academic sessions, symposia, conferences, online teaching and training
15. Social media – Linkedin, Researchgate, Medscape, Facebook special pages (Official website /E chat of College of Forensic Pathologists) any other relevant electronic media resources recommended by the Board.

## 10 Monitoring progress

The progress of trainees will be monitored through the following:

1. Training portfolio
2. Progress reports
3. Internal Periodic in-service training assessment(IPISTA)
4. External Periodic in-service training assessment(EPISTA)
5. Essay questions
6. Peer team rating (PTR)

### 10.1 Training portfolio

During the entire training period of three years, the trainee shall maintain the MD training portfolio (see [Annex 07](#)) to document and reflect on his training experience and identify and correct any weaknesses in the competencies expected of him, and also analyse any errors of judgements he has made so that appropriate changes can be made to his future medico legal management. The portfolio should contain evidence that learning curve has been completed and candidate is ready to undertake responsibilities in the medico –legal field. Finally it should also be evidence of candidate’s ability to provide appropriate supervision and appropriate role modelling.

The MD training portfolio will help the trainee to document and reflect on his training experience and identify and correct any weaknesses in the competencies expected of him, and also analyse any errors of judgements he has made so that appropriate changes can be made to the medico legal management to reduce risks (including miscarriages of justice) arising from such situations in the future.

The main content areas of the MD training portfolio will include achievement of objectives/ competencies under the following learning outcomes.

1. Holistic medico – legal management
2. Theoretical knowledge
3. Clinical skills
4. Scientific reasoning
5. Issuing a quality report
6. Expert medical witness
7. Manager(includes communicator, collaborator, leader, team player)
8. Researcher and scholar
9. Ethics and professionalism
10. System based practice

Details that shall be included in the training portfolio are:

1. Reflective learning report regarding training
2. In Service training log book of clinical, autopsy and other activities
3. Reflective learning experiences log (05 reports) Reflective practice of significant medico legal work( a minimum of 06 events)
4. Progress reports from supervisors
5. 10 case records and commentaries - -total word count (1500 per case and commentary)
6. Summary answers on selected medico-legal topics
7. Direct observation of practical skills(DOPS)
  - a. Autopsy
  - b. Clinical
8. Death Scene narrative
9. Child interviewing skills
10. Attendance at Problem based learning sessions
11. Postmortem reports
12. Reports on court attendance
13. Medicolegal opinion with reasons
14. Medico legal Reports (DOPS)
15. Evidence of chairing a meeting
16. Evidence of Managerial functions
17. Evidence of Presentation skills
18. Participation at a course on how to conduct research
19. Research/clinical audit project proposal
20. Evidence of ethical approval
21. Research publication or presentation
22. Teaching of undergraduates, peers, nurses, attendants, police officers or mortuary attendants
23. Record of attendance at courses/seminars/annual sessions
24. Information technology
25. Record of attendance at tutorials, journal clubs, audits etc.
26. Self-assessment of progress of training

27. Assessment of the trainee's progress by the Educational supervisor and others - Peer team ratings and any other(PTR).
28. Candidate feedback regarding the MD training/teaching programme

The Training Portfolio should be maintained from the time of entry to the training programme up to sitting the examination. The supervisors / Trainers are expected to review the candidate's progress at regular intervals. It is the responsibility of the Trainee to obtain the signature of the Trainer after these reviews, and submit the Training Portfolio for evaluation by the Board of Study. Initial evaluation would be done during the two IPISTA s. An external evaluation of the portfolio will be performed by the first EPISTA at 18 months. The second external evaluation would be at 30 months, by a two member examination panel.

### Details of Portfolio Assessments

Each trainee will be evaluated by a pair of external examiners who have not been trainers of the trainee **(at 18 and 30months)** of the training programme. At these interviews **the MD Forensic Medicine Training Portfolio** will be evaluated over a period of 45 minutes to review the trainee's capabilities in report writing skills, rational clinical decision making, investigatory and analytical thinking, autopsy skills and interpretation, skills in medico-legal management and ability to present and defend oral testimony based on examination of victims of violence(deceased included), and evidence based approach to formulating/opinions,. Each portfolio clinical assessment shall be **marked out of 100** based on a predetermined marking scheme given in [Annex 08](#). Portfolio assessment 01 would be a formative assessment to give a feedback to the trainee about his progress and how he could improve the portfolio further. Portfolio assessment 02 at 30 months would be marked out **of 50**.

**The minimum pass mark for the Portfolio Assessment shall be 50% (25 marks out of 50). If the trainee has scored more than 30% and less than 50%, re-checking in the areas that the trainee has failed will be required and the trainee will be given an opportunity for re-appraisal in the specific area in six to eight weeks' time. In such a reappraisal the maximum mark to be awarded shall be 50%.**

**A score below 30% (30 marks out of 100) at Portfolio Assessment will be considered a failure. This will warrant a re-assessment after re-training for a period of three months to pass that assessment. In such a reappraisal the maximum mark to be awarded shall be 50% (25 marks out of 50.).**

**At 18 months 05 case records 3 – 3, 4) 01 teaching activity – 06, certificates regarding word doc, 8) attend 02 at least, 11) half of DOPS**

**10.2 Progress reports** - Progress reports using the form ([Annex 09](#)) should be completed by the trainer and submitted to the BOS every six months by the respective trainers. If

reports are not received on time immediate action must be taken by the Chairperson and Secretary of the BOS to obtain the reports.

**10.3 Internal periodic in service training assessments (IPISTA) ([Annex 10](#))** Internal periodic In-service Assessment should be carried out by the respective trainers at 06 and 12 months of the training and submitted to the PGIM. Assessments will be based on work experience obtained by the trainee, performance, skills and abilities demonstrated at autopsy room, wards, clinical forensic appointments and during one to one trainer trainee dedicated discussions over a period of 45 minutes. During the internal periodic ISTA the progress of the research project and portfolio should also be reviewed. The marks will not be added to final continuous assessment marks, but shall be discussed with the trainee with a view of timely rectification and evaluation of his deficiencies.

**10.4 External periodic in service training assessments I & II (EPISTA I & II) ([Annex 11](#))**  
EPISTA I - 1)dedicated discussion 2)review of research project 3) review of portfolio 4) autopsy examination for continuous assessments.  
EPISTA II - 1)dedicated discussion 2)review of research project 4) autopsy examination for continuous assessments.

EPISTAs should be carried out by a pair of examiners appointed by the BOS. Two (02) EPISTAs will be carried out approximately at 18 and 24 months of the training programme. The examiners should not have been previous trainers of the trainee. The examiners have to conduct a dedicated discussion over a period of 30 - 45 minutes. This should be designed to review the trainee's clinico-pathological skills, logical decision making, investigatory and analytical thinking and evidence based approach to medico legal management. During the first EPISTA the research project and portfolio should be reviewed. During the second EPISTA the research project should be reviewed. Autopsy examinations for Continuous assessment would be conducted at 18 months and 24 months by the same examination panel appointed for the two EPISTAs. The autopsy assessment should include questioning the trainee simulating the court trial using the report prepared by trainee (separate marks allocated for answering questions simulating questioning by the defence counsel)

The final mark for EPISTA will be based on a predetermined marking scheme and submitted to the PGIM.

#### **10.5 Autopsy examinations for continuous assessments**

These would be conducted at 12 months, 18 months, and 24 months by the same examination panel appointed for the two EPISTAs.

Autopsy I: to be held at 12 Months [Marks will not be carried forward]

Autopsy examination II: to be held at 18 months (marked out of 50) would be conducted after which a report has to be written with conclusions and opinions to be expressed to

courts. Special dissections, advanced dissections maybe assessed as well as opinion formation. Duration 02 hours.

Autopsy examination III: to be held at 24 months (marked out of 80) would be a case associated with complex medico-legal issues. A report has to be written with conclusions and opinions to be expressed to courts. Special dissections, advanced dissections maybe assessed as well as greater emphasis on opinion formation. Duration 03 hours.

Details of the marking scheme is given in [Annex 12](#).

**10.6 Histology, Histopathology exam MCQ[20] and OSPE[30] = [Total 50marks].** This is to be held at 18 months of training.

MCQ paper with 20 true false type held for one hour. In a True / False type MCQ, (five responses) each correct answer shall score +1, wrong answer shall score -1 or if not attempted shall score 0. Negative marks will apply within the question and will not be carried forward.

The OSPE examination would be 06 slides on Histology, and Histopathology related to autopsy work. Candidates are required to write a brief report on the slides within 60 minutes. The answer scripts would be marked by an examination panel. Learning outcomes are given in [Annex 13](#).

### **10.7 Details of structured essay questions (SEQ)**

Each SEQ paper held simultaneously for all trainees at a suitable centre at 12 and 24 months of the training programme shall have 02 questions to be answered in two hours. The content area of the curriculum from which questions will be given shall be communicated to trainees one month before the scheduled date of the SEQ Paper. These questions shall be prepared by a panel of examiners appointed by the BOS.

For the SEQ paper held at 12 months no marks will be awarded, but answers will be discussed with the trainees to address deficiencies in attending to theory papers. Marks will be awarded for the second SEQ held after 24 months.

Each answer shall be hand written by the candidates and will be independently marked out of 100 by two examiners, and only multiples of 05 marks will be allocated.

The mark for each question will be average of the two marks given by the two examiners based on a 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 answers and arrive at an agreed mark.

### **10.8 Peer Team Rating ([Annex 14](#))**

Peer team rating (PTR) should be submitted by the raters at 12 months and 24 months. The trainer to supervise this activity and ensure that the forms are sent to the monitoring unit of the PGIM. In the event of unsatisfactory reports and adverse comments, the BOS should take immediate action and initiate a preliminary investigation if necessary.



## 10.9 Summary of continuous assessments

The table below gives the summary of continuous assessments, timing and marks

	Activity	Timing	Marks	Minimum
1	Portfolio assessment	30 months	50	25
2	Progress reports	06 monthly	None	None
3	IPISTA I –Internal periodic In-service Assessment	06 months	None	None
4	IPISTA II– Internal periodic In-service Assessment	12 months	None	None
5	EPISTAI– External periodic In-service Assessment	18 months	25	10
6	EPISTA II– External periodic In-service Assessment	24 months	25	10
7	SEQ questions	12, months	None	None
8	SEQ questions	24 months	20	08
9	Autopsy examination during EPISTA I	18 months	50	20
10	Autopsy examination during EPISTA II	24 months	80	40
11	Histology, Histopathology exam MCQ and OSPE	18 months	50	20
12	Peer Team Ratings (two cycles)	12 monthly	None	None
	Total marks		300	133

**If a trainee fails to achieve the minimum mark in any of the above assessments he / she shall repeat that assessment in six months. At the repeat attempt the maximum mark that can be given is the minimum mark defined in the table above.**

**10.10** Trainee evaluation of MD training programme are given in [Annex 15](#)

## 11 Research project

The objective of this exercise is to introduce the trainee to research methodology and scientific writing.

In the research project the trainee should demonstrate his ability to identify a problem, conduct a literature search, design and conduct a study, collect and manage data, carry out appropriate statistical analyses and present the results, and prepare a report with rational conclusions after a discussion.

The trainee should write up a **Research Proposal** with the assistance of the trainer/supervisor or If the trainer so wishes, with the help of a Board member or

another eligible trainer. This is to be prepared as described in [Annex 16](#). The proposal will be assessed by two reviewers as described in [Annex 17](#). A supervisor will be appointed by the BOS to assist the trainee. The instructions to the supervisor are described in [Annex 18](#) and the supervisor should sign the form in [Annex 19](#) and accept the appointment. The supervisor should submit progress reports as described in [Annex 20](#). **Acceptance of the research project by the BOS may be based on fulfilment of either of the following:**

1. Publication of the research findings as an original full paper (not case reports) in a peer-reviewed journal (preferably indexed) with the trainee as first author. No further evaluation is required on the premise that a paper which is already peer-reviewed.
2. Submission of a detailed project report to the BOS. A generic format for such project reports is shown in [Annex 21](#). This should be evaluated by two assessors nominated by the BOS, and marked as either satisfactory, or unsatisfactory based on the marking scheme given in [Annex 22](#). The completed report with approximately 6000 - 8000 words prepared as described in Annex 18 should be submitted to the PGIM at least three (03) months before the closing date of the applications for the MD Examination.
  - a. If the project is considered unsatisfactory by both assessors, the trainee will be requested to revise and resubmit, with written feedback on the required revisions. If the project report is still unsatisfactory, the trainee may, at the discretion of the BOS, be asked to extend the same research project or undertake a new research project which will have to go through the same procedure of approval as the initial project.
  - b. If there is disagreement between the two assessors, with only one assessor's decision being 'unsatisfactory', the project report should be sent to a third assessor for a final decision.
  - c. Presentation of the research findings at a recognized scientific congress, either local or international, as oral or poster presentation, with a published abstract, with the trainee as first author, would be given credit during the assessment process.
  - d. Acceptance of the research project (as specified in one of the above manner) will be a prerequisite to sit for the MD examination.

**For further details consult the “Generic Guidance to Boards of Study/Specialty Boards for Evaluation of Research Proposals for MD Programmes 2015”**

## **12 Pre MD rotational appointments**

See [Annex 23](#) for the format of the progress report.

## **13 Eligibility to sit for the MD Forensic Medicine examination**

Eligibility criteria to sit for the MD Forensic Medicine examination are;

1. Satisfactory completion of three years training in all components of the in-service training programme.
2. Satisfactory progress reports acceptable to the BOS.
3. Satisfactory Peer team ratings (4) acceptable to the BOS.

4. A duly completed training portfolio accepted by examiners.
5. Satisfactory completion of “LOG BOOK” (included –in Training Portfolio) containing record of work carried out and signed by supervisor/trainer.
6. Satisfactory professional conduct and attendance during training period certified by the trainers (80% attendance at both in-service three year training appointment and training course).
7. Acceptance of the research project or journal publication.
8. Obtain the minimum marks required for all components of the Continuous Assessments.

#### **14 Format of the MD Forensic Medicine summative examination**

The **MD Forensic Medicine** examination shall have the following four components. They are the written component, the clinical component, OSPE, and the histopathology component.

##### **14.1 Written component [300 marks]**

This will consist of two papers.

##### **14.1.1 Multiple Choice Question (MCQ) Paper of Two hours[150 Marks]**

There shall be 20 questions of true/false type, 15 Single Best Answer type, and 15 Extended Matching Items type.

**True/false type MCQ will carry +5 marks, SBA will carry +3 marks and each item in the EMQ will carry +4 marks.**

In a True / False type MCQ, (five responses) each correct answer shall score +1, wrong answer shall score –1 or if not attempted shall score 0. Negative marks will apply within the question and will not be carried forward.

In a SBA type question (five responses) a correct answer shall score +3, a wrong answer or if not attempted shall score a 0.

In the Extended Matching Questions (EMQ), each correctly answer item shall score +4 marks, incorrectly answered or not, attempted items shall score a 0.

Total Final mark for Multiple Choice Questions shall be calculated out of 150.

##### **14.1.2 SEQ paper of three hours[150 marks]**

There shall be six questions in the SEQ paper and will last for 03 hours. Each question will be independently marked out of 100 by two examiners, and only multiples of 05 marks will be allocated. The mark for each question will be the average of two marks given by the 02 examiners based on a pre-determined 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. Total final mark shall be calculated out of 150.

## **14.2 Clinical component (150 marks)**

**Each candidate will be allocated one long case and four short cases.**

### **14.2.1 Long case (altogether 60 minutes) (100 marks including 25 marks for report)**

- a. (25 minutes for history and examination)
- b. additional 15 minutes for preparation of complete MLR.
- c. 05 minutes for general presentation at the bedside (without detailed descriptions)
- d. Sit down discussion which may be held **away from patient** 15 minutes for discussion.

The clinical long case should have not more than six injuries to be described in detail. If there are more than six injuries, those additional injuries should be examined, taken into account for interpretation, opinion formation, report writing and discussed during discussion time, but not described in detail.

### **14.2.2 Short cases [Total 50 marks]**

This consists of four short cases with 8 minutes for each (05 minutes each for examination, 03 minutes for presentation of each case, altogether 32 minutes for the four short cases). No report writing is required.

Short case should not be geared to detailed injury descriptions but to

1. Identify problems in a given amount of time
2. Prioritize problems and managing them within a given time. It may also be used to

“Spotdiagnose” a given injury or finding.

## **14.3 Objective structured practical examination(OSPE)(150 MARKS)**

Several examination tools could be used for the OSPE ranging from photographs, reports, specimens, instruments, projected slides, simulated patients or any other deemed appropriate by the Board of study. There shall be 18 stations [including below described case scenarios, simulated patients etc.] and with minimum of 6 minutes a station No 1 – 15 [Total 90 out of 150 marks]. In case a station is used to assess clinical skills using a simulated patient [maximum five] to assess a specific skill etc., 12 minutes may be utilized for that station. [Total time allocation for stations 1 – 15 is 90 to 120 min] Such station will have two examiners marking at the station itself, and will be independently marked out of 100 by the two examiners.

The mark for each station will be allocated out of 100 and will be the average of the two marks given by the two examiners based on a 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 station, the two examiners will discuss and arrive at an agreed mark.

The stations 16 – 18 with allocation of one hour, would be devoted for eliciting scientific reasoning, clinical judgement, decision making and comprehensive opinion formation

using autopsy reports/photos/scene visit observations /history/investigation findings/histopathology or any other tool – to assess opinion formation with 03 scenarios. 60 marks out of 150 (Total) will be allocated for this portion.

#### 14.4 Histopathology examination [100 MARKS]

Ten (10) Histopathology slides will be given for examination and a report written for a duration of one hour. A Histopathology viva would be held for a minimum of 20 minutes based on the examination findings and the report.

#### 14.5 Requirements to pass the MD Forensic Medicine examination

In order to pass the MD Forensic Medicine examination, a candidate must obtain

- (A) An overall mark of 350 (50%) or more out of 700, and
- (B) 150 or more out of 300 marks for the written component, and
- (C) 75 or more out of 150 marks for the clinical component, and
- (D) 60 or more out of 150 marks for the OSPE and
- (E) 40 or more out of 100 marks for the Histopathology examination.

Table indicates the minimum marks to pass

Component	Total Marks	Minimum to pass
Written papers (MCQ & SEQ)	300	150
Clinical (long case and four short cases)	150	75
OSPE	150	60
Histopathological examination	100	40
<b>And obtain an overall total of 350 or more out of the total of 700</b>		

#### 15 Repeat candidates and repeat attempts

Candidates who are unsuccessful at the examination shall attempt the next scheduled examination.

A candidate who has obtained an overall mark of 350 (**50% of 700**) or more for the examination, but has failed the examination because he / she has not obtained the requisite minimum mark for not more than two components of the examination, shall be permitted to attempt only the failed component(s) at the next scheduled examination.

In such a case, the total mark shall be calculated using the marks obtained for the successful components, along with marks from the repeated component(s). A candidate shall be given this concession for only one repeat attempt. In the event that a candidate does not pass in this attempt, the candidate shall be required to sit for the entire examination again on the next occasion.

## **16 Post MD Training and Board Certification**

The post MD training shall consist of 12 months of training in Sri Lanka as a Senior Registrar, and 12 months of training at a recognized centre overseas, approved by the PGIM. The 12 months of local training may be done en-bloc prior to overseas training or in two blocks of six months each, before and after the overseas training.

Subsequent to successful completion of the MD in Forensic Medicine a trainee shall opt for post MD training in one of the following areas.

1. Forensic Medicine
2. Forensic Medicine with Special interest in Clinical Forensic Medicine
3. Forensic Medicine with Special Interest in Forensic Toxicology
4. Forensic Medicine with Special Interest in Forensic Paediatric Perinatal Pathology
5. Forensic Medicine with Special Interest in Forensic Histopathology
6. Forensic Medicine with Special Interest in Forensic Anthropology

Successful completion of the post MD training programmes shall lead to board certification as a specialist in one of the above areas.

## **17 Broad Learning Outcomes for Post-MD Training (Local& Overseas)**

The outcomes of the post MD training were defined based on the PGIM outcomes for post-MD training and the descriptors of level 12 of the Sri Lanka Qualification Framework [SLQF] 2015. The trainees shall be able to demonstrate competencies in the following areas.

1. Subject expertise, practical knowledge and application
2. Ethics and medico-issues
3. Teaching
4. Research and audit including creativity and problem solving
5. Information technology
6. Life-long learning and vision for life
7. Communication
8. Professionalism
  - 8.1. Attitudes and values
  - 8.2. Teamwork & Leadership

### 8.3. Managerial and Entrepreneurship

### 8.4. Networking and social skills

### 8.5. Adaptability and flexibility

The above are applicable for all post MD training programmes; i.e. training in Forensic Medicine as well as training in areas of special interest. The learning outcomes 1 to 3 are specifically defined for each programme and learning outcomes 4 – 8 are common to all six programmes.

## 18 Objectives for post MD training (overseas)

**18.1** The overseas training programme should be structured so as to provide the trainee with an overview of forensic pathology and clinical Forensic Medicine practiced in the Hospital / training institute. The training period should also be used to augment local training. As Forensic Medicine services in Sri Lanka have resource limitations, the overseas training period should provide exposure to, if possible hands-on experience in the following areas:

- Forensic Pathology services and crime scene investigations
- Clinical Forensic Medicine services
- Medical Evidence in a Court of Law
- Forensic toxicology, anthropology, histology, etc.
- Further special interest training and specific practical training modules, E.g.: use of automated analyzers and interpretation of results, DNA profiling etc. according to subject area of special interest [ if opted]

**18.2** During the overseas training period the trainee should:

- Develop specialist abilities or appreciate specialist abilities through observation of how forensic pathology or clinical forensic services are conducted in the country of training. The training should include how to examine, investigate, record findings, analyze and form opinions as an expert in Forensic Medicine to courts.
- Gain further knowledge and experience, be familiar with modern technical advancements, and apply this in future professional practice.
- Develop abilities to function as an expert witness in a court of law by observing oral evidence being given
- Develop the ability to critically evaluate the medico-legal system in the country of training and adopt/advise policy makers on appropriate resource development /standards for Sri Lanka.
- Observe and appreciate how standard operational procedures (SOP) and guidelines are used to improve the managerial skills of the team.
- Observe and appreciate good practices on how forensic services are delivered including ethical practices

## 19 Scheduled Post MD training activities

The local post MD training programme is mainly an in-service training programme with scheduled training activities conducted by the BOS in Forensic Medicine to facilitate the trainee to submit the Post MD portfolio. Scheduled training activities are given in the table below;

No	Type of activity	Training month	Trainees duties
1.	Half day awareness workshop on Post MD portfolio duties and responsibilities of trainees and trainers and appointment of mentors	1 <sup>st</sup> Month	Participation and discussion
2.	Discussion on opinion formation to the courts	2 <sup>nd</sup> Month	One PMR and one MLR should be brought for discussion
3.	Workshop on how to write a case report/ audit / research to a journal	3 <sup>rd</sup> Month	A draft should be brought by the trainee
4.	Practical training session on Histopathology	4 <sup>th</sup> Month	Slides prepared during training period should be brought for learning
5.	Hands on practice on reflective report I	5 <sup>th</sup> Month	A draft of the reflective event should be brought by the trainee
6.	First Review of the progress of the portfolio by mentors	6 <sup>th</sup> Month	Portfolio in progress should be brought for viewing
7	Practical training session on Histopathology	7 <sup>th</sup> Month	Slides prepared during training period should be brought for learning
8	Hands on practice on clinical audit report	8 Month	Audit findings/ draft should be brought for viewing
9	Hands on practice on reflective report II	9 <sup>th</sup> Month	A draft of the reflective event should be brought by the trainee
10	2 <sup>nd</sup> review of the progress of the portfolio by mentors	12 <sup>th</sup> Month	Portfolio in progress should be brought for viewing
11	Periodic training sessions on anthropology, toxicology, sexual assault medicine, custodial medicine, neonatal pathology etc. organized by the course coordinator	1 <sup>st</sup> to 12 <sup>th</sup> Month	Prepare reflective notes and discuss with the supervisor and appropriately include them into final portfolio document



12	Periodic joint sessions on use of recent scientific advancements and technologies in medico-legal practice	Every three months - face to face and distant learning modules	Learning outcome should be incorporated into portfolio
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Post MD local training programme is mainly an in-service training with scheduled training activities where the trainee will attend to the duties of a senior registrar under a specialist who has more than three years of experience following Board certification. The training will be conducted in two parts; i.e. six months of training in a peripheral unit approved by the BOS and six months in a unit approved by BOS for MD training where he/she has not worked before. In a case of special interest training, 50 % of the training attachments [both local and overseas] shall be done in a specialized unit keeping with the special interest area. The remaining portion of the training can be followed at general Forensic Medicine units. During the two year post MD training period, progress reports have to be submitted as specified by the PGIM based on the format shown in [Annex24](#). During the entire period of post MD training the trainee shall maintain a portfolio as described below. Certification of satisfactory completion of local and overseas training should be forwarded to the Director, PGIM by the respective supervisors within one month of completion of training.

## 20 Post MD training in Forensic Medicine

Post MD training programme intends to develop professional skills and attitudes of a trainee, especially those related to decision making and management, to successfully meet the learning outcomes described by the SLFQ descriptors relevant to highest level of educational qualifications. Field of Forensic Medicine consists of a vast spectrum of subject areas including clinical aspects, forensic science, law, osteology, histology etc. that has to be mastered by the trainee in order to function as a specialist. The trainees opting for Board certification as a specialist in Forensic Medicine are required to undergo post MD training in Sri Lanka and overseas, covering all the specialty areas, under the supervision of a trainer. Learning outcomes of the training programme are given in [Annex 25](#).

## 20.1 Post MD training in Forensic Medicine with a special interest

The course leading to an MD in Forensic Medicine covers a wide range of subspecialties in an ever expanding discipline. Due to the nature of developments in the field, the limitations placed on course duration and the pressure to provide high quality evidence to court it has become necessary to identify areas in the discipline which require in depth training. Since precision and accuracy are key in the provision of medico- legal expertise it would be beneficial to consider further training in important areas in Forensic Medicine. The identification of such specialties are based on the needs of the judicial system of the country. It has to be clarified that training in areas of special interest is considered as specifically oriented training in addition to training in general aspects of Forensic Medicine.

Following selection to the programme the trainee would receive 06 months of training in general Forensic Medicine and further 06 months in the special interest stream in Sri Lanka as a Senior Registrar (in-service training under an expert / specialist), and minimum of 06 months of overseas training in special interest stream out of the one year overseas training at a recognized centre, approved by the PGIM.

## 20.2 Curricula of special interest training

The trainees attached to special interest streams should adhere to specific learning outcomes 1- 3, in relation to subject expertise, ethics and research/ clinical audit. As some of the training facilities are not available in Sri Lanka, especially those special interest modules associated with modern technologies, trainees are expected to follow these subject learning modules during their overseas attachment. The intended learning objective 4 – 8, with special reference to respective subject areas, are commonly shared with all other trainees.

The trainees are advised to give specific attention to their special interest areas while preparing narratives and reflective notes in the portfolio.

Trainees may select one of the following special interest areas and the learning objectives are given in the respective annexes.

### i. Clinical Forensic Medicine ([Annex 26](#))

### ii. Forensic toxicology ([Annex – 27](#))

iii. Forensic histopathology ([Annex – 28](#))

IV. Forensic paediatric and perinatal pathology ([Annex – 29](#))

v. Forensic anthropology ([Annex – 30](#))

### **20.3 Selection for training and number selected**

Any applicant who fulfils the above criteria will be considered as eligible for entry to the special interest area training programme. Available training opportunities will be indicated by the PGIM in the public circular calling for applications. The number of training slots will be pre-determined each year by the Board of Study in Forensic Medicine considering the national requirement. Selection would be based on performance/ merit position at the MD examination in Forensic Medicine.

### **20.4 Monitoring progress**

During the two year post MD training period, progress reports have to be submitted as specified by the PGIM based on the format shown in [Annex 31](#).

Certification of satisfactory completion of local and overseas training should be forwarded to the Director, PGIM by the respective supervisors within one month of completion of training.

### **20.5 Portfolio**

The portfolio, prepared in accordance with the PGIM guidelines, shall contain

- Document of self-introduction and Document on mission and vision as a specialist in Forensic Medicine
- Reports on reflective learning related to the learning outcomes and their supportive documents.)
- Details of the preparation of the portfolio are given in [Annex 32](#).

**Three copies of the portfolio and an e-copy in a CD should be submitted for assessment within a month of completion of local and overseas training.**

## **21 Details of pre-board certification assessment (PBCA)**

A trainee who has fulfilled the following criteria shall apply for pre-board certification assessment within one month of completing such criteria.

- Passed the MD Examination
- Completed one year local and one year overseas training in units approved by the Board of Study.

- A letter of satisfactory completion of local training of 1<sup>st</sup> 6 months
- A letter of satisfactory completion of local training of 2<sup>nd</sup> 6 months
- A letter of satisfactory completion of overseas training
- Two (02) progress reports from local training at 5 and 11 months of training.
- Four (04) progress reports from the overseas supervisor appointed by the Board of Study, at 3,6, 9, and 12 months of training.

Pre-board certification assessment consists of submission of a portfolio prepared according to PGIM guidelines, Post MD Portfolio assessment and a viva voce examination on the portfolio. Candidate shall score 500/1000 marks to pass the final assessment. Details of the marking scheme are given in [Annex 33](#).

Upon completion of the prescribed period of post-MD training, the trainee should apply to the PGIM for Board Certification in Forensic Medicine, together with the completed portfolio with documentary evidence of the work undertaken by him / her during the period of local and overseas training within one month of the completion of such training.

The portfolio will be assessed prior to the portfolio viva by a panel of 03 examiners i.e. two from Forensic Medicine and one from outside the specialty appointed by the BOS/Board of Management and Senate. The assessment will be done using the following rating scale on a marking grid to assess whether the trainee has achieved the expected outcomes stipulated by the BOS.

The trainee will also be required to make an oral presentation (10-15 min) to the Board of Study regarding his / her post-MD training (local and overseas).

### **Repeat assessment**

A trainee who could not pass the assessment in the first attempt will be given a feedback on the deficiencies noted in the portfolio. In such a case the necessary corrections and amendments have to be made by the trainee and the portfolio submitted to the same panel of examiners for a second evaluation. If the candidate passes the assessment within minimum of 3 months and maximum of 6 months, the date of the Board Certification will remain as to the original date of board certification i.e. two years after passing of the MD Examination.

If not able to obtain a 'pass' at the repeat assessment, the trainee has to undergo further training of 3 months stipulated by the Board of Study under a supervisor and re-submit the portfolio for re-evaluation. The effective date of board certification in this event will be according to the rules and regulations of the PGIM.

## **22 Suggested reading material and other resources (selected)**

### **Text books and reports**

1. Kumar V, Abbas A and Fausto N. Robbins and Cotran Pathological Basis of Disease. Elsevier Saunders
2. Byard RW. Sudden Death in Infancy, Childhood and Adolescence (Cambridge
3. Di Maio VJM. Gunshot Wounds: Practical Aspects of Firearms, Ballistics, and Forensic Techniques. CRC Press Inc.
4. Di Maio VJM, Di Maio D. Forensic Pathology CRC Press Inc.
5. Dolinak D, Matshes EW. Medicolegal Neuropathology: A Color Atlas. CRC Press
6. Drummer OH, Odell M. The Forensic Pharmacology of Drugs of Abuse Arnold Publishing
7. Henssge C, Knight B, Krompecher T, Madea B and Nokes L (eds). The Estimation of the Time since Death in the Early Postmortem Period, Arnold Publishing.
8. Karch SB. Karch's Pathology of Drug Abuse, CRC Press
9. Krogman WM, Iscan MY. The Human Skeleton in Forensic Medicine. Springfield, Ill: Charles C.Thomas.
10. Mason JK, Purdue BN. The Pathology of Trauma, Arnold Publishing
11. Payne-James J, Busuttil A, Smock W (Eds). Forensic Medicine: Clinical and Pathological Aspects. London: Greenwich Medical Media Ltd
12. Payne-James J, Byard R, Corey T, Henderson C. Encyclopedia of Forensic and Legal Medicine.4 Vols. London: Elsevier.
13. Ranson D. Forensic Medicine and the Law: An introduction. Melbourne: Melbourne University Press
14. Saukko P, Knight B. Knight's Forensic Pathology, Arnold Publishing.
15. Vanezis P. Pathology of Neck Injury. Butterworths.
16. Vanezis P, Busuttil A (Eds). Suspicious Death Scene Investigation. Arnold
17. Burton J, Rutty G. The Hospital Autopsy. Arnold
18. Cummings PM, Trelka DP, Springer KM. Atlas of Forensic Histopathology. Cambridge Medicine
19. Wheater PR, Burkitt HG, Stevens A, Lowe JS. Basic Histopathology. A Colour Text and Atlas.Churchill Livingstone
20. Wheater PR, Burkitt HG, Daniels VG. Functional Histology. Churchill Livingstone
21. Dolinak D, Matsches E, Lew E. Forensic Pathology. Principles and Practice. Elsevier
22. Janssen W. Forensic Histopathology. Springer-Verlag
23. Ellenhorn MJ. Ellenhorn's Medical Toxicology. Williams & Wilkins

## *Journals*

### ***Local peer reviewed Forensic Medicine journals in Sri Lanka***

#### ***International journals (selected)***

American Journal of Forensic Medicine & Pathology  
Journal of Forensic Sciences  
Forensic Science International  
Academic Forensic Pathology  
Journal of Forensic and Legal Medicine  
Medicine, Science and the Law  
Journal of Forensic Science, Medicine and Pathology  
Forensic Science Abstracts

#### ***Conferences (selected)***

Annual Scientific sessions of the College of Forensic Pathologists of Sri Lanka  
Annual Scientific sessions of the Medico – legal Society of Sri Lanka  
Annual Scientific sessions of the Sri Lanka Medical Association

## **23 Acknowledgements**

This curriculum has derived some formats for the training and evaluations from the Gynaecology and Obstetrics curriculum 2013. The learning outcomes were constructed using the CanMEDS physician competency framework as a model. Other formats used are curriculum handbooks of Departments of Forensic Medicine, Faculty of Medicine Colombo and Faculty of Medical sciences Sri Jayewardenepura, King County Medical Examiner's Office, Forensic Pathology Fellowship Training Programme assisted by Medical Examiner Dr. Richard Harruff.

## **24 The Prospectus development sub-committee**

Dr. Jean Perera – Former Chairperson Curriculum subcommittee and Chairperson Board of study

Dr. P.R. Ruwanpura – Chairperson of Board of Study

Dr. Indira Kitulwatte - Convenor of subcommittee and secretary Board of study

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Prof. PAS Edirisinghe – Co-Chair, subspecialty development committee

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Clinical Forensic Medicine-Professor Muditha Vidanapathirana, Dr. Amal Vadysinghe, Dr. SMHMK. Senanayake, Dr. Prabath Senasinghe

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Forensic Paediatric and Perinatal Pathology- Dr. Dinesh Fernando, Dr. Jayantha Herath, Dr. P. Mapalagama

Forensic Anthropology - Dr. Clifford Perera (Coordinator), Dr. Asela Mendis, Dr. Ajith Jayasena, Dr. Sameera Gunawardene

Contributions to histopathology curriculum. Initial documents - Prof. Niriellage Chandrasiri and Dr. L.B.L. de Alwis. Revised 2010-11, by Forensic Histopathology subcommittee with Dr. Ananda Samarasekara as Chairman Board of study. Other contributors - Dr Clive Cooke, Chief Pathologist Forensic Services, Queen Elizabeth II Medical Centre Western Australia, Prof Pollanen Chief Forensic Pathologist Ontario, Canada, Certificate Diploma in Forensic Medicine, Royal College of Pathologists Australia, January 2007.

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Post MD training, portfolio and Log book prepared by Prof. Anuruddhi Edirisinghe and reviewed by Dr. Dinesh Fernando, Dr. Rohan Ruwanpura and Dr. Muditha Vidanapathirana.

Special acknowledgements – Prof Jayantha Jayewardene, former Director PGIM for guidance in initial stages.

## **Annex 01 Curriculum for the selection examination**

Candidates should have a basic undergraduate knowledge on the following

### **1. Anatomy**

Organization and structure of the cell and its organelles.

Anatomy of the skull, brain and 105coverings and spinal cord

Anatomy of the chest wall and cavities, upper and lower respiratory tracts, lungs and pleura

Anatomy of the Heart and cardiovascular system

Anatomy of the Neck and structures

Anatomy of the skeletal system

Anatomy of the neck muscles, and other muscles commonly subjected to trauma

Undergraduate knowledge peripheral nerves commonly subjected to trauma

Anatomy and physiology of the cardiovascular, respiratory, central nervous gastrointestinal, genitourinary and reproductive systems

Genetics - DNA profiling and uses in medicolegal work

### **2. Physiology and Biochemistry**

Distribution and composition of body fluids. Principles of fluid and electrolyte and acid-base balance.

Methods of measurement of clinically important physiological variables.

Physiology of wound healing.

Cardiovascular, respiratory, urinary and gastrointestinal physiology. Basis of assessment of cardiovascular, respiratory, hepatic and renal functions.

Electrolyte imbalance and fatality

### **3. Pathology Pharmacology**

Trauma, infection, inflammation, necrosis and healing of tissues.

Shock, infarction, renal failure.

Sepsis – localized and general - e.g. septicaemia.

Causes and effects of cell damage.

Types of pneumonia and pneumonitis

Causes and diagnosis of pulmonary oedema

Basic knowledge regarding types, appearances, and prognosis in common types of embolisms

Atherosclerosis and Thrombosis

Massive Liver cell necrosis

Peptic ulcers and complications

Fatal infections of the GIT

Fatal infections of the genitourinarytract (GUT)

Basic drug interactions with fatality



Anaphylactic shock

Routine drugs used in common diseases

Drugs of abuse and their effects

Fatal side effects of drugs

#### 4. Medicine, surgery, Gynaecology and Obstetrics

Presentations in GIT, GUT, cardiac and respiratory emergencies

Presentations in CNS emergencies

Prognosis of intracranial haemorrhages

Hypovolemic shock, septicaemia

Diagnostic principles of complications of trauma

Signs of chronic alcohol abuse

Common causes of maternal deaths

#### 5. Psychiatry

Mental state examination

Alcohol and drug abuse

Suicides

Mental health legislation

Forensic psychology and psychiatry

#### 6. Paediatrics

Child abuse- mental, physical and sexual

#### 7. Microbiology

Fatalities following bacterial, viral and fungal infections and the microorganism involved

Sexually transmitted diseases following sexual abuse

#### 8. Biochemistry and Molecular Biology

Structure and function of normal cell.

Proteins, peptides, amino acids.

Structure of DNA molecule

#### 9. Forensic Medicine

Definitions, appearance, complications of basic injuries

Certification of death

Inquest procedure

Medicolegal aspects of regional injuries

Post-mortem examination - procedures, samples

Changes after death (and time since death),

Medicolegal aspects of child abuse

Common causes of sudden natural death and their appearances

Basics of scene of crime exams

Basics of mass disaster investigation

Examination for drunkenness

Examination of victims of sexual offences and torture

Diagnosis of violent deaths e.g. Blunt trauma, asphyxia, firearm deaths, sharp weapon trauma

Medicolegal aspects of death due to drowning

Common poisoning deaths

Medicolegal aspects of abortion

Basic medical ethics, (consent, confidentiality etc.) medical negligence,

## **Annex 02 Curriculum for MD in Forensic Medicine**

The curriculum described in this section is the framework for systematic training in Forensic Medicine and Forensic Pathology.

### **Learning Objectives**

**On completion of the MD (Forensic Medicine) programme the trainee must have acquired and be able to demonstrate:**

1. Proficiency of autopsy techniques needed in the pathological investigation of deaths requiring medico-legal scrutiny, in all age groups involving all organ systems and in all states of preservation to the standard expected of a specialist in Forensic Medicine.
2. Proficiency of techniques of history taking, examination, recovery of forensic samples and ability of holistic management of clinical medico-legal cases to the standard expected of a specialist in Forensic Medicine.
3. excellent theoretical knowledge both in basic bio-medical sciences relevant to the field of Forensic Medicine and Forensic Medicine to perform independently as a specialist in Forensic Medicine
4. Proficiency in evaluation and recording of death scene, examination of the body in situ and the retrieval of evidence to the standard of a specialist in Forensic Medicine.
5. The ability to provide evidence impartially, justifying any opinion given from a balanced interpretation of cited medical literature and validated experience as an expert and specialist in Forensic Medicine.
6. ability to be able to work within the judicial system giving appropriate consideration to process, continuity and disclosure
7. Ability to write comprehensive medico-legal reports after proper evaluation and interpretation of evidence both in autopsy and clinical Forensic Medicine examinations to the standard expected of a specialist in Forensic Medicine.
8. eagerness to engage in continued professional development including engagement in reflective practice, life-long habit of reading, literature searches, consultation with colleagues, attendance at scientific meetings and presentation of scientific work.
9. Understanding and practical experience of clinical governance and audit (specialist and multidisciplinary) through evaluation of practice against the standard of evidence based medicine.
10. Ability to appreciate the unpredictability, complexity and uncertainty of the practice of Forensic Medicine and the value of professional judgment (2).

(Professional clinical judgment establishes medical reasonableness; a technically possible form of diagnostic or therapeutic management that is reliably expected to result in a greater balance of clinical good over clinical harm for the individual patient. These forms of clinical management set the standard of care. The physician has a legal—and also ethical—obligation to present to the patient all of the medically reasonable alternatives

for the management of the patient's condition, but determining what is medically reasonable is a function of expert, deliberative clinical judgment.)

11. Good working relationship with colleagues, other specialists (consultants), Inquirers, Magistrates, Prosecutors, lawyers, other forensic scientists and police.
12. Appropriate communication skills in dealing with patients, relatives, politicians, other government officials, media and the general public
13. Ability to work as a leader and member of a team with colleagues, other specialists, forensic scientists, police and others.
14. Management skills to run an effective and efficient forensic medical unit/department in a hospital.
15. Knowledge skills and attitudes to act in professional manner suitable for a specialist in Forensic Medicine at all times.
16. Knowledge, skills and behaviour to provide appropriate teaching and to participate in effective research to underpin forensic medical practice as a specialist in Forensic Medicine.
17. Ability to maintenance of records and statistics up to date in an acceptable standard.
18. Knowledge, skills and behaviour regarding the importance of health and safety at all times when working in the field, mortuary and the examination room.
19. Knowledge of the role played by the specialist in Forensic Medicine in health promotion and disease prevention.
20. Knowledge and value of basic medical education principles, learning/teaching models, reflective practice, learning in practice and various formative methods of assessment such as portfolio, Workplace Based Assessments including Directly Observed Practical Skills (DOPS), Case based Discussions (CbDs), Evaluation of Clinical Events (ECEs) and Multisource Feed Back to successfully complete the MD programme and become a specialist in Forensic Medicine. ( assessed during the formative assessments)

### **Learning outcomes**

#### **Learning Outcomes expected through the above objectives**

1. Holistic medico – legal management
2. Theoretical knowledge
3. Clinical skills
4. Scientific reasoning
5. Issuing a quality report
6. Expert medical witness
7. manager(includes communicator, collaborator, leader, team player)
8. Researcher and scholar
9. Ethics and professionalism
10. System based practice

**Specific learning outcomes identified under the Different intended learning outcomes.**

**1. Holistic medicolegal management**

**The ability to work within the judicial system giving appropriate consideration to process, continuity and disclosure (2)**

1. Obtain information from relatives, perform a standard post-mortem investigation in all types of deaths including natural, and unnatural – namely – suicide, accident, homicide deaths, and deaths associated with occupational hazards and negligence
2. Knowledge, skills and behaviours regarding the importance of health and safety at all times when working in the field, mortuary and the examination room.
3. Describe and explain the ethical principles of, respect for autonomy, beneficence & non-maleficence, justice and equity.
4. Understand the principles and legal issues surrounding informed consent.
5. Understand that consent is a process that may culminate in, but is not limited to, the completion of a consent form.
6. Give appropriate information and conduct a consultation to obtain consent in a suitable setting and at a suitable time.
7. Obtain consent in a manner that patients and relatives understand.
8. Assess their comprehension having considered the patient's and the relatives'/careers' level of understanding and mental state and the patient's needs as an individual.
9. Adopt a patient-focused approach to decisions that acknowledge the rights, values and strengths of the public.
10. Respect a patient's rights of autonomy even in situations where their decision might put them at risk of harm.
11. Keep within the scope of authority given by a competent patient.
12. Outline the procedures for seeking a patient's consent for disclosure of identifiable information.
13. Recognize the problems posed by disclosure in the public interest, without patient's consent.
14. Decide when to involve social services/police, and how to do so.
15. Act with compassion at all times.
16. Be an empathetic listener towards victims, caregivers, and other personnel coming into contact with trainee
17. Abide by the professional, legal, and ethical codes of the Geneva Declaration, Sri Lanka medical council
18. Understand prejudice and preferences within self, others, society and cultures.
19. Ensure physical comfort and provide emotional support
20. Be a communicator who is culturally, ethnically sensitive
21. Encourage and legitimize patient's participation in appropriate medico-legal management decisions, and involve family and care givers e.g. In child abuse and sexual abuse by care givers(1)
22. Possess a advanced knowledge in medical ethics

23. Possess an understanding of the overview of the medico - legal management in clinical and autopsy work inclusive of prevention
24. Be ready to use evidence based guidelines(1)
25. Use technology for victim management(1)
26. Monitoring of victim status(1)
27. Plan and execute management under headings described above.
28. The ability to practice evidence based medicine
29. The experience to make clinical decisions regarding medico legal management
30. Practice multidisciplinary management where relevant e.g. Child abuse management, sexual abuse, gender based violence, torture, maternal deaths, postoperative deaths,
31. Be able to review one's own cases with colleagues and practice quality assurance
32. Practice according to national and international guidelines related to medicolegal service

### **1.1 Referrals**

1. referrals to forensic practitioners for second opinions, to other clinicians and also non-medical personnel e.g. For counseling etc. – know when to refer, what to refer and modes of referrals
2. ability to appropriately refer cases and investigations to a more experienced colleague for specialist/second opinion
3. Be able to ensure patient's best interests without compromising impartiality
4. Ability to write a referral note in a professional manner

### **1.2 IT**

1. The Trainee should be able to:
2. Search medical literature using PubMed, Medline, and WHO RHL on the Internet.
3. Use IT for patient care and for personal development.
4. Use databases, word processing techniques, statistical programmes and electronic mail.
5. Adopt a proactive and enquiring attitude towards new technology.
6. Understand the principles and be able to use computing systems for data collection, storage, retrieval, analysis and presentation.
7. Maintain confidentiality of data collected.
8. Be able to prepare documents and presentations using appropriate computer software
9. Be able to communicate using modern electronic technologies

### **1.3 Ancillary investigations**

1. Be able to perform a standard crime scene investigation and provide direction to teams and be a member of a team in suspicious deaths and other crimes against the person.
2. Describe principles of trace evidence management.
3. Be able to collect pack, label, store and dispatch maintaining chain of custody, the relevant samples for forensic radiological, toxicological, histopathological,

biochemical, microbiological, serological immunological, entomological investigations etc. according to standard protocols in a given medico legal case.

4. Be able to interpret the results of above and compile reports to courts including all other expert reports
5. Be able to instruct and direct police, inquirers regarding ancillary investigations e.g. DNA profiling

#### **1.4 Maintenance of records and statistics**

1. Ability to maintain records and statistics up to date in an excellent standard.
2. Be knowledgeable on record keeping and maintain proper registers in order to retrieve reports with ease
3. Keep records concisely, accurately and legibly, and protect and keep the data confidentially.
4. Maintain statistics in the unit for research and audit purposes
5. Be aware how to maintain a medicolegal database

## **2. THEORETICAL KNOWLEDGE**

Excellent theoretical knowledge both in basic bio-medical sciences relevant to the field of Forensic Medicine and forensic pathology to perform independently as a master in Forensic Medicine

### **2.1 Basic Science**

1. In-depth knowledge in the basic sciences related to trauma and its complications, sexual abuse and other clinical situations of Forensic significance, causation of death in sudden natural and unnatural deaths
2. Anatomy of the male and female external genitalia.
3. Basic physiology of reproduction
4. Comprehensive knowledge of Anatomy of scalp, skull, membranes, and brain structures
5. Comprehensive knowledge of the cut sections of the brain appropriate for interpretation of morbid anatomy findings
6. Comprehensive knowledge of the anatomy and physiology of heart and lungs for interpretation of morbid anatomy findings and understand and give evidence in courts
7. Basic knowledge in anatomy/physiology/pathology and other medical subjects relevant to medico legal work at the level of a master in Forensic Medicine
8. Comprehensive knowledge of the anatomy and physiology and pathophysiology of disorders related to all systems with special emphasis on CVS, CNS.

### **2.2 Clinical Forensic Medicine**

1. Comprehensive knowledge regarding the sexual development and variations of genital appearance in female and males and Tanner staging
2. Comprehensive insight into causation, findings, complications of gender based violence

3. Comprehensive knowledge regarding the sexual assault forensic examination and recent developments in the field as well as victim centred and multiprofessional management
4. Be knowledgeable about Workmen's compensation, assessment of disability and impairment

### **2.3 Law**

1. Comprehensive knowledge of the medico – legal framework of the country, different types of courts and their functions and the role of the doctor as an expert witness.
2. Describe and interpret relevant sections of legal documents such as the Penal code and criminal procedure code, court procedures, documentation and understand its relevance in medico - legal problems that are routinely encountered.
3. Comprehensive knowledge of the Law relating to sexual offences, homicide, abortion, hurt, relevant sections in the motor traffic act and workmen's compensation act, and all other relevant laws
4. Comprehensive knowledge on legal aspects of medical negligence and the doctor's role when negligence is suspected
5. Be updated on new laws that come into practice and know the means of being updated

### **2.4 Medico - legal aspects of Trauma**

1. An in-depth knowledge and understanding (able to describe) of the characteristic features, mechanisms of causation and medico legal significance and sequel of different types of injuries and other forms of violence.
2. Be able to analyze the current knowledge and add to the literature
3. Describe in a standard manner, the different patterns of injury in the living and the dead and reconstruct the event and give independent opinions
4. Understand and describe the different categories of injury
5. Discuss the medico legal aspects (causation, categorization, complications like embolism, cause of death, degree of force, volitional activity and other opinions) of head, neck, and thoracic, abdominal, limb, spinal, genitourinary and other injuries.
6. Discuss the difficulties in expressing opinions in multisystem injuries
7. Discuss the complex pathophysiology of septicaemia systemic inflammatory response, disseminated intravascular Coagulation, renal changes following trauma, acute respiratory distress syndrome, rhabdomyolysis and effects, HELLPs, and their aggravation by natural disease, and other relevant applications of pathology in medicolegal work.
8. Occupational hazards and their injuries/pathophysiology and complications
9. Any other traumatic events needing medico legal expertise

### **2.5 Special topics in trauma**

1. Describe the spectrum of conditions seen, legal aspects, methods of detection and holistic management of Domestic violence, gender based violence
2. Describe the methods, common spectrum of findings, legal aspects, investigation, documentation, opinion formation, report writing and holistic medico - legal management of live and deceased victims of Torture.



3. Describe the medico – legal issues in abortions, methods, presentations and complications of illegal abortions in the live and the dead, and disuses the medico - legal investigation of such an abortion in Sri Lanka.
4. Be able to describe the guidelines/protocols/manuals that exist for the standard management of 1-3
5. Give advice regarding evolving laws related to offences against the person

## **2.6 Practise based**

1. Describe the methods used and critically evaluate the identification of the living and the dead. Be aware of global developments
2. Describe the principles in the medico legal management of a mass disaster
3. Ability to plan, execute, reflect, analyze, report, and give evidence in mass disaster
4. Discuss recent advances in mass disaster forensic management
5. Describe the authority and procedure of a medico - legal examination of a patient
6. Describe the authority and procedure of a medico - legal autopsy
7. Describe the medico legal system in Sri Lanka and other countries and discuss the suitability of a given system to Sri Lanka

## **2.7 Forensic Science**

1. Describe the principles of crime scene investigation and trace evidence collection
2. Describe the principles of application of trace evidence in criminal trials, their significance and limitations
3. Describe the protocols to be followed in crime scene management
4. Describe the examination of blood stains at the scene and its interpretation
5. Discuss the significance of fingerprints and their collection
6. Discuss the importance of hair and cloth fibre as a tool for exclusion of identity
7. Discuss the uses and limitations of forensic ballistics
8. Describe the many common weapons used in stab, cutting and firearm injuries and their handling by the pathologist as well as any other weapons e.g. Those used in blunt trauma as well as other uncommon types of trauma
9. Describe the principles of forensic odontology and the role of forensic pathologist in dental examination
10. Describe the principles of forensic anthropology
11. Comprehensive knowledge of Forensic anthropology in order to give evidence after examination of single or multiple bodies examination
12. Describe the procedure in mass grave exhumations, facilities needed, multi professional activity, authority, political aura around mass graves
13. Describe the steps in the examination, reporting of skeletal remains to the level of mastery in order to give valid evidence in a court of law.

## **2.8 Autopsy**

1. Describe the definition, legal framework, personnel involved, objectives and procedure of an inquest
2. Describe the medicolegal systems in the international arena and discuss how they could be adopted to our country

3. Describe the difference between and know legal requirements for judicial and pathological autopsy
4. Comprehensive knowledge regarding the, definition and types of death, confirmation of death diagnosis of brain stem death and medico - legal
5. Describe the causes of sudden natural deaths, the clinical presentations with understanding of the basic sciences behind it, and describe and interpret the macroscopic and microscopy features in the organs. Know the rare causes and be aware of the difficulties in their diagnosis.
6. Describe the new advances in Forensic Medicine
7. changes after death and application for assessment of time since death
8. Comprehensive knowledge regarding the different types of unnatural deaths and their medico legal aspects.
9. Describe the features, circumstances, presentations and investigations of all types of asphyxial deaths and immersion deaths and the medicolegal significance of the findings
10. Describe the medico – legal issues in infanticide, methods, presentations and complications and discuss the medicolegal investigation in Sri Lanka.
11. Discuss the medico legal aspects of sudden infant deaths
12. Describe the features, circumstances, presentations and investigations of deaths due to starvation and neglect and discuss the medicolegal significance of the findings
13. Discuss the difficulties in formulating opinions in complex autopsies

## **2.9 Others**

1. Knowledge of socio cultural influences on patients' health beliefs and behaviour
2. Awareness of the impact of race ethnicity and culture on decision making(1)

## **2.10 Toxicology**

### **Purpose**

Medical toxicology is a rapidly expanding discipline. With the constant emergence of new drugs and rapidly changing patterns of drug abuse, a forensic practitioner is bound to face new challenges in Forensic Toxicology. The curriculum in Forensic Toxicology is structured to suit the postgraduate trainees following the MD training programme in Forensic Medicine. There would be cases both living and dead, encountered in their routine practice with a history or suspicion of contact with toxic substances. Therefore, a well-designed curriculum accommodating both clinical and autopsy cases would enhance the learning capabilities of the doctors who are pursuing a career in Forensic Medicine. It is also designed to convince the trainees the importance of continued learning in forensic toxicology to keep abreast with the global patterns and emerging local challenges in drug usage.

1. The postgraduate trainees would develop a comprehensive overall knowledge of the toxicology component relevant to Forensic Medicine
2. The postgraduate trainees would be made aware of the practical aspects of identifying and analyzing the poisonous substances
3. The postgraduate trainees would become competent in interpreting toxicological reports and incorporating them in arriving at final conclusions

4. The postgraduate trainee would be encouraged to engage in continued professional development to appreciate the limitations in forensic toxicology and achieve a better understanding of the changing trends of use of drugs locally and globally
5. Describe the general principles of diagnosis, management and investigation in poisoning
6. Describe the features, circumstances, presentations and investigation of deaths due to poisoning with agrochemicals, As, Pb, Hg, Cl<sub>2</sub>, CN, CO, H<sub>2</sub>S, NH<sub>3</sub>, and common plant poisons in Sri Lanka and discuss the medicolegal significance of the autopsy and investigation findings
7. Describe the features, circumstances, presentations and investigations of deaths in acute alcohol intoxication and discuss the medicolegal significance of the findings
8. Describe the effects of alcohol on the body and describe the features and differential diagnosis of alcohol intoxication and interpret findings according to the law regarding drunkenness in Sri Lanka.
9. Be able to use protocols in examination for drunkenness
10. Describe the mechanism of death and autopsy diagnosis of alcohol intoxication and chronic alcohol abuse
11. List the common groups of substances of abuse in Sri Lanka and discuss the circumstances, presentations and investigations of deaths due to substance abuse (Opioids like Heroin and Morphine, Cannabis, Cocaine, Amphetamines,) and discuss the medicolegal significance of the findings.
12. Describe the features, circumstances, presentations and investigation of deaths due to poisoning with medicinal drugs (salicylates, paracetamol, Diazepam, ) and discuss the medicolegal significance of the autopsy and investigation findings
13. Describe the features, circumstances, presentations and investigation of poisoning with corrosives (acids, alkalis) and discuss the medicolegal significance of the clinical features, autopsy and investigation findings.
14. Name and identify the poisonous and common nonpoisonous snakes, differentiate the venom types and actions, describe clinical features of envenomation and outline the management.
15. Identify the common poisonous plants grown mainly in Sri Lanka and rest of the world
16. Be aware of the different toxic substances involved in suicides
17. Demonstrate an awareness of the range of poisonous substances used for homicide
18. Identify the possible toxic substances likely to result in accidental poisoning
19. Know the wide range of drugs of abuse both locally and globally
20. Demonstrate an awareness of the current global and local trends of drug abuse
21. Show competency in collection, preservation, storage and dispatch of clinical and autopsy toxicological samples with relevant documentation and maintenance of chain of custody.
22. Be aware of the sample/s of choice to be collected depending on the duration and route of poisoning
23. Critically evaluate the interpretation of the laboratory findings and toxicology reports (example: presence of 6 MAM and 3 MAM in case of suspected abuse of opioids)

24. Demonstrate the knowledge pertaining to the medico-legal duties of a forensic practitioner in case of alleged poisoning
25. Be aware of the different poisonous substances that can enter human body in different environmental settings such as Hospitals, Laboratories, Factories, Household settings, Agriculture and Farming industries.
26. Show a basic understanding of the "Poisons, Opium and Dangerous Drugs Ordinance"
27. with relevant recent amendments
28. Describe the signs, symptoms and basic clinical management of common poisons following acute and chronic exposure.
29. Demonstrate a basic understanding of different types of poisonous substances available in other parts of the world which are injurious to human health
30. Know the different poisonous substances/medicaments in improvised usage for committing sexual and other crimes.
31. Identify the common causes for food poisoning in Sri Lanka and rest of the world
32. Describe the basic principles of pharmacokinetics and pharmacodynamics of poisonous substances with special relevance to therapeutic management and accurate interpretation of toxicology reports.
33. Demonstrate a basic understanding of the methods employed and instruments available for identification and analysis of poisons.
34. Show a basic understanding of the chemicals used in restrain and crowd control
35. Have a basic understanding of the agents used in chemical and biological warfare
36. Be aware of the possibilities of radiation poisoning
37. Have a fundamental practical exposure in analyzing various toxic substances both qualitatively and quantitatively at a government accredited centre (details of methodology not expected)
38. Demonstrate the knowledge and skill in the procedure in performing a medico-legal autopsy (including exhumations) in case of suspected poisoning.
39. Demonstrate the knowledge, appropriate skills and attitudes in the clinical examination of the living in alleged poisoning

### **2.11 Histopathology**

See Annex 22

### **2.12 Ethics**

1. Describe the principles in the Hippocratic Oath and describe the International code of Medical Ethics and be aware of principles governing other relevant oaths and conventions
2. Describe the principles governing consent, confidentiality, doctor patient relationship, civil and criminal medical negligence and professional misconduct
3. Have a basic understanding of ethical principles in contraception, abortion, right to live and die, artificial insemination, organ donation and transplantation, euthanasia, human experimentation
4. Describe the duties of a medial practitioner toward patients, family members, society, and fellow doctors.

5. Describe the principles of patient centred care, obligation to alleviate suffering, undertaking treatment, consent, professional secrecy/medical confidentiality, Duties towards patients (use of optimal skills and knowledge when treating patients)

### **3. Clinical skills (practical skills/procedures/PM skills)**

- Demonstrate a level of knowledge and skill consistent with practise as a master forensic pathologist and physician
- Proficiency of techniques of history taking, examination, recovery of forensic samples and ability of holistic management and giving expert evidence of clinical medico-legal cases to the standard expected of a master in Forensic Medicine.
- Child interviewing skills
- proficiency in evaluation and recording of death scene, examination of the body in situ and the retrieval of evidence to the standard of a master in Forensic Medicine
- demonstrate the ability to work independently

#### **Trainee should be able to**

Demonstrate proficiency to master level in the autopsy techniques, skills and interpretation, required for the pathological investigation of deaths requiring medico-legal scrutiny, in all age groups, involving all organ systems and in all states of preservation and plan and execute medicolegal management according to standard updated procedures

1. Acquire knowledge, skills and attitudes necessary to assess victims of crime and other examinees by means of clinical history taking, appropriate physical examination and investigations (where relevant).
2. Trainee should have developed skills in the diagnosis and management of medico – legal problems
3. Be able to use scientific methods and maximally utilize the service of other experts in the identification of the living and the dead
4. Be able to fill up a standard Medico-legal examination form and medico – legal report in all medico – legal presentations using evidenced based approach
5. Be able to perform a client friendly sexual assault forensic examination and investigation and report, according to guidelines and give evidence and promote holistic management and preventive measures where relevant
6. Be able to perform a child centred medico – legal examination, investigation, and report, give evidence and promote holistic management and preventive measures where relevant in alleged child abuse incidents according to guidelines.
7. Be able to organize case conferences and ensure the safety of child when relevant
8. Be able to perform a standard medico – legal examination, investigation, and report, give evidence in illegal abortion in the living and the dead and ability to analyze the evidence.
9. B able to advice policy makers regarding abortion
10. Be able to perform a standard medico – legal examination, investigation, and report, give evidence in the alleged mother in infanticide

11. Be able to perform a standard medico – legal examination, investigation, and report, give evidence in alleged drunken persons or abusers of substances
12. Be able to adhere to protocols when managing a case
13. Be able to perform a standard medico – legal examination, investigation, and report, give evidence in an alleged drunken person, an accused and any other detainee brought for examination according to guidelines.
14. Be able to perform a standard autopsy and investigation in sudden natural deaths and discuss the medicolegal significance of the findings with special emphasis where there is interplay between trauma and disease.
15. Be able to perform a standard autopsy and investigation of asphyxial deaths and discuss the medico-legal significance of the findings
16. Be able to perform a standard autopsy investigation in infants with special attention to cases of alleged infanticide and report/give evidence
17. Develop increasing levels of confidence and the ability to undertake complex forensic post-mortem investigations and autopsies (including those involving paediatric and neuropathology)
18. Be able to perform a standard post-mortem investigation in alleged torture and write a standard report/give evidence
19. Be able to collect evidence from a site of a mass disaster using standard protocols
20. Be able to perform a standard exhumation
21. Be able to perform a standard autopsy and investigation of poisoning deaths and discuss the medico-legal significance of the findings
22. Be able to perform a standard crime scene investigation and provide direction to teams and be a member of a team in suspicious deaths and other crimes against the person.
23. Describe principles of trace evidence management.
24. Be able to collect, pack, label, store and dispatch maintaining chain of custody, the relevant samples for forensic, toxicological, histopathological, biochemical, microbiological, serological investigations according to standard protocols in a given medico legal case.
25. Be able to interpret the results of above and compile reports to courts including all other expert reports
26. Ability to technically carry out all autopsies including criminal cases, complex post-operative deaths and road traffic fatalities (Section 20 cases).
27. **Situationally appropriate Medico - legal management**
  - I. ability to be able to work within the judicial system giving appropriate consideration to process, continuity and disclosure
  - II. (Professional clinical judgment establishes medical reasonableness; a technically possible form of diagnostic or therapeutic management that is reliably expected to result in a greater balance of clinical good over clinical harm for the individual patient. These forms of clinical management set the standard of care. The physician has a legal—and also ethical—obligation to present to the patient all of the medically reasonable alternatives for the management of the patient's condition, but

determining what is medically reasonable is a function of expert, deliberative clinical judgment.)

- III. In defence of professional judgement  
Robin Downie and Jane Macnaughton  
APT 2009, 15:322-327.
- IV. Ability to appreciate the unpredictability, complexity and uncertainty of the practice of Forensic Medicine and the value of professional judgment.
- V. Ability to work as a leader and member of a team with colleagues, other specialists, forensic scientists, police and others.

#### **4. Scientific reasoning**

Be able to use various analytic and problem-solving skills to examine, evaluate, and/or challenge ideas and arguments (mathematics, biology, chemistry, physics)

Reconstruction--reconstruct the case events using

Inductive and deductive logic

Statistical data

Pattern analysis

Results of laboratory analysis

Be able to use the four forms of relational reasoning analogy, anomaly, antimony and antithesis in making decisions in medicolegal setting

Arrive at cause of death and other opinions through deductive reasoning

#### **5. Issuing a quality report**

- 1. Ability to write comprehensive medico-legal reports after proper evaluation and interpretation of evidence both in autopsy and clinical Forensic Medicine examinations to the standard expected of a master in Forensic Medicine.
- 2. Be able to write comprehensive medico legal reports and post mortem reports quality with opinions based on scientific reasoning.
- 3. Understand the legal requirements, confidentiality issues regarding issuance of reports
- 4. Be able to write a quality report for compensation claims and any other reports within the purview of a medicolegal expert with mastery
- 5. Be able to utilise modern information technology in order to provide clear professional reports
- 6. Be able to give attention to detail, preciseness and meticulousness when writing reports
- 7. Strive for excellence in report writing which includes language and preciseness
- 8. Write reports giving scientific opinion in keeping with global advances in forensic report writing.

## **6. Expert medical witness**

1. The ability to provide evidence impartially, justifying any opinion given from a balanced interpretation of cited medical literature and validated experience as an expert in Forensic Medicine.
2. Able to describe the laws governing evidence in Sri Lanka, process of court trial and leading evidence and cross examination
3. Be aware of the duty to be punctual, answer summons, excuse appropriately when needed and liaise with legal professionals before, during and after trial
4. Able to answer appropriately to questions, explain medical concepts to lay audiences, and communicate in the language used in court trials
5. Able to give impartial evidence within the expertise
6. Possess correct attitudes when giving evidence(controlling anger, be impartial and seem to be impartial)
7. Be prepared with needed documents, references, etc.(3)
8. Be able to appreciate the need for dress and decorum and proper conduct while in courts and when giving evidence.
9. Provide appropriate consultations to counsel when required
10. Be conversant with the national language in which evidence is given
11. Give evidence in the capacity of an expert with mastery without being intimidated by defence counsel
12. Give appropriate respect to judiciary and other officers in court
13. Maintain highest standards of professionalism, integrity, honesty when called by defence to give evidence
14. Uphold the dignity of the profession by not compromising where financial gain is involved when assisting the defence
15. Develop experience in court

## **7. Manager**

1. Management skills to run an effective and efficient forensic medical unit/department in a hospital.
2. Developed skills in the planning and management of a medicolegal unit and evaluate its outcome
3. Reflect on own practice and be able to do a SWOT analysis and take appropriate action when required
4. Disallow one's biases prejudices to influence relationships with others
5. Be able to function as a team leader
6. Be an effective time manager and prioritize problems appropriately
7. ability to demonstrate excellent time management and task prioritization in relation to autopsy practice (including ability to recognize which autopsies need to be undertaken as a matter of priority, e.g. for issues relating to faith)
8. Be able to manage subordinates and relate appropriately with superiors and peers.
9. Team work skills, team building and leadership skills
10. Recognize in routine practice the doctor's role as advocate and manager



## **7.1 Communicator**

The Trainee should be able to:

1. Acquire communication skills (with patients, relatives and colleagues, police, lawyers, judicial officers, public, victims and caregivers, accused and any other person/personnel the candidate comes into contact with).
2. Effectively communicate verbally and non-verbally.
3. Structure a consultation appropriately.
4. Break bad news (e.g. to a mother of a sexually assaulted victim – the fact that there is damage to the hymen, in a culturally sensitive manner).
5. Communicate in an appropriate manner in sensitive issues keeping in mind the diverse ethnicity and religious beliefs and their several myths.
6. Communicate accurately, clearly, promptly and comprehensively with relevant colleagues by means appropriate to the urgency of a situation (e.g. telephone, email, letter etc.), especially where responsibility for a patient's care is transferred e.g. Sexually abused victim in emergency situations.
7. Respect patient's values, preferences and expressed needs(1)
8. Provide the information, communication and education that people need and want(1)
9. Communicate with Language proficiency especially in the English language
10. Respond to people in an ethical, honest, and non-judgmental manner

## **7.2 Collaborator**

1. Effectively collaborate and work in a team -These consultants may include anthropologists, entomologists, forensic odontologists, neuropathologists, pediatricians, psychologists/psychiatrists, radiologists, and toxicologists.
2. Be able to plan, initiate, organize, conduct and evaluate a case conference
3. Be able to plan, initiate, organize, conduct and evaluate a scene of crime examination
4. Be able to plan, initiate, organize, conduct autopsies in disaster settings and collaborate with Specialists in Forensic Medicine other agencies
5. Be able to plan, initiate, organize, conduct workshops, seminars, conferences in medicolegal work to peers, healthcare workers, professionals in criminal justice process
6. Good working relationship with colleagues, other specialists (consultants), Inquirers, Magistrates, Prosecutors, lawyers, other forensic scientists and police.
7. Be able to manage subordinates and relate appropriately with superiors and peers.
8. Show respect for others opinions(3) and Respect colleagues, including nonmedical professionals, and recognize good advice
9. Use authority appropriately and assertively; particularly with reference to the resolution of conflicts and disagreements
10. Work within a multidisciplinary team structure that uses relevant resources in community(1)

## 8. Researcher and scholar

### 8.1 Researcher

1. Participate in effective research to underpin forensic medical practice as an expert with mastery in Forensic Medicine.
2. Developed skills in the conduct of audits in Forensic Medicine and Pathology thereby minimizing risk and enhancing the services.
3. Develop, maintain and update an enquiring mind.
4. Recognize the need for audit in clinical practice to promote standard setting and quality assurance.
5. Use patient feedback questionnaires, hospital sources and national reference data to carry out clinical audits.
6. Listen to and reflect on the views of patients and relatives, dealing with complaints in a sensitive and cooperative manner.
7. Conduct a literature search
8. Abide by the principles of Good Clinical Practice when conducting any research on human subjects.
9. Be able to design a research, write a project proposal, obtain funds, carry out the research and publish the findings
10. Ensure the research is consistent with ethical principles
11. Possess an enquiring mind and develop research ideas and be able to supervise a research
12. eagerness to engage in continued professional development including engagement in reflective practice, life-long habit of reading, literature searches, consultation with colleagues, attendance at scientific meetings and presentation of scientific work
13. Understanding and practical experience of clinical governance and audit (specialist and multidisciplinary) through evaluation of practice against the standard of evidence based medicine.
14. <http://apt.rcpsych.org/content/15/5/322.full.pdf+html>)
15. Knowledge and value of basic medical education principles, learning/teaching models, reflective practice, learning in practice and various formative methods of assessment such as portfolio, Workplace Based Assessments including Directly Observed Practical Skills (DOPS), Case based Discussions (CbDs), Evaluation of Clinical Events (ECEs) and Multisource Feed Back to successfully complete the MD programme and become an expert with mastery in Forensic Medicine. ( assessed during the formative assessments)

### 8.2 Teacher

1. knowledge, skills and behaviours to provide appropriate teaching
2. Recognize the importance of the role of the doctor as an educator within the multidisciplinary team and use medical education to enhance the care of patients and their loved ones, care of the dead and bereaved relatives.
3. Balance the needs of service delivery with education.

4. Be aware of the value of the autopsy as a teaching aid
5. Be prepared to teach at every available opportunity(3)
6. Teach healthcare workers in a variety of settings to maximize effective communication and practical skills and to improve patient (client) care.
7. Ability to teach in workplace and formal settings.(3)
8. Encourage discussions with colleagues in clinical settings to share knowledge and understanding
9. Developed skills required to become a teacher in order to impart relevant health care education to subordinates, allied health care workers, and key players in the criminal justice process
10. develop experience of teaching trainees(3)
11. Communication skills required to inform clinical colleagues and other nonclinical professionals involved in inquiries into deaths and assist in multidisciplinary mortality review
12. An ability to interpret autopsy findings considering the past medical history, progression of disease or injury and circumstances of death and an ability to communicate those findings and opinions fully, clearly and simply to those who need explanation of them(3)

## **9. ETHICS AND PROFESSIONALISM**

### **9.1 Ethics**

Understand the principles of confidentiality that provide boundaries to communication.

### **9.2 Personal development**

1. Recognise personal health as an important issue.
2. Maintain and routinely practice critical self-awareness, including the ability to discuss strengths and weaknesses with supervisor, recognising external influences and changing behaviour accordingly.
3. Recognise and work within own limitations

### **9.3 Professionalism**

Knowledge skills and attitudes to act in professional manner (appropriate professional behaviour) suitable for an expert with mastery in Forensic Medicine at all times.

#### **The Trainee should be able to:**

1. Describe and explain the roles and responsibilities of team members involved in medico-legal work.
2. Be aware of concepts of medical professionalism.
3. Appreciate the relevance of professional bodies e.g. SLMA, SLMC, CFPSL
4. Communicate both verbally and in writing with patients, relatives, police, lawyers, judges, social workers, child care professionals, and colleagues.
5. Appreciate and be sensitive to the ways in which cultural and religious beliefs affect approaches and decisions, and to respond them respectfully.

6. Break bad or sensitive news appropriately and be compassionate towards distressed patients, the families of patients and colleagues.
7. Use interpreters appropriately.
8. Respect the opinions of others and enable individuals, groups and agencies to implement plans and decisions.
9. Manage anger and aggression in self and colleagues.
10. Communicate effectively with administrative bodies, police, state counsel, and victim support organizations.
11. Employ behavioral management skills with colleagues to prevent and resolve conflicts, and enhance collaboration.
12. Recognize the need for a healthy work/life balance for the whole team and only takes any leave after giving appropriate notice to ensure that covering arrangements are in place.
13. Respect the skills and contributions of colleagues.
14. Consult and admit mistakes (3)
15. Recognize when personal health takes priority over work pressure.
16. Learn from colleagues and personal experience and seeks advice appropriately.
17. Maintain the trust of patients, their relatives, colleagues, other members of the staff and trainees.
18. Promote health and health improvement.
19. Practice with professionalism including:
  - I. integrity
  - II. compassion
  - III. altruism
  - IV. continuous improvement
20. aspiration to excellence / perfection
21. respect cultural and ethnic diversity
22. Regard to the principles of justice and equity.
23. The ability to maintain highest standards of professional, moral and ethical conduct
24. Developed correct attitudes for good medical practice.
25. Be conscientious and work cooperatively

#### **10. System based practice**

1. Know the statutory basis for medicolegal death investigation systems and requirements to serve as forensic pathologist or inquirer into sudden death.
2. Demonstrate an awareness of the health care system in Sri Lanka and the role of the specialty of Forensic Medicine in the health system.
3. Respond appropriately to the system of health care in Sri Lanka, as well as be able to call effectively on other resources in the system to provide optimal health care
4. When relevant be aware of the role of Forensic Medicine expert with mastery in global health care systems
5. Knowledge of the role played by the specialist in Forensic Medicine in health promotion and disease prevention.

6. Recognize the importance of active participation in multi-disciplinary meetings.
7. Obtain and deal with feedback professionally.
8. Appreciate the limitations of own professional competence.
9. Be aware of the importance of Case conferences/mortality meetings/journal clubs to foster good practice and patient/client care and practice accordingly
10. Be aware about the notifiable diseases and familial diseases when whom and how to inform regarding them and to arrange for screening and counseling for family members as appropriate.
11. Be able to disseminate information regarding emerging or changing trends in disease patterns

**Annex 03 Scheduled teaching learning activities**

L = lecture, PBL = problem based learning session, SGD = Small group discussion, CBT = Centre based training, FP = forensic pathologist

**09 core modules**

Module	Contents	Methodology	Hours	Credit allocation
<b>1. Introductory module</b>	Professionalism	L	1	
	Adult learning	L	1	
	Communication skills	L role play	1	
	Attitudes and values	L	1	
	<b>Introduction to Forensic Medicine and Forensic pathology</b>	L	1	
<b>2. Clinical Forensic Medicine</b>	• Medico legal aspects of trauma(injury interpretation)	L	3	
	• Sexual assault forensic examination	SGD L PBL	1 4 2	
	• Examination for drunkenness	L	4	
	• Examination for impairment of driving	PBL	2	
	• Child abuse	L	2	
	• Domestic violence	L	1	
	• Torture , Examination of detainees Fitness to plead/stand trial	L	2	
	• Medico-legal aspects of Pregnancy and abortion L 1 hours	L	1	
	• Identification of the living (self-learning and SGD) 1	SGD	1	
	• Evaluation for purposes of compensation SGD – 1	SGD	1	
<b>3. Forensic pathology</b>	• Pathology of wounds (+Regional injuries, Head injuries)	L	3	
	• Practical demonstration on injury identification and description	SGD	3	
	• Injury patterns(falls, defense, self-infliction	L	1	
	• Death and Thanatology	L	2	
	• Cause of death(WHO format,), manner, mode and circumstances	L	2	
	• Practical demonstration on writing cause of Death	SGD	2	
	• Sudden natural deaths	L	1	

	<ul style="list-style-type: none"> <li>Lecture demonstration of important natural COD e.g. MI, pneumonia tuberculosis etc.</li> </ul>	Histopathological demonstration	3	
	<ul style="list-style-type: none"> <li>Infant deaths( SIDS/SUDI, Infanticide)</li> </ul>	L	1	
	<ul style="list-style-type: none"> <li>PM artefacts</li> </ul>	L	1	
	<ul style="list-style-type: none"> <li>“Asphyxial deaths”</li> </ul>	L	2	
	<ul style="list-style-type: none"> <li>RTA</li> </ul>	L	2	
	<ul style="list-style-type: none"> <li>Firearm</li> </ul>	L	2	
	<ul style="list-style-type: none"> <li>Explosive injuries</li> </ul>	L	1	
	<ul style="list-style-type: none"> <li>Electrocution and lightening (self-learning and taught at appointment production of a video/CD )</li> </ul>			
	<ul style="list-style-type: none"> <li>Burns</li> </ul>	L	1	
		SDL	1	
	<ul style="list-style-type: none"> <li>Maternal deaths</li> </ul>	L	1	
	<ul style="list-style-type: none"> <li>Identification (self-learning and taught at appointment)</li> </ul>			
	<ul style="list-style-type: none"> <li>Pathological Changes of organs due to common natural illnesses(macroscopy only)</li> </ul>	L	1	
<b>4. Forensic science</b>	Introduction to Forensic Science	L	1	
	Crime Scene Investigation <ul style="list-style-type: none"> <li>Physical evidence</li> <li>Impression evidence</li> <li>Questioned Documents</li> <li>Basic methods of analysis</li> <li>Fingerprints</li> </ul>	L	1	
	<b>The Analysis of Body Fluids</b>	L	1	
	<b>DNA investigation</b>			
	Firearms and explosions (under pathology) Entomology	L L	1 1	
<b>5. Forensic toxicology</b>	Introduction to toxicology Clinical and pathological features of Common poisons encountered in M/L practice Collection and Preservation of poison Evidence	L	3	
<b>6. Law related to ML work and its application</b>	Introduction to legal system Laws related to Homicide, Rash and negligent acts Hurt, Human tissue transplantation Act	L	4	

	Sexual offences, drunkenness Motor traffic act section 151 Domestic violence Act, Law relating to Torture, Abortion, Relevant sections of Criminal procedure code'				
	Diagnosis of death and disposal of body		L	1	
7. Medical ethics: professional ethics	Relevant oaths and conventions	S D L			
	Principles of medical ethics		L	1	
	Professional ethics(SLMC and SLMA guidelines, professional Misconduct, Medical negligence and related law)		L	1	
	Clinical ethics Related to medical practice –		L	3	
8. Other forensic specialties and subspecialties	Introduction to Forensic Radiology		L	1	
	Forensic Psychiatry		L	1	
	Odontology		L	1	
	Introduction to Forensic Histopathology		L	2	
9. Forensic procedures	PM dissections-autopsy	Practical demonstration	To be covered under CBT, SGD and appointment  Role play	3	
	Special dissections	Practical demonstration		3	
	Exhumation and recovery of clandestine body disposals including mass graves			02	
	Referral note writing			02	
	Obtaining a relevant history in medicolegal work(autopsy, clinical)			02	
	Collection of trace evidence Crime scene examination		Practical demonstration L 1		



**Advanced topics for lectures for MD in Forensic Medicine**

**Forensic Medicine and forensic pathology and medical ethics- lectures will be given on topics selected from this list**

1. Doctor and the Law -
2. History of Forensic Medicine
3. Ethics of Medical practise
4. Recent advances in time since death estimations
5. Identification – superimposition, digital identification,
6. different methods of evisceration and organ dissections
7. aviation injuries
8. Deaths on the sea, barotrauma,
9. Obscure Post-mortem changes
10. Hyperthermia and hypothermia
11. Forensic science
12. Forensic Radiology
13. Forensic Psychiatry
14. Forensic Odontology
15. Forensic Histopathology
16. Advanced Medical ethics – reproduction, euthanasia, DNR directives
17. Law related to medico – legal work
18. Global Medico – legal systems and comparisons
19. Developing a fully-fledgedmedico-legalcentre
20. Forensic Toxicology module
21. Explosive investigation
22. Firearms, firearms injuries including atypical presentations
23. Scene of crime management
24. abuse of human rights
25. Complications of injury – complex situations
26. Probability of death
27. Iatrogenic deaths
28. Medical negligence
29. Forensic aspects of alcohol
30. Death from narcotic and Hallucinogenic drugs
31. Recent advances in ageing wounds

**Normal histology - lectures will be given on topics selected from this list**

1. Skull, meninges, Brain and spinal cord
2. Skin
3. Heart and blood vessels, Lungs
4. Kidney, spleen, liver
5. Stomach, intestines, colon, sigmoid and pelvic colon
6. Skeletal, smooth and cardiac muscle
7. Bone, cartilage and tooth
8. Reproductive systems

**Toxicology – lectures maybe delivered on selected topics from this list**

1. Introduction to poisoning with details on sample collection
2. General principles in the management of poisoned patient
3. Plant Poisons
4. Poisons used in suicide and homicide
5. Accidental exposure to poisons in different settings
6. Recreational drugs of abuse (including narcotics)
7. Changing trends and challenges in drug abuse (designer drugs, concept of harm minimization/risk reduction instead of zero tolerance, drug abuse in custodial settings)
8. Widely abused therapeutic agents
9. Pesticides
10. Methyl and Ethyl Alcohol
11. Examination of motorists impaired due to alcohol and drugs
12. Poisonous gases
13. Inorganic Poisons and Heavy Metals
14. Cyanide
15. Food Poisoning
16. Animal Poisons (toxic envenomation by snakes, insects, mollusks, etc.)
17. Chemical and Biological warfare
18. Radiation toxicity
19. Chemical crowd control agents
20. Toxic substances used in sexual and other criminal offences with special emphasis on drug facilitated sexual assaults (DFSA)
21. Medico- legal examination of cases of alleged poisoning

**Annex 04      Small group discussions (SGD) /Tutorial****Schedule with suggested topics**

<b>Topic</b>	<b>Method</b>	<b>Time hours</b>	<b>resource</b>
<b>medico – legal management in clinical and autopsy work inclusive of prevention</b>	Case scenario	10 hours	FP
<b>Referrals</b>	Case based SGD	2	FP
<b>scene visit</b>	Mock scene examination	2	FP
<b>Exhumation</b>	Mock exhumation	2	FP
<b>Poisoning</b>	Case discussions	01	FP
<b>Report writing(documentary evidence)</b>	Discussion of Case scenarios	2h	FP
<b>Histopathology reporting</b>	CBT	06	FP/Histopathologist
<b>Expert testimony and Testifying in courts</b>	mock trials	2h	FP, State counsel
<b>Ethical issues</b>	SGD	2h	FP
<b>Cause of death in complex cases</b>	SGD	4 hours	FP
<b>Legal aspects</b>	SGD	03 HOURS	State counsel
<b>Forensic science</b>	SGD	06 HOURS	Government analyst

**May be done on topics selected from this list**

**Annex 05      problem based learning (PBL)**

Topic	Method	Time hours	resource
Body found hanging	PBL	04	FP
Body found in water	PBL	04	FP
Body found on the road	PBL	04	FP
Sudden infant death	PBL	04	FP
Body with stab and firearm injuries	PBL	04	FP
Burnt body	PBL	04	FP
Recent sexual assault	PBL	04	FP

**Annex 06      Workshops/Study Half Days/Centre Based Training**

Topic	Method	Time - hours	resource
Infant autopsy	Practical demonstration	02	FP
Reading styles/learning styles	Study half days	04	FP
Sexual abuse report writing	Practical demonstration	02	FP
Torture –report writing	Practical demonstration	02	FP
Gender BV	Practical demonstration	01	FP
Presenting skills/courts/academic	Demonstrations	03	FP+state counsel
Report writing and presentation	Practical demonstration	03	FP
Opinion formation/critical thinking	Discussions/CBT	06	FP + state counsel
Facing cross examination	Discussions/CBT	06	FP+ defense lawyer

**May be done on topics selected from this list**

## Centre based training

Topic	Method	Hours	Resource
(firearms and explosives, odontology)	Practical demonstrations	05	FP Forensic dentist Institute of Legal Medicine and Toxicology, Colombo and University of Peradeniya
DNA profiling			Forensic scientist
Trace evidence processing, firearms and explosive investigation -	Practical demonstrations	06	Govt analysts department
PM dissections-	autopsy Practical demonstration	06	FP
Special dissections	Practical demonstration		FP
Exhumation and recovery of clandestine body disposals including mass graves	Practical demonstration		FP
Obtaining a relevant history in medicolegal work(autopsy, clinical)	Role play		FP
Obtaining samples, custody, processing, storage, disposal	Practical demonstration		FP
Research methodology and getting ahead with your project	Discussion		FP/RESEARCHER
Professional development	Discussion		Psychologist/counsellor/psychiatrist
Forensic anthropology practise	Practical demonstration		For. Anthropologist/FP

## **Annex 07      Portfolio**

### **MD (Forensic Medicine) training programme portfolio**

#### **Content page**

1. Introduction
2. Objectives
  - 2.1. General objective of developing a portfolio
  - 2.2 specific objectives
3. Process
- 4. Guidelines on preparation of portfolio**
  - 4.1 What is a portfolio? What is reflection?
  - 4.2 general guideline- how to prepare/ maintain a portfolio
  - 4.3 details regarding documents to be included the sections
    - A. An introduction to self in the first person (10 marks)
    - B. Statement about your mission and vision as a Candidate for MD in Forensic Medicine
  - 4.4 Details under each of the 10 learning outcomes**
    1. Holistic medico – legal management
    2. Theoretical knowledge (2x20 answers = 40 marks)
    3. Clinical skills
    4. Scientific reasoning
    5. Issuing a quality report
    6. Expert medical witness
    7. Manager (includes communicator, collaborator, leader, team player)
    8. Researcher and scholar
    9. Ethics and professionalism
    10. System based practice
- 5. Summary table of documents** to be included in portfolio along with the Maximum mark awarded per each activity and marks for pass grade
  6. Assessment of the portfolio (portfolio viva) 18 and 30 months
  7. The format of the portfolio viva
  8. Requirements to pass the portfolio viva
  9. Repeat assessment
  10. Direct observation of practical skills – DOPS forms
    - Post-mortem examinations
    - Clinical examination
    - Report writing

## **MD (FORENSIC MEDICINE) training programme portfolio**

### **1. INTRODUCTION**

Candidates who are successful in the MD Forensic Medicine examination conducted by the Postgraduate Institute of Medicine in Sri Lanka are expected to have developed special abilities to examine, investigate, record the findings, analyse the facts, and form opinions as an expert in Forensic Medicine in the form of a report to courts on routine as well as complicated cases of the dead and the living. They will be called upon to give oral testimony in a Court of Law as an expert in Forensic Medicine. The MD graduate expert should endeavour to give opinions based on scientific evidence and quoting current medical literature. Therefore, training leading to MD Forensic Medicine should be geared to produce an expert who has mastered Forensic Medicine competencies. Furthermore, there are some competencies expected of a MD graduate which cannot be tested adequately using traditional assessment methods. Portfolio is expected to reflect the quantity as well as quality of the work the candidate actually has performed and completion of the learning cycle.

### **2. Objectives**

#### **2.1. General Objective of developing a portfolio**

To make a trainee reflect on the process of developing in-depth knowledge, developing finer skills and acquiring the experience needed to practice as a Master in Forensic Medicine who acts as an expert witness in a Court of Law who has gained mastery over Forensic Medicine competencies.

#### **2.2 Specific Objectives**

The trainees should have

1. Used a wide and appropriate range of learning methods effectively to develop their knowledge, skills, expertise and attitudes to be a MD graduate in Forensic Medicine specialist and an expert witness in a Court of law with mastery of the subject.
2. reflected on their own personal and professional practice and development, assessed their future development needs and made plans to achieve and provide evidence of further learning for continuing professional development
3. Evaluated their work with self, peer and supervisor monitoring and evaluation techniques.
4. provided support to colleagues, peers, allied staff and other relevant sectors in providing teaching and training in Forensic Medicine
5. Designed methods and techniques to improve his skills in information technology and show evidence of steps to be a lifelong learner.
6. Should show evidence that he had learnt and practicing medical ethics related to clinical and pathological forensic practice.

These will be assessed under each of the 10 learning outcomes

- 1) Holistic medico – legal management
- 2) Theoretical knowledge



- 3) Clinical skills
- 4) Scientific reasoning
- 5) Issuing a quality report
- 6) Expert medical witness
- 7) Manager (includes communicator, collaborator, leader, team player)
- 8) Researcher and scholar
- 9) Ethics and professionalism
- 10) System based practice

### **3. Process**

Passing the Portfolio Viva Assessment is necessary for the trainee to obtain satisfactory completion of the Continuous assessment in order to become eligible to sit for the MD Forensic Medicine final summative examination.

### **4. Guidelines on preparation of portfolio**

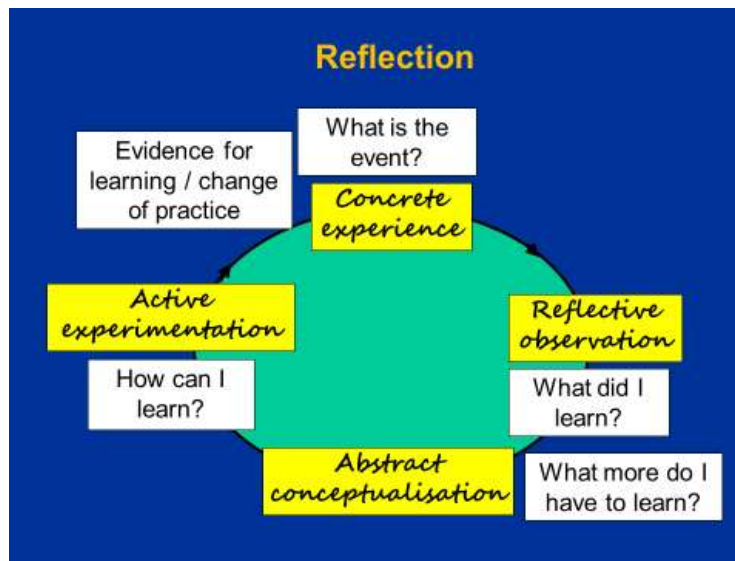
#### **4.1 What is a portfolio? What is reflection?**

#### **4.2 General Guideline- how to prepare/ maintain a portfolio**

#### **4.3 Details regarding documents to be included**

The portfolio is a collection of documents and other forms of evidence where a candidate showcases his achievements in learning for the past 30 months of training with the **student's reflections on what has been learned in terms of the learning outcomes...** It should show evidence that he has progressed consistently and thought over his mistakes/errors/shortcomings/errors of judgments and made a commitment to rectify, upgrade, these inadequacies and proceed to apply them in practice going onto new levels of training and modified practices. It is an effective tool of assessment of professional development.

The key element of a portfolio is “reflection” Reflection is the purposive, deliberate revisiting of an experience, in order to explore and extract the learning offered by the experience.



Collect all documents in A4 size ring binder where evidence of learning is reflected according to the learning objectives given. All documents in the Portfolio should be typewritten/computer printed or should be scanned images or photocopies of articles. Completely hand-written documents can be included only where trainee wants to prove handwritten entries/documents with corrections. A CD containing the portfolio should also be handed over.

#### 4. The sections

The MD training portfolio is evidence of the trainee achieving the 10 learning outcomes.

##### A. An introduction to self in the first person (10 marks)

The following information should be provided in a separate A4 sheet  
Introduction of self, Places of training (DLM or other training-if relevant /MD training), Current work place and special interests regarding your specialty.

##### B. Statement about your mission and vision as a candidate for MD in Forensic Medicine (10 marks)

- Duties and responsibilities as a MD graduate in Forensic Medicine.
- Your vision of a professional career in Forensic Medicine.

Details under each of the 10 learning outcomes

#### 1. Holistic medico – legal management

##### 1.1 Report on reflective learning related to the outcome of Holistic medico – legal management

(30 marks)

This report should document what the trainee hoped to achieve at the beginning of the MD training appointments, and how much of this was achieved by the end of 30 months'

training. This section should include the following documents as proof of evidence for the reflective learning (1.2 – 1.5).

### **1.2 Records of training appointment - In Service training log book (out of 50 marks)**

In Service training log book will be provided by the PGIM. The trainee should complete the logbook and the trainer/supervisor should endorse it.

*(The Board recommends that trainee should observe/ conduct and report a minimum of 100 post-mortems per year of which 25% should be under supervision. The minimum number of clinical cases seen by the post MD trainee is 200 per year of which 10% should be under supervision)*

### **1.3 Reflective learning experiences log on achieving the outcome Holistic medico – legal management (minimum of 5 cases should be incorporated) – maximum of 15 marks per log = total max.75 marks**

- This is a set of loose sheets maintained by the trainee which can be bound with the portfolio or separately as a spiral bound book for assessment. Out of all the post-mortem examinations and medico-legal examinations conducted during Post MD local training/ overseas training 3 cases selected by the trainee for evaluation should be formally assessed by the panel examiners appointed to evaluate the portfolio examination. A trainee who submits more than the minimum number of reflective reports will be rewarded more.
- It is recommended that 3 post-mortems and 2 clinical cases should be evaluated for this purpose. All the cases should be complicated cases where specialist forensic expertise is needed. For example the case selected should have resulted in private reading that changed the perception; an informal discussion with a supervisor/ colleague/ or other experts in a related field that reflected on a problem encountered in forensic pathology or clinical Forensic Medicine.
- Recommended cases in this category are: skeletal remains, complicated maternal death, and death in police custody where alleged torture is involved, alleged medical negligence, post-surgical deaths, deaths with multiple pathologies, alleged torture cases, any special cases referred by the courts for opinion, etc.
- The proforma for Reflective learning experiences log
  - Title or description of the experience (What is the learning event?)
  - What happened - Lesson/s learnt? (What did I learn?)
  - Has this experience highlighted any further learning needs(What more do I have to learn)
  - How can I learn it?
  - Has the activity resulted any improvement/change in the work (evidence for further learning or change of practice)
  - Attach a copy of the original report prepared to send to the courts and evidence of further reading)
- ( the word count of the each reflective note [excluding the report]should be 750-1000 words)

#### **1.4 A copy of the progress reports from supervisors 25 marks (5 per feedback x 5)**

A minimum of five progress reports from supervisors should be attached. This will also include supervisor feedback on communication skills. These will be considered for assessment.

#### **1.5 10 case records and commentaries (100 marks)**

These case records and commentaries should have a minimum of 05 autopsy and min. 03 clinical) and total word count of 1500 per case and commentary, relevant theory, discuss how arrived at conclusions, pros and cons, alternative practices, comparison with global practices, and room for improvement tests additional learning outcomes 2-5,7-8.

#### **1.6 IT skills – assessed under DOPS 3**

### **2. Theoretical knowledge (2X20 answers = 40 marks)**

**Given below are model questions that may be asked**

1. Describe the legal basis for or authorization for conducting autopsies in Sri Lanka
2. Write the role of a pathologist at a scene
3. Write the personal protective equipment used in performing an autopsy
4. Describe the appropriate procedures for handling formalin – preparing, using, and disposing.
5. Describe specialized autopsy protocols in the following types of cases:
  - a. Paediatric autopsy
  - b. Maternal death
6. What information of forensic value can be obtained by radiology?
7. What are the limitations of radiology in forensic pathology?
8. Describe the application of entomology to forensic pathology and explain the life cycle of flies.
9. Explain the following components of the death certificate:
  - a. Cause of death
  - b. Other significant conditions
  - c. Manner of death
10. Describe the following post-mortem changes, how they develop, how they are assessed, their importance, and their potential confusion with ante mortem conditions or injuries: Rigor mortis , Livor mortis , Algor mortis, Tardieu spots
11. Describe the following - Autolysis, putrefaction, green discolouration, marbling, liquefaction, saponification, adipocere, taphonomy, maggots
12. Define, and describe mechanisms of causation of blunt force injury sharp force injury, thermal injury, firearm injuries, asphyxial injury and electrical injury. Define and describe findings in drowning.
13. Explain causation and appearance of skull vault fractures and skull base fractures.
14. Explain causation, prognosis and appearance of extradural haematoma, subdural haematoma, subarachnoid haemorrhage, intracerebral haemorrhage, cerebral

- contusion and laceration, diffuse axonal injury and atlantooccipital dislocation, Hypoxic encephalopathy, cerebral oedema and brain swelling
15. Explain causation, prognosis, appearance and diagnosis of hypertrophic cardiomyopathy, dilated cardiomyopathy, restrictive cardiomyopathy, obesity related cardiomyopathy, Arrhythmogenic right ventricular dysplasia / cardiomyopathy, myocarditis, common aortic valve abnormalities, mitral valve prolapse, endocarditis, atherosclerosis,
  16. Describe the following in relation to child homicides – rib fractures, fracture of limbs, classical metaphysical lesions, subdural haemorrhage, retinal haemorrhage, hypoxic encephalopathy and exclusion of natural disorders e.g. osteogenesis imperfect, Vitamin deficiencies
  17. Describe elder maltreatment and discuss how you would investigate an elder death? Describe their forensic markers.
  18. Describe the steps in the sexual assault forensic examination. Describe the types of hymen and how they influence the injuries during sexual activity.
  19. Describe the types of injuries seen in sexual assault
  20. Describe the law on rape and incest.

### **3. Clinical skills**

#### **3.1 Formative evaluation of autopsy skills developed during MD training (Direct Observation of**

##### **Practical Skills (DOPS 1) 20 X 05 = 100 marks**

A minimum of five **(5) post-mortem examinations** where the trainer has directly assessed the practical skills of five different types of autopsies where formative assessment is done in the prescribed form (See section 10 on pg. 14) should be included in the portfolio. A copy of the PMR (including diagrams, photographs) with the MD trainer's signature should be attached. (All five should be completed within the 30 months).

3.1.1 Routine natural death – autopsy

3.1.2 Autopsy in a Road fatality

3.1.3 Autopsy in a Homicide

3.1.4 Autopsy in a Homicide

3.1.5 Autopsies with special needs postop, maternal, infant death, suicide

#### **3.2 Formative evaluation of Clinical examination skills**

##### **(DOPS 2) 15 X 4 = 60 marks**

A minimum of four **(4) Clinical Medico-Legal examinations of complicated different types of cases** performed where the trainer has directly assessed the practical skills of examinations where formative assessment is done in the prescribed format (see forms on page 19) should be included in the portfolio. A copy of the original MLR, diagrams, and photographs with the Post MD trainer's signature should be attached.

3.2.1 Victim of assault with category of grievous and above

- 3.2.2 Victim of accident
- 3.2.3 Victim of rape or child abuse
- 3.2.4 Examination of a detainee

The above will also assess outcome no's 3, 7 and 9

### **3.3 Report by trainee regarding a scene of crime trainee has attended and managed or observed trainers' scene management (maximum of 30 marks)**

At least one report of a death scene narrative and reflective thinking

Scene of crime trainee has attended and managed – maximum of 25 marks

Scene of crime trainee has observed trainers' scene management - maximum of 15 marks

### **3.4 Report of interviewing a child abuse victim or rape victim – should not be more than 500 words**

Maximum of 20 marks

## **4. Scientific reasoning**

4.1 Attendance at Problem learning sessions (attendance for PBL 1 and 2) should be confirmed – 10

Marks per activity - maximum **30 marks**

4.2 Five case summaries and medico – legal opinions giving reasons – each not exceeding 500 words

**04 marks X5 =maximum of 20)**

## **5. Issuing a quality report**

**(DOPS 3). 100 marks**

The formative assessment of the trainer regarding the trainee's ability to prepare a quality report should be done in the prescribed form. (See form on page 24)

For this formative assessment the trainer should go through

5.1 Post-mortem reports (PMR) – 10 **marks X 05**

5.2 Medico – legal reports (MLR) –**10 marks X 05**

5 PMRs and 5 MLRs of different types which the trainee has compiled by himself during the MD training.

This assessment can be done as 2 PMR & 2MLRs during the 1<sup>st</sup> 12 months of training and 3 PMRs & 3 MLRs in the 2<sup>nd</sup> 12 months of the MD training Programme. Maximum marks for each report is 10 marks.

\*\*\*At least two of the reports should have been prepared by the candidate itself digitally and certified by the supervisor. Tested under 1.6(LO 1)

## **6. Expert medical witness (maximum of 50 marks)**

### **6.1 Developing skills in giving Expert Evidence in a Court of Law Reflective Report on Court Attendance**

Evidence of court attendance (copy of the certificate of attendance), PMR or MLR which the evidence was based and a reflective report on the experience (250-500 words) should be included.

**(50 marks** per reflective report when trainee gives evidence as an expert witness **or 25 marks** per reflective report when trainee participate as an observer in trainer's cases)

## **7. Manager (includes communicator, collaborator, leader, team player) (maximum of 30 marks)**

**7.1 Evidence of chairing a meeting** (e.g. Weekly Autopsy review) and a summary of the experience (max.300 words) **10 marks**

**7.2 Managerial activity** - Evidence of performing any two of the following or any other managerial activity related to medical practice 5 X 2 = **10 marks**

Organizing a case conference

Organizing a teaching activity/journal club/colloquium

Contribution to administration of the unit – e.g. Upgrading registers

Streamlining the autopsy reports in a unit

Creation of a new unit or section e.g. Child friendly space, interview room, examination area

**7.3 Evidence of a public oral presentation (10 marks)** at National or international academic sessions/morbidity mortality meetings/National or regional maternal death conferences/journal club/clinical case presentation meeting with evidence of presentation. Abstracts with presenter certificate/ summary of the proceedings/or a copy of the slide set / print out of the poster to A4 paper certified by the supervisor, or feedback received from peers or supervisors on such presentations can be included as evidence of presentations.

Claiming of marks for an abstract (oral presentation/poster presentation) and a journal article on the same topic is allowed.

The trainee's contribution in the presentations where multiple authors are listed will be considered in awarding marks. Therefore a declaration of contribution will be recommended in presentations where multiple authors are listed.

## **8. Researcher and scholar (maximum of 100 marks)**

Research/clinical audit work and publications

### **Research**

#### **8.1. Participation at a course on how to conduct research (30 marks)**

Evidence of participation at a course on how to conduct by any institution acceptable to the Board of study

**8.2 Research/clinical audit project proposal/s- (30 marks).**

**8.3 Evidence of ethical approval** from an appropriate Ethics Review Board **(10 marks)**

(A mandatory minimum of one project proposal should be submitted in the portfolio)

**8.4** A dissertation of 6000 – 8000 words based on the conducted research should be written by candidate. **(30 marks)** See Prospectus and annexes for guidelines for research.

A declaration of contribution of research work should be incorporated. (e.g: The design to the study, supervision to the study, analysis of the data, interpretation of the results, writing the manuscript, revising the manuscript) Depending on the contribution the marks will be given.

**Instead of a dissertation under 8.4, a publication based on this research in a recognized journal (Index Medicus listed) – 30 marks per item (max.) maybe given Scholar**

**8.5 Evidence of teaching** commitments undertaken by the trainee during training – **maximum 20 marks** for the section. (Undergraduate, postgraduate, nurses, paramedical, police or others) certified by the supervisor (A lecture note/ slide set/ time table)/ or direct appraisal documentation- e.g. Teacher evaluation reports.

The following will be considered in consideration of marks

Resource person (lectures) -10 marks per hour

Resource person (practical/tutorial/ ward class) -5 marks per hour

**9. Ethics and professionalism**

(This includes personal development, ethics in practice and professionalism)

**9.1 Evidence of Continuous Professional Development (CPD)** activities and others– conferences / workshops / symposia / academic meetings attended. The certificates of participation/certified letters of participation will be considered as proof. **(5 marks per activity** maximum of 50 marks)

**9.2 Participation in Professionalism workshop**-certificate of participation should be attached to the portfolio **(20 marks)**

**10. System based practice**

**10.1 Attendance** of a minimum of one - maternal mortality meetings/ mortality reviews/ interdisciplinary activities 15 marks per activity (maximum of **30 marks**



**5. Summary table of documents to be included in portfolio along with the Maximum mark awarded per each activity and marks for pass grade**

Year	Candidate's Name:		Registration No.	Marks for pass grade
A & B - Introducing oneself & mission and vision as a candidate for MD in Forensic Medicine			0 – 20 marks	150
Evaluated Professional Activities/Events of competences/Attitudes related to the 10 learning outcome/s				
Learning outcome	Documents to be compiled		Maximum marks	
1. Holistic Medico – legal management	1.1 Report on reflective learning related to the outcome of Holistic medico – legal Management		30	
	1.2 MD in-service training log book		50	
	1.3 Reflective learning experiences log (minimum 05 cases)		75	
	1.4 Progress reports from supervisors including supervisor feedback on communication skills (5 marks x 5 reports)		25	
	1.5 Case records and commentaries 10 records 10X10 = 100		100	
Subtotal			300	
2. Theory	02 marks per correct answer for the selected theory questions		40	
3. Clinical skills	3.1 Formative evaluation of autopsy skills during MD training (Direct Observation of Practical Skills (DOPS 1)-see below on page for mark sheet 20X05 evaluations		100	
	3.2 Formative evaluation of Clinical examination skills (DOPS 2) see below on page for mark sheet 15X4 evaluations		60	
	3.3 Report regarding a scene of crime trainee has attended and managed or observed trainers scene management -		30	
	3.4 Report of interviewing a child abuse victim or rape victim – should not be more than 500 words		20	

<b>4. Scientific reasoning</b>	4.1 03 PBL attendance (10 X 03 PBL)	30	<b>150</b>
	4.2 05 medico - legal opinions based on 05 case summaries giving reasons(04 marksX05)	20	
<b>Subtotal</b>		<b>300</b>	
<b>5. Issuing a quality report</b>	5.1 05 post-mortem reports (PMR) – 10 marks X 05	50	
	5.2 05 medico – legal reports (MLR) – 10 marks X 05 2 PMR & 2MLRs during the 1 <sup>st</sup> 12 months of training 3 PMRs & 3 MLRs in the 2 <sup>nd</sup> 12 months of the MD training Programme. Maximum marks for each report is 10 marks.	50	
<b>6. Expert medical witness</b>	<b>Reflective Report on Court Attendance (250 – 500 words)</b> - Trainee giving evidence as an expert witness - 50 marks per report - Trainer giving evidence as expert witness - 25 marks per report when trainee participate as an observer and writes reflective report	50	
<b>7. Manager*</b>	Evidence of chairing a meeting and a summary of meeting (max.300 words)	10	
	7.2 Evidence of performing activity related to managerial skills	10	
	e.g. managing a medico legal unit(see page ...7.2 for details	10	
	7.3 Evidence of a public oral presentation see page...7.3		
<b>8a. Researcher</b>	8.1 Certificate of completion of a course on research methodology or equivalent	30	
	8.2 Research proposal or/audit proposal	30	
	8.3 Evidence of ethical approval	10	
	8.4 Evidence of research publication/presentation Submission of dissertation 6000- 8000 word or publication in recognized journal (Index Medicus listed)	30(max)	
<b>8b. Scholar</b>	8.5 Evidence of teaching commitments Resource person (lectures) – 10 marks per hour Resource person (practical/tutorial/etc.)- 05 marks per hour	20	
<b>9. Ethics and professionalism</b>	9.1 Evidence of(CPD) activities and scientific meetings attended(05 marks per activity)	50	
	9.2 Completion of Professionalism workshop (20 marks)	20	

<b>10. system based practice</b>	10.1 Attendance at maternal mortality meetings/ mortality reviews/ interdisciplinary activities or equivalent 15 marks per activity 15 X 02 = 30	30	200
<b>Subtotal</b>		400	
<b>Total</b>		1000	

\*includes communicator, collaborator, leader, team player

## 6. Assessment of the portfolio (portfolio viva) 18 and 30 months

Two formal portfolio assessments shall be done. Portfolio assessment 01 will be by the two external examiners appointed by BOS for the EPISTAs at approximately **18 months**. Final portfolio examination will be conducted at **30 months** of training by two/three examiners appointed by the BOS/BOM/Senate. These two assessments shall consist of a “Portfolio Viva” conducted over a period of 30-45 minutes. The completed portfolio should be submitted at 30 months of MD training. (Rest of instructions are included in the prospectus document).

## 7. The format of the portfolio viva

The marking grid given above shall be used. The total marks allocated for the assessment shall be 1000. The maximum marks allocated for each activity/event is given in the grid (No.05 in this document). The marks shall be allocated independently by the two/three examiners and the final mark shall be the average of these.

## 8. Requirements to pass the portfolio viva

**50% (500 marks/1000) or more of the total aggregate**

**AND**

**50% (150 marks/300) or more for section A&B and outcome 01**

**AND**

**50% (300 marks/600) or more for outcomes 02 – 10**

## 9. Repeat assessment

A trainee who could not pass the assessment will be given a feedback on the deficiencies noted in the portfolio towards improvement based on above criteria.

If the candidate passes the assessment again within a minimum period of 3-6 months (minimum of 3 months and maximum of 6 months), the candidate would be able to sit for the final summative MD examination. If unsuccessful on the first repeat assessment, the candidate has to face the portfolio viva after a further training for a minimum period of six months in a unit allocated by the Board of Study.

**10. Direct observation of practical skills – DOPS forms****direct observation of practical skills – DOPS-1.1****Post-mortem examinations (1 - 6 Months) Autopsy in a natural death**

Trainee's Name	
Training Centre	
Type of the post-mortem and serial number	
	Circle the Grade When relevant
Trainees ability in the organization of the post-mortem (History taking & Mortuary organization)	A, B, C, D, E
Trainee's adherence to health & safety issues at dissection room.	A, B, C, D, E
Post-mortem dissections	Routine/special
If there are special dissection, indicate the type whether Neck, Cervical/spinal, Pelvic, Musculoskeletal	..... .....
Trainee's competence in dissection	A, B, C, D, E
Trainee's time management at the dissection	A, B, C, D, E
Trainee's ability in conveying post-mortem findings and cause of death to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks:	
Name of the Trainer:	
Signature of the Trainer	Date:
Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained.	
A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

**Direct observation of practical skills – DOPS-1.2****Post-mortem examinations (6 - 12 Months) Autopsy in a road fatality**

Trainee's Name	
Training Centre	
Type of the post-mortem and serial number	
	Circle the Grade When relevant
Trainees ability in the organization of the post-mortem (History taking & Mortuary organization)	A, B, C, D, E
Trainee's adherence to health & safety issues at dissection room.	A, B, C, D, E
Post-mortem dissections	Routine/special
If there are special dissection, indicate the type whether Neck, Cervical/spinal, Pelvic, Musculoskeletal	..... .....
Trainee's competence in dissection	A, B, C, D, E
Trainee's time management at the dissection	A, B, C, D, E
Trainee's ability in conveying post-mortem findings and cause of death to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks:	
Name of the Trainer:	
Signature of the Trainer	Date:
Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained.	
A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

**Direct observation of practical skills – DOPS-1.3****Post-mortem examinations (12 - 18 Months) Autopsy in a homicide 01**

Trainee's Name	
Training Centre	
Type of the post-mortem and serial number	
	Circle the Grade When relevant
Trainees ability in the organization of the post-mortem (History taking & Mortuary organization)	A, B, C, D, E
Trainee's adherence to health & safety issues at dissection room.	A, B, C, D, E
Post-mortem dissections	Routine/special
If there are special dissection, indicate the type whether Neck, Cervical/spinal, Pelvic, Musculoskeletal	..... .....
Trainee's competence in dissection	A, B, C, D, E
Trainee's time management at the dissection	A, B, C, D, E
Trainee's ability in conveying post-mortem findings and cause of death to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks:	
Name of the Trainer:	
Signature of the Trainer	Date:
Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained.	
A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

**Direct observation of practical skills – DOPS-1.4****Post-mortem examinations (18 – 24 Months) Autopsy in a homicide 02**

Trainee's Name	
Training Centre	
Type of the post-mortem and serial number	
	Circle the Grade When relevant
Trainees ability in the organization of the post-mortem (History taking & Mortuary organization)	A, B, C, D, E
Trainee's adherence to health & safety issues at dissection room.	A, B, C, D, E
Post-mortem dissections	Routine/special
If there are special dissection, indicate the type whether Neck, Cervical/spinal, Pelvic, Musculoskeletal	..... .....
Trainee's competence in dissection	A, B, C, D, E
Trainee's time management at the dissection	A, B, C, D, E
Trainee's ability in conveying post-mortem findings and cause of death to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks:	
Name of the Trainer:	
Signature of the Trainer	Date:
Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained.	
A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

**Direct observation of practical skills – DOPS-1.5**

**Post-mortem examinations (24- 30 Months)** Other autopsy with special needs postop, maternal, infant death, suicide

Trainee's Name	
Training Centre	
Type of the post-mortem and serial number	
	Circle the Grade When relevant
Trainees ability in the organization of the post-mortem (History taking & Mortuary organization)	A, B, C, D, E
Trainee's adherence to health & safety issues at dissection room.	A, B, C, D, E
Post-mortem dissections	Routine/special
If there are special dissection, indicate the type whether Neck, Cervical/spinal, Pelvic, Musculoskeletal	..... .....
Trainee's competence in dissection	A, B, C, D, E
Trainee's time management at the dissection	A, B, C, D, E
Trainee's ability in conveying post-mortem findings and cause of death to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks:	
Name of the Trainer:	
Signature of the Trainer	Date:
Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained.	
A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	



**Direct observation of practical skills – DOPS 2.1**

Clinical examinations (1<sup>st</sup> 6 months) victim of assault with category of grievous and above/ victim of accident/victim of rape or child abuse/examination of a detainee/torture victim

Trainee's Name	
Training Centre	
Type of the clinical case and serial number	Assault/RTA/Sexual Abuse/child abuse/Torture/other Circle the Grade - Where relevant
Trainee's ability in adherence to legal and ethical aspects	A, B, C, D, E
Trainee's ability in taking a medico-legal history	A, B, C, D, E
Trainee's ability in selecting appropriate clinical examination/s in the case given	A, B, C, D, E
Trainee's competence in conducting of the clinical examination	A, B, C, D, E
Trainees competence in carrying out special examinations-e.g: genital examination, examination of drunkenness etc.	A, B, C, D, E
Trainee's ability in conveying finding to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks  Name of the Trainer: Signature of the Trainer  Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained. ( 50% or more) A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

**Direct observation of practical skills – DOPS 2.2**

CLINICAL EXAMINATIONS (6 - 12 months) victim of assault with category of grievous and above/victim of accident/victim of rape or child abuse/examination of a detainee/torture victim

Trainee's Name	
Training Centre	
Type of the clinical case and serial number	Assault/RTA/Se xual Abuse/child abuse/ Torture/other Circle the Grade - Where relevant
Trainee's ability in adherence to legal and ethical aspects	A, B, C, D, E
Trainee's ability in taking a medico-legal history	A, B, C, D, E
Trainee's ability in selecting appropriate clinical examination /s in the case given	A, B, C, D, E
Trainee's competence in conducting of the clinical examination	A, B, C, D, E
Trainees competence in carrying out special examinations- e.g: genital examination, examination of drunkenness etc.	A, B, C, D, E
Trainee's ability in conveying finding to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks	
Name of the Trainer:	
Signature of the Trainer	
Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained. ( 50% or more) A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

**Direct observation of practical skills – DOPS 2.3**

CLINICAL EXAMINATIONS (12 - 18months) victim of assault with category of grievous and above/ victim of accident/victim of rape or child abuse/examination of a detainee/torture victim

Trainee's Name	
Training Centre	
Type of the clinical case and serial number	Assault/RTA/Sexual Abuse/child abuse/ Torture/other Circle the Grade - Where relevant
Trainee's ability in adherence to legal and ethical aspects	A, B, C, D, E
Trainee's ability in taking a medico-legal history	A, B, C, D, E
Trainee's ability in selecting appropriate clinical examination /s in the case given	A, B, C, D, E
Trainee's competence in conducting of the clinical examination	A, B, C, D, E
Trainees competence in carrying out special examinations- e.g: genital examination, examination of drunkenness etc.	A, B, C, D, E
Trainee's ability in conveying finding to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks  Name of the Trainer: Signature of the Trainer  Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained. ( 50% or more) A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

**Direct observation of practical skills – DOPS 2.4**

CLINICAL EXAMINATIONS (18 - 30 months) victim of assault with category of grievous and above/ victim of accident/victim of rape or child abuse/examination of a detainee/torture victim

Trainee's Name	
Training Centre	
Type of the clinical case and serial number	Assault/RTA/Se xual Abuse/child abuse/ Torture/other Circle the Grade - Where relevant
Trainee's ability in adherence to legal and ethical aspects	A, B, C, D, E
Trainee's ability in taking a medico-legal history	A, B, C, D, E
Trainee's ability in selecting appropriate clinical examination /s in the case given	A, B, C, D, E
Trainee's competence in conducting of the clinical examination	A, B, C, D, E
Trainees competence in carrying out special examinations- e.g: genital examination, examination of drunkenness etc.	A, B, C, D, E
Trainee's ability in conveying finding to authorities and the relatives	A, B, C, D, E
Overall competence	A, B, C, D, E
Remarks	
Name of the Trainer:	
Signature of the Trainer	
Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained. ( 50% or more)	
A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure	

<b>Direct observation of practical skills - DOPS 3a</b>					
<b>Report writing</b>					
Trainee's Name					
Training Centre					
PMR: SR Number/Case Number	1	2	3	4	5
Clarity of the PMRs Grade - A, B, C, D, E        Overall organization of the PMR- (diagrams/ photos/ investigations/ annexes) Grade - A, B, C, D, E        Medico-Legal Opinion of PMRs Grade - A, B, C, D, E	A	A	A	A	A
	B	B	B	B	B
	C	C	C	C	C
	D	D	D	D	D
	E	E	E	E	E
	A	A	A	A	A
	B	B	B	B	B
	C	C	C	C	C
	D	D	D	D	D
	E	E	E	E	E
	A	A	A	A	A
	B	B	B	B	B
	C	C	C	C	C
	D	D	D	D	D
	E	E	E	E	E
Overall assessment of the report Circle the Grade - A, B, C, D, E	A	A	A	A	A
	B	B	B	B	B
	C	C	C	C	C
	D	D	D	D	D
	E	E	E	E	E
Remarks:        Trainer's Name Trainer's Signature: Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained. ( 50% or more)					
A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure					

<b>Direct observation of practical skills – DOPS 3 b</b> <b>Report writing : special emphasis on how to write medico-legal opinions in complicated clinical cases</b> Trainee's Name _____ Training Centre _____					
MLR/Case Number:	1	2	3	4	5
Clarity/legibility of the MLRs Circle the Grade - A, B, C, D, E        Overall organization of the MLRs- (diagrams/ photos/ investigations/ annexes) Circle the Grade - A, B, C, D, E     Medico-Legal Opinion of MLRs Circle the Grade - A, B, C, D, E	A	A	A	A	A
	B	B	B	B	B
	C	C	C	C	C
	D	D	D	D	D
	E	E	E	E	E
	A	A	A	A	A
	B	B	B	B	B
	C	C	C	C	C
	D	D	D	D	D
	E	E	E	E	E
	A	A	A	A	A
	B	B	B	B	B
	C	C	C	C	C
	D	D	D	D	D
	E	E	E	E	E
Overall assessment of the report Circle the Grade - A, B, C, D, E	A	A	A	A	A
B	B	B	B	B	
C	C	C	C	C	
D	D	D	D	D	
E	E	E	E	E	
Remarks:     Trainer's Name _____ Trainer's Signature: _____ Please note – to certify that the person reached the satisfactory skills a C or above C should be obtained. ( 50% or more) A-Excellent, B-Good pass, C-Pass, D- failure, E- bad failure					

## **Annex 08      Portfolio marking grid**

### **Assessment of the portfolio**

#### **1. Documentation:**

**Clarity, Brevity, Correct sequence, Focused presentation**

	<b>Marks/10</b>
<b>Fail</b>	<b>3</b>
<b>Borderline</b>	<b>4</b>
<b>Pass</b>	<b>5</b>
<b>Good pass</b>	<b>6</b>
<b>Excellent pass</b>	<b>7+</b>

#### **2. Clinical skills:**

**Number, different types, competency**

	<b>Marks/10</b>
<b>Fail</b>	<b>3</b>
<b>Borderline</b>	<b>4</b>
<b>Pass</b>	<b>5</b>
<b>Good pass</b>	<b>6</b>
<b>Excellent pass</b>	<b>7+</b>

#### **3. Autopsy skills**

**Workshops, Seminars, Conferences, DOPS**

	<b>Marks/10</b>
<b>Fail</b>	<b>3</b>
<b>Borderline</b>	<b>4</b>
<b>Pass</b>	<b>5</b>
<b>Good pass</b>	<b>6</b>
<b>Excellent pass</b>	<b>7+</b>

**4. Reflective Ability**

		<b>Marks/10</b>
<b>Fail</b>	<b>Has not completed Reflective cycle</b>	<b>3</b>
<b>Borderline</b>	<b>Has only described the learning experience</b>	<b>4</b>
<b>Pass</b>	<b>Analysed the reasons for the experience &amp; the reasons for outcome</b>	<b>5</b>
<b>Good Pass</b>	<b>Evaluated how the outcome could have been different if a different course of action was taken</b>	<b>6</b>
<b>Excellent Pass</b>	<b>Provided high quality evidence for implementing changes</b>	<b>7+</b>

**5. Teaching (undergraduates/ nurses /police )**

	<b>Marks/10</b>
<b>Fail</b>	<b>3</b>
<b>Borderline</b>	<b>4</b>
<b>Pass</b>	<b>5</b>
<b>Good pass</b>	<b>6</b>
<b>Excellent pass</b>	<b>7+</b>

**Total Mark out of 50 Examiner 1=**

**Total Mark out of 50 Examiner 2=**

**Mark out of 100 =**

**Final Mark out of 50 =**

**Signature of Examiner 1: .....**

**Signature of Examiner 1: .....**

**Date: ...../...../.....**



**The guideline below maybe used when giving a mark for the portfolio**

Grade	Overall professional capability	Knowledge & judgement	Manner
Excellent pass 7+	The candidate demonstrated a confidence and competence that would inspire the examiner think that he can handle any difficult situation	Flawless knowledge plus insight and judgment quoting literature	Excellent rapport with examinees, other officials related to investigations
Good pass 6	The candidate demonstrated a confidence and competence without any prompts	Good knowledge, Strong, interpretation/ judgment but didn't quote the literature	Gains examinees or other officials confidence quickly
Pass 5	The candidate demonstrated a confidence and competence with some or minimal prompts	Good knowledge and judgment of common problems. No major errors	Treats examinees & others appropriately
Borderline 4	The candidate failed to demonstrate confidence and competence	Gaps in knowledge and poor higher order thinking	Do not listen, no introduction and examinees are not at ease
Fail 3	The candidate demonstrate incompetence	Poor basic knowledge, judgement and understanding to a level of concern	Abrupt, arrogant, inappropriate behaviour

**Annex 09 Progress reports on trainees – Pre MD**

At Six, Twelve, Eighteen and Twenty Four months

**Specialty- Forensic Medicine****NAME OF TRAINEE:****PERIOD OF TRAINING:****HOSPITAL AND UNIT:****NAME OF THE SUPERVISOR:**

The Trainer shall use the following guideline and marking scheme to assess the trainee's progress during the training. It is that justification/reasons are stated if a Grade of excellent or poor is given.

**Excellent  $\geq 70\%$  Good = 60 – 69 % Average = 50 – 59 % Poor = < 50 %**

**Please use the portfolio maintained by the trainee and a combination of work based assessment such as multisource feedback (MSF), objectives structured assessment of technical skills (OSATS) mini-clinical evaluations exercise (Mini-CEX), direct observation of procedural skills (DOPS), case-based discussions (CbD), to arrive at your judgment.**

	<b>Grade</b>	<b>Justification/ Reasons</b>
Theoretical knowledge		
Clinical decision making		
Clinical skills		
Autopsy skills		
Thinks independently and rationally		
Seek appropriate consultations		
Ability to follow instructions		
Quality of documentation		
Dedication to work		
Professional attitudes		
Reliability		
Availability/punctuality		
Communication skills		
Doctor-patient relationship		
Relationship with colleagues		
Relationship with other staff		
Supervises and help juniors		
Teaching of medical students/junior staff		

**Other Comments: Signature of the trainer:****Date:**

**Annex 10 Format of internal periodic in-service training assessments – IPISTA****At first six and twelve months during MD training.**

Name of Trainee:

Name of Trainer:

Training centre:

Period of report: Twelve / Eighteen Months of Training in MD

The Trainer shall use the following guideline and marking scheme to assess the trainee's progress during MD training.

**Excellent<sup>1</sup> =  $\geq 70\%$     Good<sup>2</sup> = 60 – 69 %    Average<sup>3</sup> = 50 – 59 %    Poor<sup>4</sup> = < 50 %**

**Extremely poor<sup>5</sup> = < 30%**

<sup>1</sup>Highly skilled <sup>2</sup>Functions above expected level of competence <sup>3</sup>Functions at expected level of competence <sup>4</sup>Unsatisfactory <sup>5</sup>Risk to profession

<b>A. PRACTICAL SKILLS<sup>1</sup></b>	<b>Maximum Marks</b>	<b>Allocated Marks</b>	<b>Specific Comments</b>
1. Clinical/autopsy Interview <sup>2</sup>	<b>10</b>		
2. Clinical Examination (identification of positive findings and correct interpretation)	<b>10</b>		
3. Standard autopsy skills, identification and interpretation <sup>3</sup>	<b>20</b>		
4. Attention to health and safety	<b>10</b>		
5. Selection of appropriate investigations and Interpretation(Clinical & Autopsy)	<b>10</b>		
7. Competent report writing & timely response to summons <sup>4</sup>	<b>20</b>		
8. Record keeping <sup>5</sup>	<b>10</b>		
9. Non-judgmental attitude and impartiality	<b>10</b>		
6. Opinion formation	<b>10</b>		

<b>B. Academic skills</b>	<b>Maximum marks</b>	<b>Allocated marks</b>	<b>comments</b>
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<sup>1</sup>Give mark based on entrustable professional activities(EPA)Routine professional-life activities of physicians based on their specialty

<sup>2</sup>History Taking – Gather essential and accurate information – includes communication skills needed for interacting with examinees, care givers

<sup>3</sup>identify the pathological changes and injuries and interpret appropriately

<sup>4</sup>Includes medicolegal report, post-mortem reports and any other relevant reports or documents

<sup>5</sup>Documentation & maintenance of records

1. Theoretical knowledge	<b>10</b>		
2. Use of medical literature & Internet facilities to update knowledge	<b>10</b>		
3. Participation in academic discussions <sup>6</sup>	<b>10</b>		
4. Ability to think independently and rationally	<b>10</b>		
5. Interest in Continuing Professional Development (CPD)	<b>10</b>		
6. Language skills, esp. English	<b>10</b>		
7. Teaching and dissemination of knowledge	<b>10</b>		
8. Critical thinking(logical reasoning)	<b>20</b>		

<b>C. Professionalism and ethics, Communication, intrapersonal, interpersonal &amp; managerial skills</b>			
1. Professionalism <sup>7</sup> and Time management	<b>10</b>		
2. Communication skills <sup>8</sup>	<b>10</b>		
3. Communication & working with others in the unit	<b>10</b>		
4. Communication & working with others outside the unit / discipline <sup>9</sup>	<b>10</b>		
5. Attention to the basic principles of medical ethics <sup>10</sup>	<b>10</b>		
6. Personal development <sup>11</sup>	<b>10</b>		
7. Supervisory and helping role <sup>12</sup>	<b>10</b>		
8. Organization and efficiency <sup>13</sup>	<b>10</b>		
9. Effective manager, team leader and member	<b>10</b>		
10. Information technology <sup>14</sup>	<b>10</b>		

<sup>6</sup> attendance of academic meetings such as the College and MLS sessions and other local clinical meetings

<sup>7</sup> Includes work ethics, integrity, professional attitudes including acceptance of constructive criticism, honesty, accountability, punctuality, reliability, attitudes and involvement in out of hours work (on call)

<sup>8</sup> covers powers of expression

<sup>9</sup> Includes professional relationship with the police, medical officers in other wards, and professionals in criminal justice process e.g. Forensic scientists, magistrates, other lawyers and inquirer into sudden deaths

<sup>10</sup> (Informed consent, confidentiality etc.)

<sup>11</sup> Includes attention to career progression, goal setting, attention to personal life, balancing work and personal life, prioritising, reflective thinking

<sup>12</sup> Supervising and helping other healthcare workers (attendants and technical officers etc.) and willingness to serve when required. Also includes putting others above self as and when required viz. victims, bereaved relatives

<sup>13</sup> Responding to summons, Time management, Responding to calls from police, ISDs, State Counsel

<sup>14</sup> Advanced IT skills needed for improving the specialty

**Projects or other activities carried out during the period of training:**

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**Particular strengths :** -----  
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-----

**Particular weaknesses:** -----  
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**Total Marks (300) =**-----

**Marks (50) =**-----

.....

.....

.....

**Signature of Trainer**

**Name**

**Date**

Internal periodic in-service training assessment - 06 and 12 months

In institutions where there are more than one trainer the supervisor should obtain a written feedback regarding the trainee from all other eligible trainers and award an agreed final mark and all should sign the IPISTA.

This mark is not included in the continuous assessment but should be communicated to the trainee.

**Annex 11 Format of external periodic in-service training assessments (EPISTA)**

At Eighteen and Twenty Four months

**Specialty- Forensic Medicine****NAME OF TRAINEE:****NAME OF TRAINER:****TRAINING CENTER:****PERIOD OF REPORT:** Eighteen months/ Twenty Four months

The Evaluators shall use the following guideline and marking scheme to assess the trainee's progress during the training. It is that justification/reasons are stated if a mark of excellent or poor is given.

**Excellent  $\geq 70\%$       Good = 60 – 69 %      Average = 50 – 59 %      Poor = < 50 %**

**Please use the portfolio maintained by the trainee and a combination of work based assessment such as multisource feedback (MSF), objectives structured assessment of technical skills (OSATS) mini-clinical evaluations exercise (Mini-CEX), direct observation of procedural skills (DOPS), case-based discussions (CbD), to arrive at your judgment.**

	<b>Maximum Marks</b>	<b>Allocated Marks</b>	<b>Justification/ Reasons</b>
<b>Practical skills</b>			
<b>1. Clinical Interview</b>	<b>20</b>		
<b>2. Clinical Examination</b>	<b>20</b>		
<b>3. Selection of appropriate investigations</b>	<b>10</b>		
<b>4. Interpretation of investigations</b>	<b>20</b>		
<b>5. Clinical judgment and decision making</b>	<b>30</b>		
<b>6. Obtaining informed consent</b>	<b>10</b>		
<b>7. Communication skills especially with patients</b>	<b>20</b>		
<b>8. Professionalism</b>	<b>20</b>		
<b>9. Organization and efficiency</b>	<b>20</b>		
<b>10. Autopsy management</b>	<b>20</b>		

<b>11. Scene management</b>	<b>10</b>		
<b>12. Dissection &amp; display competence and appropriate decision making &amp; management plans.</b>	<b>20</b>		
<b>13. Documentation &amp; maintenance of records</b>	<b>40</b>		

<b>ACADEMIC SKILLS</b>			
<b>1. Theoretical knowledge</b>	<b>20</b>		
<b>2. Ability to think independently and rationally</b>	<b>20</b>		
<b>3. Fluency in English and Powers of expression (oral and written)</b>	<b>No marks given. Feedback to be given to the Trainee.</b>		

**Particular strengths :** -----  
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-----

**Particular weaknesses:** -----  
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**Total Marks (300) =** -----

**Marks out of 25 =** -----

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**Signature of Evaluator 1**

.....  
**Name**

**Date**

.....  
**Signature of Evaluator 2**  
**Date**

.....  
**Name**

**Recommendation of the BOS:** .....

**Signature of Chairperson/Secretary:**

**Date:**

**Annex 12      Assessment criteria for Autopsy component****Postgraduate institute of Medicine, University of Colombo  
MD (Forensic Medicine) examination – Assessment Guide**

Autopsy I at 12 Months [Marks will not be carried forward]

Autopsy II at 18 Months along with EPISTA I [50 Marks]

Autopsy III at 24 Months along with EPISTA II [80 Marks]

Candidate shall score minimum 40 marks for the Autopsy III. Trainees who are unsuccessful at Autopsy II and III will be given an opportunity to repeat the component after six months.

**Autopsy (PM) examination**

Date .....

Candidate No.....

	Comments	Marks	%
<b>General observations</b>			<b>10</b>
<b>Specific examinations</b>			<b>10</b>
<b>Dissection and display</b>			<b>20</b>
<b>Evaluation of findings</b>			<b>30</b>
<b>Discussion</b>			<b>30</b>
<b>Total</b>			<b>100</b>

Examiner's Name:

Signature .....

Note: the examiner is requested to indicate deficiencies, if any, of the candidate for the purpose of reference at the pre results meeting and in order to inform him/her of the areas to be improved at the counselling session.



## **Best practices/ guidelines in autopsy component of examination**

### **I. Objectives of the Autopsy examination –**

1. For DLM- should be thorough in dissection and be able to arrive at conclusions based on expected standard of knowledge. (60% is allocated up to 'dissection and display')
2. For MD- Should be in authority of interpretation, evaluation and arriving at conclusions following autopsy examination (60% is given for evaluation and discussion)

### **II. Before the PM –**

1. Short history should be given.
2. Candidate will be advised to inform the examiners if required during dissection

### **III. During PM-**

1. Should not disturb the candidate by staying within the autopsy room right through the examination. May visit every 15- 30 minutes.
2. In about 15 minutes – May question about observations if required.

### **IV. During examination**

1. Request the candidate to present the findings and evaluations.
  - a. Clarifications may be sought but the 'discussion' should not be started before the candidate concludes the presentation.
  - b. If examiners feel further exploration is needed, candidate should be requested to perform further dissection.
2. The discussion may follow thereafter-
  - a. Discussion may start after each system or after completion of whole presentation.
  - b. Do not make the candidate uneasy by challenging. Be friendly. If the candidate is moving away from the focus, bring him back to the point.

### **V. Assessment**

1. Do independent marking
2. Give comments for future reference.

## **Annex 13 Forensic histopathology for MD Forensic Medicine trainees**

### **Introduction:**

The purpose of developing objectives is to make a trainee reflect on the process of training and professional development as a forensic medical expert competent in histopathology in forensic context.

Forensic Pathology focuses on medico legal investigations of sudden or unexpected death. Specialists in Forensic Medicine have a critical and pivotal role in examining the body of the deceased to define the cause of death, factors contributing to death and to assist with the reconstruction of the circumstances in which the death occurred.

Similar to any other medical consultations, the diagnostic process involves the specialists in Forensic Medicine assessing and incorporating evidence from the deceased's medical history, circumstances surrounding the death, the findings of post-mortem medical examination (autopsy) and the results of laboratory investigations undertaken as part of the autopsy.

A sound knowledge of histopathology of body tissues is often needed to enable a precise diagnosis. Thus, a Specialists in Forensic Medicine in Sri Lanka is expected to exhibit reasonable skills and knowledge in histopathology in Forensic context.

This list gives some guidance to conditions that may be expected to be encountered in forensic pathology practice. It should not be considered to be exclusive: candidates for examinations should therefore not limit their preparation to only these conditions. Practitioners and candidates should be familiar with the full range of the microscopic morphology of these conditions.

### **Objectives**

#### **1. General objectives**

Trainee should be able to

1. Recognize normal tissue and differentiate from abnormalities
2. Know the pathological process related to various disease and abnormal conditions and those which are related to medico-legal investigation of death in uncomplicated cases.
3. Should know the basic principles changes concepts and theories behind various pathological changes and also in specific disease conditions
4. Use histopathological investigations in an appropriate way to improve the standards of forensic investigations.
5. Formulate appropriate scientific medico-legal opinions based on forensic histopathological findings.
6. Know the limitations in formulating opinions based on forensic histopathology.
7. Evaluate their own work with self, peer and supervisor based monitoring and evaluation techniques.
8. Know the setup in histopathological laboratories procedures and techniques used in histopathology and staining methods and techniques commonly used in forensic histopathological investigations.

9. Prioritize histopathological studies based on medico-legal issues when facilities are limited.
10. Perform effectively in supporting the judiciary and other relevant authorities in providing a complete report with a scientific opinion based on histopathological studies without undue delay.
11. Apply the knowledge on Forensic Histopathology to solve specific matters in complicated Forensic investigations such as;
  - a. Finding trivial injuries of forensic importance
  - b. Issues of timing
  - c. Issues of period of survival and activities
  - d. In cases with allegations of medical negligence
  - e. In issues of identification
  - f. Where there are competing causes of death
  - g. Where there is a question of initiating pathology
  - h. Diseases Vs injury
  - i. Negative autopsy at gross examination associated with rare microscopic conditions

## **2. Laboratory work**

- a. Know the importance of histopathological studies in forensic autopsies
- b. Know the cases in which histopathological studies are a must
- c. Know the equipment and apparatus used in basic histopathological laboratory and know how to operate and maintain them
- d. Know the chemicals and other agents used in histopathological laboratory
- e. Know the health and safety measures and designing and waste disposal in a
- f. Know the documentation, chain of custody, archive and pertaining to records and information and related ethical legal and administrative issues in laboratory practice.
- g. Know the specific sections that needs to be blocked in various scenarios
- h. Know the principles underlying taking tissue blocks for histopathology during autopsy
- i. Know the principles underlying accurate positioning of tissue blocks in “L” brass molds / polystyrene cassettes
- j. Know the theory underlying the staining of the sections.
- k. Know the steps of examination of a stained slide under light microscope
- l. Know the quality of slides and the ways to improve this quality to have a better opinion.
- m. Know the effects of autolysis in tissues in forensic cases.

### **3. Knowledge and skill component**

#### **A. General pathology**

##### **a. Injuries to cells and tissues**

- Causation of injury to cells
- Reversible injuries
- Irreversible injuries
- Causes of cell degeneration and necrosis
- Ischemic cell injury

##### **b. Causes of cell injury**

- Trauma
- Infections
- Chemical poisoning
- Physical agents
- Ischemia
- Auto-immune diseases
- Allergens
- Metabolic diseases
- Endocrine diseases

##### **c. Formation of ulcers**

- Underlying principle
- Acute
- Chronic
- Benign
- Malignant

##### **d. Impairment of cell membrane function**

- i. Place of free oxygen radicals
- ii. Activation of complements
- iii. Effects of intracellular enzymes and structure
- iv. Toxins injurious to cells
- v. Immunological reactions leading to cell injuries

##### **e. Definitions, classifications, causes , pathophysiology, morphological changes, and appearance in Degenerative changes**

###### **1.**

- I. Earliest
- II. Hydropic swelling/ degeneration
- III. Fatty change or fatty degeneration (cells, liver, myocardium,)
- IV. Fatty infiltration of the heart

- V. Fatty change of kidneys
- VI. apoptosis
- 2. Hyaline change**
  - I. Intracellular hyaline change
  - II. Extracellular hyaline change
  - III. Myxoid degeneration
- 3. Necrosis**
  - I. Necrosis, pyknosis, karyorrhexis and karyolysis
  - II. Coagulative necrosis,
  - III. liquefactive necrosis
  - IV. fat necrosis,
  - V. caseous necrosis,
  - VI. fibrinoid necrosis,
  - VII. gangrenous necrosis,
- 4. Gangrene**
  - I. Dry gangrene and wet gangrene
  - II. Gas gangrene
- 5. Acute Inflammation and chronic inflammation**
  - **acute**
    - I. Sections of capillaries
    - II. Oedema
    - III. Vasodilation
    - IV. Vasoactive mediators
    - V. Diapedesis
    - VI. Margination of neutrophils
    - VII. Emigration
    - VIII. Phagocytosis
    - IX. Chemotactic factors
    - X. Chemical mediators
    - XI. Resolution after inflammation (lobar pneumonia)
    - XII. Organization and repair
    - XIII. Suppuration
  - **chronic inflammation**
    - Process, causes, types
    - Tubercle follicles
    - Granulomas
    - Granulomatous type
    - Non granulomatous type
  - **Immunological reactions**

## **6. Thrombosis**

- I. Thrombosis in arteries and veins
- II. PM clots

## **7. Embolism**

- Thromboembolism
  - I. Lung
  - II. Brain
  - III. Kidney
  - IV. Bowel
- Fat embolism
- Bone marrow embolism
- Foreign body embolism
- Amniotic fluid embolism

## **8. Oedema**

- I. Chronic pulmonary oedema, acute pulmonary oedema
- II. Cerebral oedema
- III. Oedema and ascites

## **9. Venous congestion**

- I. Concepts
- II. Chronic venous congestion (Liver)
- III. Fate of hepatocytes

## **f. Causes, development and effects of shock**

- I. Concept and development
- II. Types (hypovolemic, oligomeric, cardiogenic, septic, anaphylactic)
- III. Morphological changes (adrenal cortex)

## **g. Definitions, classifications, causes , development, morphological changes, and appearance in Infarction**

- i. Cardiac
- ii. Lung
- iii. Kidneys
- iv. Bowels
- v. Brain
- vi. adrenals
- vii. Skeletal muscles

## **h. Definitions, classifications, causes , development, morphological changes, and appearance of wound healing**

- i. Healing and repair
- ii. Regeneration

- iii. Labile and stable cells
- iv. Permanent cells
- v. With timing (First and second intention)
- i. Definitions, classifications, causes , development, morphological changes, and appearance of**
  - a. Atrophy**
    - i. Myocytes
    - ii. Skeletal muscles
    - iii. Neurons
  - b. Hypertrophy**
    - i. Myocytes
    - ii. Skeletal muscles
    - iii. Smooth muscles
  - c. Hyperplasia, metaplasia, dysplasia**
  - d. Calcification**
    - Dystrophic
    - Metastatic
    - Malignant
  - e. Pigmentation**  
(Physiological, pathological, endogenous, exogenous)
    - Lipofuscin
    - Melanine
    - Haemociderine
    - Haemiciderosis
    - Haemochromatosis
    - Malaria
    - Brown
    - Bilirubin
    - Carbon
    - Asbestosis – occupational disease
    - Silica
  - j. Definitions, classifications, causes , development, morphological changes, and appearance of storage disorders, vasculitis, sarcoidosis, amyloidosis**

Organs affected (spleen, liver, kidney, heart, GI, respiratory, angiopathy)

## **B. Histopathology of trauma**

- Histopathological features in determining vitality of injury, age (Determination of Skin Wound Age, and Fracture Age and other soft tissues) Principles of Histo-chemistry for aging of wounds
- Paediatric skeletal trauma and DD

- Inflammation relating to trauma, in all organ systems, of whatever type – appearance, differential ageing.
- Electrocution
- Burns
- Firearm injury entry

### **C. Histopathology of sudden natural deaths**

- Thrombosis, Embolism and ischemic infarction
  - Strokes
  - pulmonary renal infarcts
  - pulmonary emboli (fat, FB, amniotic, BM, air)
  - DVT
  - identification of AM and PM clots
  - sagittal venous thrombosis
- Cardiac
  - Coronary Sclerosis,
  - IHD (including atherosclerosis, thrombosis, infarction, grafts and stents),
  - Inflammation (including myocarditis, toxic effects and cardiac manifestations of systemic disease)
  - Cardiomyopathies, (hypertrophic, dilated, congestive, hypertensive, obstructive and arrhythmogenic
  - storage disorders;
  - Coronary Anomalies,
  - Basic conduction system disorders.
  - Vascular, Cardiac Valve,
- Metabolic Diseases
- Bronchial asthma
- Lethal Infections
  - Sepsis
  - Shock
  - DIC
  - myocarditis
  - Pneumonia
  - Meningitis (bacterial, viral, TB, fungal)
  - Encephalitis
  - Peritonitis
  - Pancreatitis
  - Hepatitis etc.
  - septic abortion
  - appendicitis perforation
  - appendicular abscess
  - bacterial (e.g. TB, suppurative, Clostridia),
  - viral (e.g. CMV, Herpes, Varicella)



- fungal (e.g. Aspergillus, Mucor, Candida)
- parasitic (e.g. Hydatid, Schistosoma)

**D. Death in newborns, and sudden infant death syndrome**

- neonatal (bronchitis and bronchiolitis)
- atelectasis
- non expanded lungs
- IRDS
- Prematurity

**E. Alcohol-related histopathology**

- Hepatitis
- Hepatic necrosis;
- Cirrhosis;
- cerebral changes

**F. Aspiration and inhalation**

**G. Pregnancy-related death**

- Fatty change of liver in pregnancy
- Ectopic pregnancy
- Placental abnormalities
- HELLP syndrome

**H. Histopathology and drug abuse**

**TOXIN- AND DRUG-INDUCED PATHOLOGIES.**

- Effects in all organ systems including pathology of alcohol and drugs of abuse;
- hyperpyrexia and rhabdomyolysis;
- vasculitis;
- hypersensitivity, allergy and anaphylaxis;
- hepatic necrosis;
- interstitial nephritis, acute tubular necrosis, myoglobinuria, ethylene glycol and papillary necrosis;
- pulmonary fibrosis

**I. Heat, fire, electricity, lightning, radiation, and gases**

**J. Hypothermia**

**K. Anaphylaxis**

**L. Endocrine organs**

- Pheochromocytoma
- pituitary haemorrhage and infarction
- adrenal haemorrhage

**M. Immuno-compromised**

- Viral pneumonitis
- Pneumocystis carinii
- tuberculosis
- fungal pneumonia

**N. Other specific entities related to forensic pathology**

**1. Forensic neuropathology (trauma/ natural and infectious)**

- Diffuse axonal injury
- Subdural haemorrhage
- Subarachnoid haemorrhage
- Cerebral contusions and oedema
- Infections
- Vascular anomalies
- Demyelination
- Multiple sclerosis
- haemorrhage
- infarction
- abscess
- degenerative disorders
- Rabies
- HIV-related meningoencephalitis
- Spongiform encephalopathy (CJD)
- Hypoxic-ischaemic encephalopathy
- Fat/bone marrow embolism
- Congophilic angiopathy (AMYLOID)
- Demyelination (e.g. multiple sclerosis)
- Tuberous sclerosis
- Storage diseases
- Common tumours (e.g. Meningioma, glial tumours, metastases)

**2. CARDIAC DISEASES**

- Valves - infective endocarditis
  - a. Myxoid/sclerotic degeneration
  - b. Chronic rheumatic fever
  - c. Papillary fibroelastoma

- Pericarditis (e.g.fibrinous; carcinomatous)Myocarditis (e.g. lymphocytic, eosinophilic, granulomatous, infective)
- Muscular dystrophy
- Sarcoid heart disease
- Endocarditis and Pancarditis (e.g.Rheumatic fever)
- SA node/AV node pathology
- Neoplasia (e.g. Cardiac myxoma; rhabdomyoma)
- Cardiac transplant rejection
- Cardiomyopathy (e.g.ARVD, HCM)
- Coronary arteries - dissection – fail if not competent
  - a. Vasculitis
  - b. Aneurysm
  - c. Thrombosis
  - d. Medial degeneration
  - e. Dissection
- Senile atrophy
- **Lung**e.g. Aspiration pneumonitis(e.g.aspiration, lentil, CMV, Herpes, Adenovirus, Cryptococcal, Apergillus, Mucor, Pneumocystis)
- ARDS,
- TB,
- Asthma
- Emphysema
- Lung abscess (e.g. fungal)
- COPD and complications (e.g.mucoid impaction)
- Pulmonary hypertension (with grading)
- Embolism (e.g. Amniotic fluid, neoplastic, bone marrow, fat cerebral)
- Interstitial lung disease (acute and chronic – e.g. ARDS, asbestosis, cryptogenic organising pneumonia)
- Wegener's granulomatosis
- Sarcoidosis
- IVI microgranulomatosis
- Haemorrhagic disorders (e.g.Goodpasture's)
- Pneumoconioses (e.g.Anthraco-silicosis)
- Transplant rejection
- Common tumours (e.g.chondroadenoma, carcinoid, SCC, adenoCa, bronchoalveolar, Oat cell, large cell anaplastic, mesothelioma, metastases)
- Benign pleural plaque
- Asbestosis
- inflammation (allergic, systemic, vascular, toxic,);

- organization and fibrosis (inflammatory/infective, allergic, toxic, industrial);
- diffuse alveolar damage;
- pleurisy
- Haemorrhage.

#### **4. Gastro intestinal tract**

##### **Oesophagus**

- Oesophagitis, erosions, ulcers (e.g. candida)
- Varices
- Barrett's oesophagus
- Muscular dystrophy
- Pss
- Neoplasia (e.g.scc, adenoca)

##### **Stomach**

- Acute gastritis (e.g. Erosive, and variants such as emphysematous)
- Chronic gastritis (e.g. eosinophilic, granulomatous)
- Gastric erosions/ulcers (benign and malignant)
- Perforations
- Wischnewsky spots
- Hypertrophic gastropathy
- Neoplasia (common epithelial tumours; MALT lymphoma; GIST)

##### **Intestine**

- Infectious enteritis/colitis/enterocolitis (e.g. erosive, Amoebic)
- Duodenitis/atrophy (e.g. Giardiasis)
- Whipples disease
- Pseudomembranous colitis
- Crohn's disease
- Ulcerative colitis
- Infestation (e.g. Enterobius vermicularis; Giardia, typhoid)
- Appendicitis
- Diverticulitis
- Neoplasia (e.g. Adenoma, carcinoid, Ca, MALT lymphoma, GIST)

##### **Peritoneum/mesentery**

- Peritonitis
- Torsion of appendices epiploicae
- Fat necrosis
- Decidualisation

### **Liver**

- Hepatitis (e.g. Alcoholic, Hep C, CMV)
- Chronic active hepatitis
- Massive hepatic necrosis (e.g. paracetamol)
- Hydatid disease
- Fibrosis/Cirrhosis (e.g. Alpha 1AT, haemosiderin, biliary)
- Steatosis (e.g. Reye's syndrome; pregnancy)
- Cholangitis
- Sinusoidal ectasia/peliosis hepatis
- Veno-occlusive disease/central vein thrombosis
- Nodular hyperplasia
- Neoplasia (e.g. adenoma, HCC – common types, cholangiocarcinoma)
- Metabolic changes (storage disorders, haemochromatosis)

### **Gall bladder**

- Cholecystitis
- Neoplasia

### **Pancreas**

- Cystic fibrosis
- Haemochromatosis
- Acute and chronic pancreatitis
- Ectopic pancreas in duodenum/Meckel's
- Neoplasia (e.g. Adenocarcinoma; endocrine tumours)

## **5. Female genital tract**

- Hydatidiform mole
- Products of conceptus
- Tubal pregnancy
- Endometritis of septic origin
- Ruptured uterus

## **6. Renal**

### **Kidney**

- GN (acute – common forms, and CGN)
- APN/cPN
- Malakoplakia
- Tubular conditions (casts – e.g. Myoglobin, uric acid, RBC casts, hyaline casts, eosinophilic casts, etc.)
- Arteriosclerotic nephrosclerosis

- Hypertensive nephrosclerosis
- Diabetic nephrosclerosis
- Cholesterol micro emboli
- Infarction /renal cortical necrosis,
- Infections (e.g.cmv, fungal)
- Polyarteritisnodosa
- Neoplasia (e.g. Fibroma, Wilms',rcc – common types, angiomyolipoma, oncocytoma,tcc)
- Oxalate deposits (e.g. oxalosis, ethylene glycol toxicity)
- Polycystic/multicystic disease
- Tubulo-interstitial disease (e.g. urate nephropathy, nephrocalcinosis)
- Amyloidosis -
- Myeloma kidney
- Microangiopathy (e.g. hus)

#### **Lower urinary tract**

- Cystitis (e.g. Acute, suppurative, follicular,)
- Schistosoma
- Malakoplakia
- Cystitis glandularis and cystica
- Nephrogenic metaplasia
- Neoplasia (e.g. tcc)
- Testicular atrophy
- Orchitis/epididymitis (e.g. TB)
- Infarction of testis (e.g. Torsion)
- Neoplasia testis (e.g. Germ cell tumours)
- Prostatitis (e.g. suppurative, granulomatous, TB)
- Prostatic abscess
- Benign hyperplasia (+/- infarction, squamous metaplasia)
- Neoplasia prostate
- Neoplasia cervix, uterus and ovaries (common tumours)
- Cervicitis
- Endometritis, salpingitis (e.g. acute, chronic, TB) Genital tract
- Pregnancy
- Tubal ectopic pregnancy
- Pelvic vein thrombosis
- Hydatidiform mole

## **7. Lympho reticular**

### **Spleen**

- Infarct
- Septicaemia/splenitis
- Perisplenitis
- Mycobacterium avium-intracellulare infection
- Angioma
- Neoplastic infiltrate (e.g. leukaemia, NHL)
- Storage disorder

### **Lymph nodes**

- Epithelial cell inclusions
- Follicular hyperplasia
- Sinus histiocytosis and paracortical hyperplasia
- Dermatopathic lymphadenopathy
- Lymphadenitis (e.g. suppurative, granulomatous,
  - lipogranulomatous)
- Sarcoidosis
- Hodgkin's lymphoma (variants)
- NHL (common types)

### **Bone marrow**

- Myeloproliferative disease
- Multiple myeloma
- Leukaemia
- Aplasia
- 

### **Thymus**

- Hypoplasia
- Thymoma
- NHL/Hodgkin's disease

## **8. Eye all**

- i. Retinal haemorrhage
- ii. Retinal detachment
- iii. Dislocation of lens
- iv. Meningitis
- v. Common tumours
- vi. bleeding into chambers

## 9. Blood/lymphatic vessels

- Vasculitis (e.g.PaN; Temporal arteritis, Syphilitic aortitis)
- Aneurysm (e.g.Mycotic, Syphilitic, Dissection)
- Common tumours (Kaposi's, bacillary angiomatosis, angiosarcoma)
- Malformations
- Degenerative changes related to HT, diabetes, etc.
- Atheroma

## 10.Haematological

- Leukaemia
- HUS

## 11.Head and neck

- Mouth – macroscopy only
  - Ulcers (e.g.HSV, fungal infection, Wegener's)
  - Tongue - muscular dystrophy
  - amyloidosis
  - Crohn's disease
  - Pyogenic granuloma
  - Neoplasia (e.g.SCC, melanoma)
- Pharynx/Larynx ( Except marked ones)
  - Pharyngeal infection/abscess (e.g. Actinomyces, fungi, fusospirochetes)
  - Neoplasia (e.g. embryonalrhabdomyosarcoma, olfactory neuroblastoma, nasopharyngealCa)
  - Rhinocerebralmucormycosis
  - Angioedema
- Neck -
  - Branchial cyst
  - Thyroglossal duct cyst
  - Paraganglioma
  - Sialadenitis (e.g.CMV)
  - Salivary gland tumour (e.g.pleomorphic adenoma, adenoid cystic carcinoma, acinic cell tumour)
- Tonsils
  - Lymphoid hyperplasia
  - Actinomyces
  - Suppurative tonsillitis
  - Neoplasia (e.g. lymphoepithelial tumour; non-Hodgkins lymphoma)



## **12. Other special organ systems**

### **Breast**

- Mastitis (e.g. Acute, granulomatous)
- Fat necrosis
- Lactating adenoma
- Radial scar
- Intraduct papillary lesions
- Fibroadenoma
- Phyllodes tumour
- DCIS
- LCIS
- Invasive carcinoma (common types)
- Paget's disease
- Angiosarcoma
- Gynaecomastia?

### **Pituitary**

- Rathke cleft cyst
- Necrosis/infarction
- Adenoma (+/- haemorrhage)
- Craniopharyngioma

### **Thyroid**

- Thyroiditis (e.g. Lymphocytic, Hashimoto's, De Quervain's)
- Adenoma – Follicular (and Hurthle cell)
- Carcinoma (common types, including micropapillary)

### **Parathyroid**

- Neoplasia – adenoma, carcinoma

### **Adrenal**

- Adrenalitis
- Adrenal haemorrhage
- Cortical hyperplasia
- Atrophy (Addison's disease)
- TB
- Common tumours (e.g. cortical adenoma, carcinoma, myelolipoma, pheochromocytoma, neuroblastoma)

### **Skin**

- Electrical injury
- Bruise (age)
- Gunshot injury
- Vasculitis
- Infestations (e.g. scabies, dermatophytoses, insect bite)
- Eczema
- Leprosy
- Mycosis fungoides
- Injection site

### **Musculoskeletal**

- Gout tophus
- Nodular fasciitis
- Fibromatoses
- Common soft tissue tumours (e.g. lipoma, common sarcoma's)
- Osteoporosis
- Renal osteodystrophy
- Paget disease

Healing fracture (age of fracture)

- Osteonecrosis
- Osteomyelitis (e.g. suppurative, TB)
- Common benign and malignant tumours of bone
- Muscular dystrophy
- Polymyositis
- Rhabdomyolysis -
- Costochondral junction (infant)

### **13. Perinatal**

- Chorioamnionitis
- Funisitis
- Hyaline membrane disease -
- Necrotizing enterocolitis
- Placental infarction
- TORCH infections (myocarditis, encephalitis, hepatitis, etc.)
- Tubal pregnancy,
- PIH,
- DIC,
- fatty liver of pregnancy,
- H-mole,
- PPH-

- placenta accreta/percreta/increta,
- Uterine inertia,
- Abortion,
- Endometrial phases (proliferative, secretory and pregnancy)
- Congenital diseases,
- Aging of the foetus and evidence of aerated lung.

# Annex 14 Peer team rating for assessment of registrars/ senior registrars



PTR FORM  
B

## Confidential

Dear Colleague,

You have been your invited to participate in Peer Team Rating of this doctor. PTR is a tool for multi-source feedback 360<sup>0</sup> assessment. We value your independent and honest rating of our trainees.

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

- |   |  |                                 |
|---|--|---------------------------------|
| <input type="radio"/> Consultant                    | <input type="radio"/> Registrar        | <input type="radio"/> SHO or HO |
| <input type="radio"/> Allied Health Professional    | <input type="radio"/> Senior Registrar | <input type="radio"/> Nurse     |
| <input type="radio"/> Clerical or Secretarial Staff | <input type="radio"/> Other specify    |                                 |

Your scoring should reflect the performance of this trainee against that which you would reasonably expect at his/her stage of training and level of experience. Please feel free to add any other relevant comments about this doctor's strengths and weaknesses.

Please place form in the attached self-addressed envelope and return to the Trainer named on the envelope. DO NOT return to the trainee concerned.

<b>Name of trainee:</b> <b>Specialty:</b> <b>Date:</b>	<b>Strongly Disagree</b> <b>Strongly Agree</b> <b>1 2 3 4 5</b>																						
<b>1. Attitude to staff:</b> Respects and values contributions of other members of the team	<b>1 2 3 4 5</b>																						
<b>2. Attitude to patients:</b> Respects the rights, choices, beliefs and confidentiality of patients	<b>1 2 3 4 5</b>																						
<b>3. Reliable &amp; punctual</b>	<b>1 2 3 4 5</b>																						
<b>4. Communication skills:</b> communicates effectively with patients and staff	<b>1 2 3 4 5</b>																						
<b>5. Team player skills:</b> Approachable, Supportive and accepts appropriate responsibility	<b>1 2 3 4 5</b>																						
<b>6. Leadership skills:</b> Takes responsibility for own actions and actions of the team	<b>1 2 3 4 5</b>																						
<b>7. Honesty and Integrity:</b> do you have any concerns?	<table border="1"> <tbody> <tr> <td>Yes</td> <td>No</td> </tr> </tbody> </table>	Yes	No																				
Yes	No																						
<b>8. What is your overall rating of trainee's professionalism?</b> <table border="0"> <tbody> <tr> <td>Very poor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Extremely good</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td></td> </tr> </tbody> </table>		Very poor										Extremely good	1	2	3	4	5	6	7	8	9	10	
Very poor										Extremely good													
1	2	3	4	5	6	7	8	9	10														
<b>Comments</b> <b>Name:</b> <b>Signature:</b> <b>Date:</b>																							

THE PTR IS NOT AN ASSESSMENT OF KNOWLEDGE OR PRACTICAL SKILLS

**Annex 15 Trainee evaluation of MD training programme**

Does the training programme provides adequate guidance, training and experience in the following categories;

Learning opportunities were 5 - Excellent, 4 - very good, 3 - good, 2 - average, 1 - poor

	5	4	3	2	1
Theory					
Clinical Forensic Medicine skills					
Autopsy skills					
Scene management					
Report writing					
Presentation skills					
Communication skills					
Teaching opportunities					
Microscopic examinations					
Research opportunity					
Oral testimony					
CPD					
Other					

Comments: -----  
-----

Provide suggestions for improvement or indicate SIGNIFICANT experiences or special strengths and weaknesses of the programme (use separate pages if necessary):

## **Annex 16      Format of the detailed project proposal – MD Forensic Medicine**

### **Modified from the PGIM General document - Generic format for writing a research proposal**

The aim of the research component is to plan and complete a scientific research project, with due appreciation of the need for scientific validity and ethical principles, within organizational and financial constraints. The choice of the research project will be primarily that of the trainee, but this should be discussed with and approved by the supervisor. The trainee should prepare a research proposal which will be submitted to the BoS for approval prior to commencement of the study. The project may include prospective research, clinical trial, retrospective study, clinical audit etc.

Time frame: the research proposal should be approved within the time period stipulated by the BoS.

Format:

In general, the research proposal should be limited to 3000 words. The following structure is suggested:

#### **Section 1**

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

#### **Section 2**

- Title of the study
- List of investigators
- Collaborating institutions
- Background/introduction: this should include an overview of the subject related to the research project, with a relevant review of the literature.
- Justification: This section should provide a brief justification of the importance and relevance of the study proposed, including the feasibility of the study.
- Objectives: general and specific objectives of the study should be clearly defined.
- Methods: The methodology to be adopted to achieve the listed objectives should be given in detail; the following sub-sections are suggested as a guide:

- Study design
- Study period
- Study population
- Sample size calculation
- Sampling technique
- Study instruments
- Data collection
- Proposed statistical analysis
- Ethic clearance and consent, and confidentiality of data
- Proposed methods for dissemination of findings
- Annexes: the following annexes should be provided:
  - Data proforma/s
  - Consent forms, where relevant in all three languages
  - Other relevant supporting documents
- Signature of trainee

The trainees are advised to use Microsoft Word® for formatting documents. The software Endnote®, Reference Manager® or Mendelay® should be used, if possible, for citations. The reference format should follow the Vancouver® Style.

Both soft and hard copies of the documents should be submitted to the BoS, through the supervisor.

### **Section 3**

Recommendation of 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

## **Annex17      Assessment of the MD Forensic Medicine project proposal by reviewers**

**Name of Trainee:**

**Training Centre:**

**Supervisor:**

**Name of Reviewer:**

Designation:                      Official Address:

Tel//Fax:

Email:

**Title of Project:**

**The two reviewers appointed by the BoS shall use the following guideline and marking scheme to assess the project proposal of the candidate**

**1. Title and Introduction:** Rationale(Justification) – problem identified and quantified.

Hypothesis and expected outcome, impact and relevance of the study.

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

**Marks (10):** .....

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

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

**Marks (10):** .....

**3. Objectives:** Clearly defined. Relevant and stated in measurable terms.

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

**Marks (10):**

**4. 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 (30):**



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

Comments:

.....

.....

**Marks (10):**

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

Comments:

.....

**Marks (10):**

---

**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 (80):**

**Signature: Date:**

## **Annex 18      Instructions to dissertation supervisors**

- The dissertation for the MD Forensic Medicine is based on an 18 - 24 month research project.
- Acceptance of the dissertation is a requirement to sit the MD examination.
- The trainee should write up the project work as a dissertation conforming to the format approved by the Board of Study in Forensic 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 12 18 and 24 months after the trainee commences work on the research project.

The objective of the dissertation 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 dissertation should comprise the trainee's own account of his / her research.
- It must contribute to existing knowledge of medicolegal work 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 dissertation 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 that ethical approval was obtained from 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. In such instances, a follow-up report should be forwarded within three months or earlier if necessary to the BOS.

**Annex 19      Dissertation supervisor consent form – MD Forensic Medicine**

- 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 Dissertation**

**Signature of Supervisor: .....**

**Date: .....**

**Annex 20      Dissertation progress report**

**To be forwarded by the supervisor to the BOS at 12, 18 and 24 months of Stage 1 of training**

- 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): Brief description of progress in conducting the research project and dissertation writing*

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**Supervisor's comments**

- 6. Is the work on schedule?**    Yes / No
- 7. Progress in dissertation writing:**    satisfactory / unsatisfactory
- 8. Constraints (if any):**
- 9. Recommendation of supervisor:**

Signature:

Date:

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**10. Recommendation of the BOS:**

Signature of Secretary :

Date:

## **Annex 21      Dissertation submission format**

### **General instructions**

It is to start writing the dissertation 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 shall not exceed 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, two copies will be sent to the examiners. 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 dissertation 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 dissertation. 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) because

of the difficulty of photographic reproduction; symbols or other alternatives should be used instead.

## Notes

Notes, if, 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 dissertation

Author's name

MD (Forensic Medicine)

Post Graduate Institute of Medicine

University of Colombo

Date of submission

2. Statement of originality: The work presented in the dissertation should be the trainee's own and no part of the dissertation 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 dissertation, 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 dissertation 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.

**6.1 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, and 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 should be done 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 of 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, 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 (Forensic Medicine) dissertation.

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 dissertation 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, and 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 arranged as follows:

Smith CO, James DE, Frank JD

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. Broncho Pulmonary Dysplasia. In: *Nelson Text Book of Pediatrics. 18<sup>th</sup> Ed*, Vol 1: Saunders, Elsevier New Delhi, India. 2008. p 1840-1841
- 3 World Health Organization. *Priority Medicines for Mothers and Children* 2011. Department of 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](http://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)

## **Annex 22      Dissertation assessment and marking scheme**

Two examiners will be appointed by the BOS to assess and award a mark independently out of 120 using the marking system described below. The final mark for the dissertation out of 120 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 marks)**
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 marks)**
11. **Results (40 marks)**
12. **Discussion (including limitations) (40 marks)**
13. **Conclusion and recommendations if any (05 marks)**
14. Acknowledgements
15. **References (05 marks)**
14. **The overall presentation (10 marks)**

**Total Marks (120): .....**

To Pass the Dissertation the trainee should score 40 % (48 marks) or more. If it is less than 40% the trainee should resubmit the Dissertation at a prescribed date after attending to the recommended amendments and improvements for re-assessment 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: .....**

**Annex 23 Progress report on trainees – Pre MD Rotational Appointments****Specialty- Forensic Medicine****NAME OF TRAINEE:****PERIOD OF TRAINING:****HOSPITAL AND UNIT/INSTITUTIONAL CENTRE:**

The Trainer shall use the following guideline and marking scheme to assess the trainee's progress during year 2 of the training. It is that justification/reasons are stated if a Grade of excellent or poor is given.

**Excellent  $\geq 70\%$  Good = 60 – 69 % Average = 50 – 59 % Poor = < 50 %**

	<b>Grade</b>	<b>Justification/ Reasons</b>
Theoretical knowledge		
Eagerness to learn from other professions*		
Thinks independently and rationally		
Ability to follow instructions		
Quality of documentation		
Dedication to work		
Professional attitudes		
Respect towards other professions(e.g. Forensic scientists, police etc.)*		
Reliability		
Availability/punctuality		
Communication skills		
Relationship with colleagues		
Relationship with other staff		
Supervises and help juniors		

**\* Example - Only where relevant – applicable to non-medical appointments**

**Other Comments:**

.....

**Signature and name of the Supervisor:**

.....

**Date:**

**Annex 24      Format for progress reports of post-MD training**

<b>FORMAT FOR POST-MD PROGRESS REPORTS</b> (To be submitted by Supervisor to Director PGIM at 3, 6, 9 and 12 months)
1. Name of trainee:
2. Name of supervisor:
3. Training institution and unit:
4. Period covered by progress report: ..... (dd/mm/yy) to ..... (dd/mm/yy)
<b>5. Description of work carried out by trainee in training institution</b>
5a. In service training/ Course work i. Clinical/autopsy Interview ii. Clinical Examination (identification of positive findings and correct interpretation) iii. Standard autopsy skills, identification and interpretation iv. Attention to health and safety v. Selection of appropriate investigations and Interpretation (Clinical & Autopsy or Anthropology) vi. Competent report writing & timely response to summons vii. Record keeping viii. Non-judgmental attitude and impartiality ix. Opinion formation
5b. Teaching activities
5c. Research projects/ clinical audits/ Any publication or presentations
5d. ICT usage in professional work:
5.e Any other
6. Any work carried out away from main training institution ( including attending to courts)
7. Meetings / conferences / seminars attended by trainee
8. Professionalism, attitudes and values
9. Interaction with colleagues and other staff
10. Overall progress a. General comments b. Summary: Highly satisfactory / satisfactory / unsatisfactory / very unsatisfactory
Signature of supervisor and the official stamp
Date

## **Annex 25      Post MD training programme in Forensic Medicine**

1. Subject expertise, practical knowledge and application
2. Ethics and medico-issues
3. Teaching
4. Research and audit including creativity and problem solving
5. Information technology
6. Life-long learning and vision for life
7. Communication
8. Professionalism
  - 8.1. Attitudes and values
  - 8.2. Teamwork & Leadership
  - 8.3. Managerial and Entrepreneurship
  - 8.4. Networking and social skills
  - 8.5. Adaptability and flexibility

### **1.1 Subject expertise: specialist and an expert witness in a court of law**

At the end of the local and overseas training the trainee should be able to

- demonstrate specialist abilities (an in-depth knowledge and understanding of advanced academic enquiry and professional practice) to examine, investigate, record findings, analyze and form opinions as an expert in Forensic Medicine to courts on all types of cases including mass disaster situations at doctoral level. (Make judgments on complex issues in the Forensic Medicine even in the absence of complete data as well as identify, conceptualize and provide creative insights into complex issues and problems, and demonstrate self-direction and confidence in solving problems).
- Demonstrate abilities to function as an expert witness in a court of law in giving oral evidence (examination in chief, cross examination and re-examination) worthy of a specialist based on scientific evidence, quoting current medical literature including research. I.e. demonstrating critical reading, critically analyzing synthesizing and evaluating forensic data related to individuals or masses making judgments and identifying solutions to problems.
- Demonstrate a systematic acquisition and understanding of substantial amount of knowledge in Forensic Medicine which is up to date

### **1.2 Ethics and medico-legal issues: A specialist who maintain professional and ethical standards in the delivery of medico-legal services**

At the end of the local and overseas training the trainee should be able to:

- demonstrate application of ethical principles and medical laws appropriately in forensic practice

- Exercise high level of ethical approach to the management of medico-legal problems while adhering to the rights of the individuals and society.
- demonstrate integrity, honesty, compassion and respect for diversity in delivering medico-legal service
- demonstrate abilities to seek, accept, advice and awareness of personal limitations
- display evidence of meeting deadlines, being punctual and honoring commitments made in all professional activates where personal responsibility and accountability in tasks performed (esp. with courts)
- Demonstrate positive attitudes and social responsibility in delivering medico-legal services as well as all other professional activates.

### **1.3 Research and audit: A researcher in Forensic Medicine and other related fields in generating new knowledge and improving the standards of medico-legal practice**

At the end of the local and overseas training the trainee should be able to

- Create new knowledge through original research/ clinical audits of a quality that makes a significant contribution to development of Forensic Medicine and satisfy peer review and merit publication.
- Disseminate findings of scientific/intellectual enquiry through publications and/or presentation at an internationally accepted level.
- Communicate in oral and written format the findings, ideas and conclusions effectively to specialist and non-specialist audiences.
- Participate in the development of guidelines for good practice

### **1.4 Teaching: A Forensic Medicine teacher**

At the end of the local and overseas training the trainee should be able to

- Demonstrate abilities in teaching and training of postgraduates, undergraduates, junior doctors, nurses and allied staff, other health workers, forensic scientists, police officers, lawyers etc.,
- participate and contribute to effectively to undergraduate and postgraduate educational activities
- Prepare new training modules and organize training sessions for subordinates

### **1.5 Information technology: An ICT user in professional work**

At the end of the local and overseas training the trainee should be able to

- demonstrate that information and communication technology is used in delivery of forensic services

- Demonstrate the ability of searching for information through digital/ internet and application of findings in forensic practice

### **1.6 Lifelong learning/ updating self and vision for life: A lifelong Forensic Medicine learner**

At the end of the local and overseas training the trainee should be able to

- Demonstrate that healthy attitude and practices have been acquired to be a lifelong learner such as evidence of participation in conferences and meetings
- Undertake further training and develop additional skills using reflective practice that will enable them to make sound decisions.
- Engage in independent learning using scholarly reviews and secondary sources of information.
- Continuously demonstrate skills in collective learning with originality for solving problems. Clearly identify where one wants to be where the society should be and develop long term goals accordingly in the professional life as a specialist in Forensic Medicine.
- Sustainable development of all professional skills with clear vision and mission.

### **1.7 Communication**

- Disseminate findings of scientific/intellectual enquiry through publications and/or presentation at an internationally accepted level
- Communicate in oral and written format the findings, ideas and conclusions effectively to specialist and non-specialist audiences
- Submit comprehensive reports to courts/ Attorney General's Department etc.
- Demonstrate abilities in teaching and training of postgraduates, undergraduates, junior doctors, forensic scientists, forensic technical staff, police officers and other first responders, staff of disaster management units, lawyers etc.,
- Maintain good working relationships with colleagues and the appropriate communication skills required for the practice of Forensic Medicine

### **1.8 Professionalism**

#### **1.8.1 Attitudes, values, professional approach**

- Exercise high level of autonomy, initiative and ethical approach, personal responsibility, and accountability in tasks performed

- Demonstrate positive attitudes and social responsibility.
- Demonstrate personal traits such as responsibility, responsiveness, accountability, punctuality, integrity, honesty, compassion and respect for diversity in delivering medico-legal service.
- Demonstrate ability to seek, accept, advice and be aware of personal limitations
- Participate and contribute too effectively to undergraduate and postgraduate educational activities.
- Provide truthful and unbiased expert medical evidence to courts while dealing with the complexities, uncertainties and tensions of professional practice, within the limits of personal competence and skills.
- Place justice at the centre of providing services.
- Recognize the importance of a holistic approach to the patient including social and medical aspects to their management.
- Give and receive feedback sensitively.
- Create an open and non-discriminatory professional working relationships with colleagues.
- Respond in an open, constructive and timely manner to critical incidents or complaints about own or team performance using critical reflection to review personal behaviour and response to challenging issues.
- Contribute to the education and training of colleagues and subordinates

### **1.8.2 Team work and leadership**

At the end of the local and overseas training the trainee should be able to

- Exercise leadership and originality in tackling and solving problems in professional, technical and academic settings of Forensic Medicine
- Develop leadership qualities sustainably throughout the training.

### **1.8.3 Managerial and Entrepreneurship**

At the end of the local and overseas training the trainee should be able to

- Exercise high level of autonomy and initiative in professional, administrative and managerial activities in delivering medico-legal services
- Manage medico-legal institution/ subdivisions and laboratories according to established administrative norms
- Exercise personal judgment and responsibility in complex and unpredictable situations in professional and/or managerial environments in delivering medico-legal services
- Follow principles of quality control and quality assurance, evaluation of internal quality control/external quality assessment data for quality control and assurance



#### **1.8.4 Networking and social skills**

At the end of the local and overseas training the trainee should be able to

- Ability to work in teams, give leadership, promote social and professional engagement and establish collaborative research/audit/ services related to Forensic Medicine
- Use existing social networks to promote and share scientific knowledge
- Ability work under deferent social settings

#### **1.8.5 Adaptability and flexibility**

At the end of the local and overseas training the trainee should be able to

- Plan, execute and forecast appropriate strategies for adapting to changing environments in delivering medico-legal services or professional activities.
- Exercise personal judgment and responsibility in complex and unpredictable situations in professional and/or managerial environments related to Forensic Medicine.

## **Annex 26 MD with special interest in clinical Forensic Medicine**

### **1.1 Justification**

The scope of Forensic Medicine incorporates many subdivisions, out of which forensic pathology and clinical Forensic Medicine are considered as the main components of the subject. In contrast to UK, Australian and US systems, which are mostly confined to forensic pathology, Sri Lankan post graduate forensic medical stream consists of pathology as well as clinical Forensic Medicine, toxicology, anthropology, bioethics and other related areas since its inception and has been well established over last 35 years. The specialty training in clinical Forensic Medicine has been introduced in RCP London training programme in 2006, followed by RCPA in 2014, and USA is yet to establish clinical forensic specialty training. While being ahead of most of the developed countries in this aspect, it is opportune for us to consider furtherance of clinical forensic stream by nurturing human resources and infrastructural modifications. The national demand for clinical forensic services is necessitated by the ever increasing number of cases with clinical forensic interest such as sexual assault, child abuse, torture etc. Furthermore, introduction of DNA testing, stain analysis, modern photographic technologies etc. makes it necessary for the forensic practitioner to be well versed in science and technology, in addition to possessing a broad theoretical knowledge in the subject. Hence, introduction of Clinical Forensic Medicine special interests a matter of current need. The establishment of special interest in Clinical Forensic Medicine to the field of Forensic Medicine will enable courts to access comprehensive evidence from a well-qualified expert witness which is a dire need of the judicial system of Sri Lanka.

### **1.2 Learning outcomes:**

1. Subject expertise, practical knowledge and application
2. Ethics and medico-issues
3. Teaching
4. Research and audit including creativity and problem solving
5. Information technology
6. Life-long learning and vision for life
7. Communication
8. Professionalism
  - 8.1. Attitudes and values
  - 8.2. Teamwork & Leadership
  - 8.3. Managerial and Entrepreneurship
  - 8.4. Networking and social skills
  - 8.5. Adaptability and flexibility

## **1. Subject expertise**

- Demonstrate special abilities to examine, investigate, record findings, analyses and form opinions as an expert in clinical Forensic Medicine to courts in broad spectrum of clinical cases including child abuse, sexual assault, substance abuse and torture etc. at the level of an expert in clinical Forensic Medicine.
- Develop new knowledge and concepts in the field clinical Forensic Medicine.
- Implement novel scientific and technical advancement into clinical forensic practice.
- Analyze and apply principles of the laws of evidence especially related to clinical forensic expertise and the special rules regarding opinion evidence, in Sri Lanka and other countries.
- Have developed the skills required to present evidence in court managing examination-in-chief, cross examination, re-examination and provide further opinion in complicated cases.
- Critically evaluate and apply the legal aspects related to Tort law and Medical Malpractice.

## **2. Ethics and medico-legal issues**

Ethical principles of medical practice are derived from the Principles of Hippocratic Oath. It is for the clinical forensic practitioner to be thorough in this area to overcome conflict situations arising out of differences of interests between criminal law and medical ethics. The training programme intends to arm the candidate with in-depth knowledge and ability to further develop existing concepts in

- Ethical aspects related to consent in medical practice
- Confidentiality and privileged communication in medical practice
- Ethical considerations of biomedical research/ ethical approval for research projects
- Ethical matters related to organ transplantation
- Ethical aspects of reproductive medicine, miscarriages and artificial insemination
- Ethical issues in medical examinations of women and children
- Special legal provisions regarding child health and probation

### 3. Research and audit

- Conceptualize and generate new knowledge through original research/ clinical audits of a quality that makes a significant contribution to development of Clinical Forensic Medicine and satisfy peer review and merit publication.
  - Disseminate scientific findings relevant to the field of clinical Forensic Medicine through publications and/or presentation at a nationally or internationally accepted level.
  - Organize and take leadership in the development of guidelines/ standard operative procedures for good clinical forensic practice
- ❖ The outcomes 4 to 8 are commonly shared with General Forensic Medicine stream and described in [Annex 26](#).

### 4 Teaching resources /learning methods

Self-oriented training, Lectures, small group discussions, role play, video demonstration, assignments, hands on experience on bedside learning and SAFE units etc. are organized for the candidates.

#### 1.3 Evaluation: Refer to [Annex 24 and 25](#)

#### 1.4 Specific learning objectives and placements for each identified learning outcomes

##### 1. Subject Expertise [ provided by in service training at Forensic Medicine unit throughout the training period including specified attachments]

##### a. Law and Medicine[Training by Legal experts including attachment at the Attorney General's Department and other academic institutions – one week] to cover areas including

- Legal procedures in relation to criminal and civil prosecution
- Laws related to criminal investigations, assault, sexual crimes, child abuse
- Tort Law and professional malpractice law
- Laws related to civil compensation
- Laws pertaining to domestic violence/ gender issues/ nullity and divorce
- Fundamental rights applications
- Laws related to dangerous drugs of abuse
- Laws related to organ and tissue transplantation

##### b. Non accidental injuries in childhood [ In service training at a forensic unit 8 weeks]

- History and evolution of the concept of child abuse, current trends and developments
- Legal aspects of child abuse/ child labour / custody of affected children

- Types of abuse and clinico-pathological/ ancillary findings that are useful in diagnosis / differential diagnosis
- Investigation and management of cases of child sexual abuse
- Holistic management of the children who are victims of physical and emotional abuse
- Effectively communicate and cooperate with relevant agencies involved in management of child abuse e.g: Child Protection authority, Probation department, Paediatric Units, Rehabilitation centres etc.

**c. Interpretation of Injuries** [ In service training at a forensic unit/case presentations 8 weeks]

- Recognition of different types of injuries referring to their clinical and anatomical features
- Study into pathophysiology and sequelae of injuries
- Injury patterns and their medico-legal significances [Assault, cuts and stabs, road trauma, falls, self-infliction etc.]
- Medico-legal aspects of Neurotrauma
- Methods available for timing of injuries/ current research trends
- Examination of injuries and application of photographic, radiological other ancillary methods
- Detailed description of individual injuries, opinion formation and submission of medico-legal reports to the courts

**d. Sexual Assault, pregnancy and abortion** [ In service training at forensic unit including two-week attachment at the gynaecology and obstetrics unit]

- Definitions and interpretation of terminology
- Interpretation of relevant legal provisions
- Different types of sexual assault [indecent assault, unwelcome sexual advances, non-penetrating and penetrating sex, homosexual relationships, buggery, sadism, etc.]
- Advanced interview skills and history taking
- Interpretation of genital and extra genital findings, opinion on negative cases, examination techniques and instrumentation
- Value of ancillary investigations in proof of abuse
- Management of rape survivors, psychological support, counselling, protection of victims
- Examination for pregnancy and evidence of recent childbirth, miscarriages, illegal abortions
- Preparation of medico-legal reports and provision of expert opinions during case trials

**e. Custodial Medicine**[in service training at a forensic unit, SGD and visits to prison, retention camps, police departments etc.]

- Definitions and terminology
- Difficulties faced by practitioners, Limitations
- International protocols into management of torture [Istanbul Protocol, Minnesota Protocol, ICRC guidelines etc.]
- Injuries due to torture in custody, timing of injuries, fitness to detain
- Differential diagnosis of injuries and exclusion of malingering
- Interpretation of relevant ancillary investigation
- Doctor patient relationship in custodial setup/ support of interpreters
- Medico-legal training for the law enforcement officers
- Submission of reports to Higher Court in relation to fundamental rights cases

**f. Drugs of Abuse and intoxication** [ In service training at a forensic unit, visits to Dangerous drug control authority, Police Narcotic bureau]

- Medico-legal issues related to substance abuse
  - Medico-legal issues related to drunk driving and offences related alcohol intoxication
  - Clinical and laboratory diagnosis of alcohol intoxication
- Drug classes and their clinical features
  - Narcotics [ Heroin (Horse, Smack, tar, Chiva, Negra), Morphine (Roxanol, MSIR), Hydrocodone (Acetaminophen, Vicodon), Hydromorphone (Dialudid), Oxycodone (Roxicet, Acetaminophen, Endocet, Percocet), Codeine (Acetaminophen, Promethazine), Other narcotics ( Fentanyl, Demerol, Methadone, Stadol)
  - Depressants - Gamma Hydroxybutyric acid (Ecstasy, Oxybate, Xyrem), Benzodiazepines ( Valium, Ativan, Klonopin, Restoril), Other depressants Meprobamate, Barbiturates, Ambien, Chloral Hydrate
  - Stimulants - Cocaine ( Coke, Flake, Snow, Crack, Coca), Amphetamine/Meth-amphetamine (Crank, Ice, Krystal, Speed, Dexedrine), Methylphenidate (Ritalin, Concerta, Focalin), Other Stimulants ( Adipex P, Ionamin, Provigil)
  - Hallucinogens - MDMA (Ecstasy, MDEA, Love drug, Adam), LSD (Microdot, Sunshine, Boomers), Pencyclidin ( PCP, Angel, Loveboat, Hog), Other Hallucinogens (Mescaline, Peyote Cactus, Psilocybe mushrooms)
  - Cannabis - Marijuana (Ganja, Pot, Grass), Tetrahydrocannabinol (THC), Hashish and Hashish oil
  - Anabolic Steroids – Testosterone, Parabolan, Anadrol, Depo, Winstrol, Equipose

- Inhalants - Amyl and Butyl Nitrite, Nitrous Oxide (Laughing gas, balloons), Adhesives (Gum), Spray paint, Thinner, Lighter fluid
- Clinico-laboratory aspects of abuse and diagnosis
- Social issues related to substance abuse including Alcohol Abuse
- Examination of drunkard and drunken drivers
- Management of acute intoxications
- Rehabilitation of victims
- Preventive aspects
- g. Forensic sampling** - technical aspects, preservation, transportation and maintenance of chain of custody.
- h. Principles of Forensic Psychiatry** [ Two weeks assignment under forensic psychiatrist]
  - Key issues of forensic psychiatric practice/ Mental health legislations
  - Assessment of Testimonial capacity, Testamentary capacity, Fitness to stand for trial, General psychological status of assailants
  - Concepts of psychological profiling
  - Psychological complications of rape and child abuse
  - Management of forensic psychiatry services
  - Psychological aspects of criminal behavior, McNaughton principles and Insanity
- i. Principles of Forensic Odontology in relation to clinical Forensic Medicine**[ In service training at a forensic unit, Forensic dentistry unit two weeks, visit to police fingerprint bureau etc.]
  - Anatomy of the facial skeleton, development of dentition and the bio-mechanics of dental trauma.
  - Recognition of bite marks, timing of injuries and analysis.
- j. Identification of Living**
  - Age estimation of living, comparison of available methods [dental charts, Osteological features survey, growth charts etc.]
  - Identification of individuals by dental data, finger prints, DNA, protein analysis etc.
  - Preparation and submission of detailed reports regarding Identification
- k. Forensic Radiology [ one week attachment at radiology unit]**
  - Radiological methods and techniques
  - Interpretation of radiological features of trauma etc.
  - Radiological aspects of identification

- I. **Workman compensation and civil matters** [In service training at forensic unit/ visit to labour department, foreign employment bureau etc.]
  - The module intends to provide comprehensive knowledge in examination and interpretation of injuries for civil compensation and submission of special reports to the Civil Courts for this purpose.
  - To be familiarize with legal enactments, state circulars and adopted practice of workman compensation

2. **Ethical Aspects of Medical practice**[Forensic Medicine department – two weeks self-study module including SGDs and periodic sessions throughout the training period] – trainee is expected to analyze, develop further and implement ethical concepts related to following areas.

- Historical aspects of evolution of medical ethics, national and international perspectives and dealing with socio-cultural and religious customs
- Ethical aspects of consent, types of consent
- Application of different types of consent under specific circumstances
- Consent for examination of minor / proxy consent
- Medical examination and treatment of insane and unconscious patients
- Ethical aspects of medico-legal management of women and children who are victims or assailants of crime
- Confidentiality in medical practice
- Ethical guidelines of terminal care
- Ethical issues of reproductive health
- Maintenance of documentation and Privileged communication
- Ethical guidelines of biomedical research, formation of ethical review committees
- Ethical aspects of organ donation, transplantation act and other guidelines, diagnosis of brain death and termination of ventilator support
- Ethical principles related to medico-legal practice and role of SLMC

3. **Research and Audit [ 0 – 24 months of training]**

Trainee shall conduct research project relevant to clinical Forensic Medicine with prior approval of the Board of Study and submit final report prior to portfolio viva. Maintain clinical audit, analyze the case structure, covering all cases handled by the trainee.



## **Annex 27      Special interest in Forensic Toxicology**

### **1.1 Justification for special interest in forensic toxicology:**

Most developed countries consider Forensic toxicology as an important specialty among forensic experts. Even though Forensic Toxicology is a component of the MD programme in Forensic Medicine in Sri Lanka it does not provide a comprehensive training in the specialty. Its importance lies in the fact that acute pesticide poisoning is a major clinical problem in Sri Lanka with several thousand deaths each year. While the incidence of pesticide self-poisoning is 150–200 per 100 000, and that of fatal self-poisoning with pesticides is 20–25 per 100 000 many cases of alcohol, narcotic and industrial related toxicity can also be seen. Medico-legal investigations are needed in most cases and the forensic medical experts' role is vital. Development the special interest of forensic toxicology among specialists in Forensic Medicine will enable court to access comprehensive evidence from expert witnesses which is a dire need of the judicial system of Sri Lanka.

### **1.2 Specific objectives of establishing a special interesting forensic toxicology**

To develop an expert with the capacity to

- Interpret findings of toxicological analysis in living and dead.
- Create new knowledge in forensic toxicology through scholarship and research.
- Provide advocacy in health and medico-legal issues in relation to clinical, occupational and environmental toxicology etc.
- Ability to analyze current, complex and controversial issues and apply techniques relevant to professional practice, be able to make judgments on complex issues in specific fields and communicate their ideas, views and conclusions clearly and effectively.

### **1.3 Learning outcomes**

On completion of the two year in-service training period following the MD the trainees should have achieved the following outcomes at the level of a specialist in Forensic Medicine with special interest in forensic toxicology,

1. Subject expertise, practical knowledge and application
2. Ethics and medico-issues
3. Teaching
4. Research and audit including creativity and problem solving
5. Information technology
6. Life-long learning and vision for life
7. Communication
8. Professionalism
  - 8.1. Attitudes and values
  - 8.2. Teamwork & Leadership
  - 8.3. Managerial and Entrepreneurship

#### 8.4. Networking and social skills

#### 8.5. Adaptability and flexibility

##### **1.3.1 Subject expertise:**

- Sound theoretical knowledge with the ability to analyze, synthesize, evaluate and apply knowledge in forensic toxicology
- Ability to perform a range of technical and clinical skills and procedures to demonstrate analyze, evaluate and synthesize relevant knowledge and its application to their professional practice in relation to methods of standardization and calibration
- Reason scientifically and critically in providing oral and written evidence based on scientific evidence, quoting current medical literature and evaluating forensic data
- Engage in Holistic medico – legal management by examining, investigating, recording findings, analyzing, making judgments on complex issues
- Engage in the practice of evidence based medicine
- Apply the knowledge in relation to: responsibility and accountability, risk assessment, monitoring/reporting adverse events, availability and adherence to agreed protocols clinical audit
- Application of professional practice in to differential diagnosis of poisoning relation to generic aspect, biological variability, biochemistry, basic pharmacokinetics, therapeutics, substance of abuse, physiology and toxicology of organ systems, therapeutic drug monitoring
- Application of pharmacological and toxicological aspects of a broad range of clinical situations where the analytical toxicology laboratory may be called on to help guide patient care

##### **1.3.2 Ethics and legal issues – trainee is expected to gain a broad knowledge in the following areas:**

- Ethical aspects related to obtaining information from victims, police etc.
- Confidentiality and privileged communication with courts and law enforcement authorities, including areas of conflict of ethical and legal interests.
- Ethical considerations of biomedical research/ ethical approval for research projects
- Ethical matters related to suicide using toxic substances, right to life and death
- Ethical aspects providing toxicological information to general public, media etc.
- Ethical issues in medical examinations of minors, intentional poisoning cases

### 1.3.3 Research and clinical audit including creativity and problem solving

- Conceptualize, design and implement new projects to generate new knowledge and applications.
- Identify, conceptualize, make judgments and provide creative insights on complex issues even in the absence of complete data.
- Demonstrate self-direction and confidence in solving problems.
- Ensure development of the discipline by engaging in scholarly activities, research and teaching which satisfy peer review and merit publication
- Supervise and guide original research to generate substantial insight in the discipline.
- Disseminate findings of scientific/intellectual enquiry through publications and/or presentation at an internationally accepted level.
- Respond efficiently and effectively to the changing developmental needs of the discipline
- Participate in the development of guidelines for good practice
- Analysis the laboratory and population data

❖ The outcomes 4 to 8 are commonly shared with General Forensic Medicine stream and described in [Annex 26](#).

### 1.3.4 Teaching/learning method

Self-oriented training modules, Lectures, small group discussions, video demonstration, assignments, hand on experience on bedside, morgue, laboratory etc. are organized for the candidates.

### 1.4 Evaluation – refer to [annex 24 - 25](#)

### 1.5 Detailed curriculum for MD in Forensic Medicine with special interest in toxicology

Synopsis	Subject Area	Duration	
Basic principles, pathophysiology and pharmacokinetics	Basic principles of toxicology, pathophysiology, metabolism and pharmacokinetics of therapeutic and non-therapeutic drugs, plant, agrochemicals and snakes poisons	16 weeks	Periodic training sessions on Ethical and legal aspects and Research project: 0 – 24 months
Laboratory techniques	Analytical techniques in toxicology-immunoassay for drug detection chromatographic techniques (HPLC, GC-MS, LC-MS, QTOF), Introduction to Mass-spectrometry	16 weeks	

<b>Management</b>	Management of acute/chronic poisoning including diagnosis, treatment and use of antidotes  Pathological features, investigations and results and conclusions	<b>12 weeks</b>	
<b>Research</b>	Conduct quality research project or clinical audit in relation to forensic toxicology		

***Resources, trainers and stations will be determined by BOS F/M***

### **01: Basic principles, pathophysiology and pharmacokinetics**

- **Biochemical toxicology**  
Determine Biochemical mechanisms of toxicity, different metabolic pathways and their importance in toxicology, Covalent binding and methodologies for detecting tissue damage both in vivo and in vitro, Genomics, proteomics and metabolomics and their application in toxicology.
- **Genotoxicology**  
Determine the types of DNA damage and the *in vitro* and *in vivo* methods for its detection, relationship between mutagenesis and carcinogenesis, genotoxic mechanisms of experimental and human carcinogenesis  
Genetic engineering, their use and limitations.
- **Environmental/occupational toxicology**  
Identify concerns relating to chemical exposure and human health  
Determine how exposure can be monitored
- **Immunotoxicology**  
Evaluation of immunotoxicity in animals and man  
Regulatory guidelines in immunotoxicity – ICH, etc.  
Allergy; sensitisation; autoimmunity  
Approaches to investigation of contact sensitisation and respiratory allergy  
Outline of laboratory methods  
Biomarkers of immune modulation.
- **Medical toxicology**  
Epidemiology of acute poisoning  
Poisoning and antidotes  
Drugs of abuse  
Poisons information services and chemical incidents.
- **Reproductive/developmental toxicology**  
Methodologies used to identify abnormalities in foetuses and sperm  
The reproductive cycle in commonly used species in preclinical toxicology.
- **Toxicological pathology**  
Cellular/tissue changes as responses to disease processes
- **Principles of ecotoxicology**
- **Basic physiology**

Xenobiotic disposition: absorption, distribution, elimination; biotransformation, transport exposure assessment and identification of suitable endpoints in the interpretation of toxicology data, including the importance of routes of exposure

- Pharmacodynamics and pharmacokinetics
- Dose response relationships, threshold and non-linear models, derivation of no Observed (adverse) effect levels [NO (A) ELs], lowest observed (adverse) effect levels [LO (A) EL], therapeutic indices (TI), acceptable daily intake (ADI) and tolerable daily Intake (TDI), maximum residue levels (MRLS)
- Principles of risk/safety assessment pertaining to humans, animals and the environment
- Principles of therapeutics, adverse drug reactions, pharmacovigilance
- Principles and use of alternative methods to the use of animals for safety assessment.
- Recognize the biochemical/metabolic features of possible poisoning
- Advise on the differential diagnosis of poisoning

## **02: Laboratory competencies, analytical techniques, instrumentation and safety**

- Collect samples, transport, store, process, and apply appropriate analytical / histochemical methods
- Maintain chain of custody
- Be conversant with performance and limitations of widely used methods in analytical toxicology.
- Obtain comprehensive knowledge in relevant technical and laboratory procedures
- Appreciate the importance of personal health, wellbeing and stress
- Ensure occupational safety of workers
- Contribute to establishing and validating a new methods
- Produce a competency assessment/training programme
- Develop standard operating procedures
- Evaluate and select appropriate analytical methods
- Be conversant with the principles of operation of automated analyzers and other laboratory instruments
- Develop and implement laboratory accreditation and quality control procedures
- determine the basis for the use of specific preservatives and possible interference in assays
- interpret results and initiate further investigation - identification of invalid results
- comprehending the problems associated with 24-hour urine collections and with post-mortem specimen collection
- supervised participation in analytical toxicology report authorization

## **03: Management**

- Perform and evaluate clinical audit to assess efficacy of system and take remedial action as required.
- Appraise approaches to procedures for identifying and reporting critical incidents.

- Appraise approaches to procedures for receiving and responding to complaints
- Identify and evaluate innovations and developments, to improve service delivery.
- Involved in clinical management of intoxicated persons
- Apply principles of audit (vertical audit, horizontal audit, etc.)

#### **04: Legal and ethical aspects**

- Practice according to Standards of Conduct Performance and Ethics set by the Sri Lanka Medical Council
- Adhere to legislation covering the development, transport, use, and disposal of therapeutic entities/novel chemicals/chemical consumer products/agrochemicals/food additives
- Recognize factors influencing ethical decision making such as religion, personal/moral beliefs and cultural practices
- Use and share information according to regulations and take action where breaches of guidelines occur.
- Promote strategies to ensure that confidentiality is maintained
- Recognize problems posed by disclosure in the public interest, disclosure to third parties without consent.
- Ensure patients, relatives and carers are aware of the need to share information within members of the immediate healthcare team.
- Make appropriate decisions based on ethical reasoning where complex and conflicting issues are involved.
- Ensure honesty with regard personal qualifications, knowledge, experience and position in the scientific community and signing of documents
- Ensure honesty with respect to written and verbal information provided to any formal or legal enquiry
- Develop and maintain appropriate patient-professional relationships in practice.
- Work with patients and carers in a respectful and non-discriminatory manner.

## **Annex 28      Special interest in forensic histopathology**

### **1.1 Background**

The course leading to an MD in Forensic Medicine covers a wide range of subspecialties in an ever expanding discipline. Due to the nature of developments in the field, the limitations placed on course duration and the pressure to provide high quality evidence to court it has become necessary to identify areas in the discipline which require in depth training. Since precision and accuracy are key in the provision of medico- legal expertise it would be beneficial to consider sub-specialization in important areas in Forensic Medicine. The identification of such specialties should be based on the needs of the judicial system of the country.

### **1.2 Justification for special interest in forensic histopathology**

Most developed countries consider forensic histopathology as an important specialty among forensic experts. Even though forensic histopathology is a component of the MD programme in Forensic Medicine in Sri Lanka it does not provide a comprehensive training in the specialty.

### **1.3 Training Pathway**

The candidate would be required to successfully complete the MD in Forensic Medicine. Subsequently the trainee would receive 06 months of training in general Forensic Medicine and further 06 months in Forensic Histopathology in Sri Lanka as a Senior Registrar (in-service training under an expert / specialist), and minimum of 06 months of overseas training in clinical Forensic Medicine out his/her one year overseas training at a recognized centre, approved by the PGIM,. The local training of 12 months may be completed prior to overseas training or in 2 blocks of six months each, before and after overseas training.

During two year post MD training period, progress reports have to be submitted as specified by the PGIM based on the format shown in Annex 23.

Certification of satisfactory completion of local and overseas training should be forwarded to the Director, PGIM by the respective supervisors within one month of completion of training.

### **1.4 Aims of establishing a special interesting forensic histopathology**

To enable utilisation of histopathological expertise to provide accurate and up to date, expert opinion to court in clear and concise manner while ensuring continuity and development of the specialty.

### **1.5 Learning Outcomes**

On completion of the two year in-service training period following the MD the trainees should have achieved the following outcomes at the level of a specialist in Forensic Medicine with special interest in forensic histopathology,

1. Subject expertise, practical knowledge and application
2. Ethics and medico-issues
3. Teaching
4. Research and audit including creativity and problem solving
5. Information technology
6. Life-long learning and vision for life
7. Communication
8. Professionalism
  - 8.1. Attitudes and values
  - 8.2. Teamwork & Leadership
  - 8.3. Managerial and Entrepreneurship
  - 8.4. Networking and social skills
  - 8.5. Adaptability and flexibility

#### **1.5.1 Subject expertise:**

- To gain sound theoretical knowledge of the pathological basis for disease, identified in the pre MD curriculum as optional [ " " and " " ]
- To gain sound theoretical knowledge of histopathological procedures with the ability to apply, analyze, synthesize, and evaluate this knowledge for medico-legal death investigation in all age groups
- Be able to perform a range of skills and procedures in the evaluation and recording at the scene of death, the examination of the body in situ and the retrieval of evidence
- Reason scientifically and critically in providing oral and written evidence based on scientific evidence, quoting current medical literature and evaluating forensic data
- To Engage in Holistic medico – legal management by examining, investigating, recording findings, analyzing, making judgments on complex issues
- To Engage in the practice of evidence based medicine
- To be able to use the light microscope, effectively

#### **1.5.2 Ethics and Legal aspects; Candidate should be able to**

- Practice according to Standards of Conduct Performance and Ethics set by the Sri Lanka Medical Council
- Adhere to legislation covering the collection, transport, use, and disposal of human tissue samples, smears etc.
- Recognize factors influencing ethical decision making such as religion, personal/moral beliefs and cultural practices, and respect individual beliefs while collecting samples for histological investigations.
- Use and share information according to regulations and take action where breaches of guidelines occur.
- Promote strategies to ensure that confidentiality is maintained



- Recognize problems posed by disclosure in the public interest, disclosure to third parties without consent.
- Ensure patients, relatives and carers are aware of the need to share information within members of the immediate healthcare team.
- Make appropriate decisions based on ethical reasoning where complex and conflicting issues are involved.
- Ensure honesty with regard personal qualifications, knowledge, experience and position in the scientific community and signing of documents
- Ensure honesty with respect to written and verbal information provided to any formal or legal enquiry
- Develop and maintain appropriate professional relationships in practice.
- Work with other pathologists, patients and carers in a respectful and non-discriminatory manner.

#### **1.5.3 Creativity and problem solving and research: Candidate should be able to**

- Conceptualize, design and implement new projects to generate new knowledge and applications in relation to forensic histopathology.
- Identify, conceptualize, make judgments and provide creative insights on complex issues even in the absence of complete data.
- Demonstrate self-direction and confidence in solving problems.
- Ensure development of the discipline by engaging in scholarly activities, research and teaching which satisfy peer review and merit publication
- Supervise and guide original research to generate substantial insight in the discipline.
- Disseminate findings of scientific/intellectual enquiry through publications and/or presentation at an internationally accepted level.
- Respond efficiently and effectively to the changing developmental needs of the discipline
- Participate in the development of guidelines for good practice

❖ The outcomes 4 to 8 are commonly shared with General Forensic Medicine stream and described in [Annex 26](#).

#### **1.5.4 Teaching/learning method**

Lectures, small group discussions, video demonstration, assignments, hand on experience on bedside, morgue, laboratory etc. are organized for the candidates.

#### **1.6 Evaluation – Refer to annex 24 - 25**

Research should be related to the field of Forensic histopathology

Each trainee will be assessed on a portfolio comprising of their experiences during training. A minimum of 4 of the 6 cases presented and research should be related to forensic histopathology including routine and special histological studies when relevant. The candidate should directly be involved in the cases selected and supervised by the specialist.

### 1.7 Detailed curriculum for MD in Forensic Medicine with special interest in forensic histopathology

Synopsis	Subject Area	Duration	
Surgical Pathology	Basic structure and function of cells and tissues of the human body, Pathological basis of disease and patho-physiology of trauma in adults and in children, autopsy and organ dissection, processing, examination and reporting of specimens. Trainee is expected to master in areas identified as in the MD curriculum.	20 weeks	Periodic training sessions on Ethical and legal aspects and Research project: 0 – 24 months
Forensic Pathology	Autopsy techniques, histopathological investigations, requiring medico-legal scrutiny, providing impartial evidence, justifying opinions based on balanced interpretation of cited medical literature and validated experience,. [Subject areas include neuropathology, cardiac pathology, paediatric pathology etc.]	20 weeks	
Molecular Pathology	Fundamentals of molecular biology, Sample preparation for molecular techniques, Molecular techniques	4 weeks	

#### Details of Specific learning objectives

##### 01: Surgical pathology

- Pathological basis of disease and patho-physiology of trauma in the adult and in children.
  - General clinical knowledge including changes in trends of diagnosis and treatment.
  - normal anatomy, physiology and pathophysiology
  - integration of clinical and pathological data for accurate diagnosis
  - microscopic features of tissue structure in normality, in trauma and in disease
- Autopsy and Organ dissection techniques required for the pathological investigation of deaths
  - principles of specimen dissection
  - manual dexterity to perform dissection safely and accurately, without damage to tissues
  - principles of dissection of major surgical procedures
  - special techniques of dissection

- Processing of specimens for histo-pathological purposes
  - principles of routine and special (special stains, histochemistry, immunohistochemistry) laboratory processing of tissues
- Examination of specimens under the light/electron microscope
  - principles of light/electron microscopy
  - normal histology, normal variations, major common pathological processes and patterns of disease of common tissue types
  - identifying appropriate histochemical stains for glycogen, fat, mucins and amyloid etc.
  - Immune-histochemical markers and their interpretation
- Reporting
  - accuracy and attention to detail during specimen description and surgical reporting
  - correlation with the clinical situation

## **02: Forensic Pathology**

- Autopsy techniques requiring medico-legal scrutiny (including criminal cases, in all age groups involving all organ systems and in all states of preservation).
- Provide expert opinion in forensic histopathology to court impartially, justifying any opinions given from a balanced interpretation of cited medical literature and validated experience
- Neuropathology, cardiac pathology, paediatric pathology etc.

## **03: Molecular pathology**

- Origins of and justifications for molecular tests
- Underlying principles of molecular genetics and molecular pathology techniques
- Fundamentals of molecular biology
- Sample preparation for molecular techniques
- Taking and preparing histological samples and extraction of nucleic acids
- Appropriate sample collection, retrieval and preparation for common molecular tests on extracted nucleic acid or *in situ*
- Principles of the most up-to-date molecular methods such as Knowledge of sequencing, PCR, microarrays (DNA and RNA), *in situ* hybridization, mutation detection
- Molecular tests currently performed on histological samples, including their limitations

## **04: Legal and ethical aspects – trainee is expected to be well aware of the below mentioned ethical and legal aspects and appropriately apply/ modify them in line with the forensic histopathology services.**

- Practice according to Standards of Conduct Performance and Ethics set by the Sri Lanka Medical Council, adjust them in accordance with practical needs of the forensic histopathology unit.
- Apply the legislative enactments covering the collection, transport, use, and disposal of histological samples

- Recognize factors influencing ethical decision making such as religion, personal/moral beliefs and cultural practices, in keeping with the service requirements.
- Workout an appropriate mechanisms to share information according to regulations and take action where breaches of guidelines occur.
- Promote strategies to ensure that confidentiality is maintained, solve conflict of interest arising out of court orders and ethical issues.
- Recognize problems posed by disclosure in the public interest, without consent of the patient
- Ensure patients, relatives and carers are aware of the need to share information within members of the immediate healthcare team.
- Make appropriate decisions based on ethical reasoning where complex and conflicting issues are involved.
- Take appropriate action if you suspect you or a colleague may not be fit to practice
- Ensure honesty with regard personal qualifications, knowledge, experience and position in the scientific community and signing of documents
- Ensure honesty with respect to written and verbal information provided to any formal or legal enquiry
- Develop and maintain appropriate patient-professional relationships in practice.
- Work with patients and carers in a respectful and non-discriminatory manner.
- Consider cost–benefit issues in the use of additional techniques
- Place justice at the centre of providing services
- Defend the rights of the innocent without discrimination on age, gender, illness, Disability etc.
- Work within the judicial system giving appropriate consideration to process, continuity and disclosure.

## **Annex 29      Special interest in paediatric and perinatal pathology**

### **1.1 Background**

The course leading to an MD in Forensic Medicine covers a wide range of subspecialties in an ever expanding discipline. Due to the nature of developments in the field, the limitations placed on course duration and the pressure to provide high quality evidence to court it has become necessary to identify areas in the discipline which require in depth training. Since precision and accuracy are key in the provision of medico- legal expertise it would be beneficial to consider sub-specialization in important areas in Forensic Medicine. The identification of such specialties should be based on the needs of the judicial system of the country.

### **1.2 Justification for special interesting perinatal and paediatric forensic pathology**

Most developed countries Perinatal and Paediatric Pathology consider as an important specialty among forensic experts. Even though is a Perinatal and Paediatric Pathology component of the MD programme in Forensic Medicine in Sri Lanka it does not provide a comprehensive training in the specialty. By nature of the anatomical differences between a young child and an adult, and the great differences between childhood and adult disease, the paediatric autopsy enables the pathologist to study normal and abnormal morphology.

Medico-legal investigations are needed in most cases and the forensic medical experts' role is vital. Development the special interest of Perinatal and Paediatric Forensic Pathology among specialists in Forensic Medicine will enable court to access comprehensive evidence from expert witnesses which is a dire need of the judicial system of Sri Lanka.

### **1.3 Pathway to MD in Forensic Medicine with special interest in perinatal and paediatric forensic pathology**

The candidate would be required to successfully complete the MD in Forensic Medicine. Subsequently the trainee would receive 06 months of training in general Forensic Medicine and further 06 months in forensic Perinatal and Paediatric Pathology in Sri Lanka as a Senior Registrar (in-service training under an expert / specialist), and minimum of 06 months of overseas training in Perinatal and Paediatric Pathology out his/her one year overseas training at a recognized centre, approved by the PGIM,. The local training of 12 months may be completed prior to overseas training or in 2 blocks of six months each, before and after overseas training.

During two year post MD training period, progress reports have to be submitted as specified by the PGIM based on the format shown in Annex 23.

Certification of satisfactory completion of local and overseas training should be forwarded to the Director, PGIM by the respective supervisors within one month of completion of training.

#### **1.4 Aims of establishing a special interest in perinatal and paediatric forensic pathology**

To enable provision of high quality, accurate and up to date, expert opinion on Perinatal and Paediatric Pathology to court in clear and concise manner while ensuring continuity and development of the specialty

#### **1.5 Learning outcomes**

On completion of the two year in-service training period following the MD the trainees should have achieved the following outcomes at the level of a specialist in Forensic Medicine with special interest in Perinatal and Paediatric Pathology.

1. Subject expertise, practical knowledge and application
2. Ethics and medico-legal issues
3. Research and audit
4. Teaching
5. Information technology
6. Life-long learning and vision for life
7. Communication
8. Professionalism
  - 8.1. Attitudes, Teamwork & Leadership
  - 8.2. Managerial and Entrepreneurship
  - 8.3. Networking and social skills
  - 8.4. Adaptability and flexibility

##### **1.5.1 Subject expertise:**

- Sound theoretical knowledge with the ability to analyze, synthesize, evaluate and apply knowledge to pediatric and perinatal pathology
- Ability to perform a range of technical and skills and procedures in paediatric and perinatal pathology including surgical pathology and autopsy
- Reason scientifically and critically in providing oral and written evidence based on scientific evidence, quoting current medical literature and evaluating forensic data
- understanding of the context, meaning and implementation of clinical governance
- Engage in Holistic medico – legal management by examining, investigating, recording findings, analyzing, making judgments on complex issues
- Engage in the practice of evidence based medicine

##### **1.5.2 Ethical and legal aspects**

- Ethical guidelines and principles of good medical practice outlined by the Sri Lanka medical Council
- Ethical aspects related to paediatric and neonatal medicine

- Confidentiality and privileged communication in forensic practice, with special reference to handling corpses of minors.
- Ethical considerations of autopsy practice related to paediatric cases.
- Ethical issues in medical examinations of women and children
- Special legal provisions regarding management of children and minors, probation Act etc.
- Health Department standards on maternal and child health

### **1.5.3 Research, Creativity and problem solving**

- Conceptualize, design and implement new projects to generate new knowledge and applications in relation to paediatric and neonatal pathology.
- Identify, conceptualize, make judgments and provide creative insights on complex issues even in the absence of complete data.
- Demonstrate self-direction and confidence in solving problems, especially with sensitive issues related to neonatal deaths.
- Ensure development of the discipline by engaging in scholarly activities, research and teaching which satisfy peer review and merit publication
- Supervise and guide original research to generate substantial insight in the discipline.
- Disseminate findings of scientific/intellectual enquiry through publications and/or presentation at an internationally accepted level.
- Respond efficiently and effectively to the changing developmental needs of the discipline
- Participate in the development of guidelines for good practice
- Participate in effective research to underpin paediatric pathology practice

❖ The outcomes 4 to 8 are commonly shared with General Forensic Medicine stream and described in [Annex 26](#).

### **1.5.4 Teaching/learning method**

Lectures, small group discussions, video demonstration, assignments, hand on experience on bedside, morgue, laboratory, etc. are organized for the candidates. **The board may release trainees to existing training programmes on anthropology conducted by university departments/ Forensic Medicine units for the specified period to cover portion of the intended learning modules.**

## **1.6 Evaluation of MD in Forensic Medicine with special interest in perinatal and paediatric pathology [ for details ref [Annex 24 - 25](#)]**

Each trainee will be assessed on a portfolio comprising of their experiences during training. A minimum of 4 of the 6 cases presented and research should be related to perinatal and paediatric pathology. The candidate should directly be involved in the case selected and supervised by the specialist.

### 1.7 Detailed curriculum for MD in Forensic Medicine with special interest in Perinatal and Paediatric pathology

Synopses	Area	Duration	Periodic training sessions on Ethical and legal aspects and Research project: 0 – 24 months
<b>Paediatric surgical pathology</b>	Basic knowledge of paediatric anatomy, physiology and embryology, Pathological basis of disease, diagnostic surgical pathology techniques in the investigation of disease in the fetus and child, Surgical cut-up, Paediatric Surgical reporting, Special techniques, Placenta structure and pathology	<b>18 weeks</b>	
<b>Paediatric, perinatal and fetal autopsy</b>	Dissection techniques relevant to autopsy practice, macroscopic and microscopic features of major disease processes and fetal/infant development, Autopsy techniques in the fetus, stillbirths, infants and children, Deaths in the community, Non-accidental Injury, Infections and infestations, investigations (including radiology), Health & Safety, Medico-legal issues, report writing, teaching, photography,	<b>18 weeks</b>	
<b>Molecular pathology</b>	Principles of molecular genetics and molecular pathology and its application	<b>4 weeks</b>	
<b>Legal and ethical aspects</b>	Expert opinion in forensic perinatal/paediatric pathology to court, oral and written communicate with court and other relevant authorities, feedback to families and other interested parties, nationality and culture in relation to death and disposal, personal beliefs and biases, consent,		
<b>Research</b>	Research project / clinical audit related to paediatric pathology		

#### 01: Paediatric surgical pathology

- Normal paediatric anatomy, physiology, embryology, pathophysiology, at differing gestational and developmental ages
- Clinical history and use information as part of the clinical decision making process.
- Perform a range of clinical examination skills relevant to healthcare science practice.



- Pathological basis of disease
- Paediatric and perinatal clinical knowledge including major changes in trends of diagnosis and treatment
- Surgical cut-up
- Gestational development of the placenta, its normal structure and function, alterations in multiple pregnancies and in disease, examination and sampling of placenta
- Principles of laboratory processing and when to resort to special techniques (routine and special stains, electron microscopy, molecular pathology techniques, 'special' histochemical and immunohisto-chemical methods, cytopathology, frozen sections)
- Principles of cytogenetics
- Macroscopic and microscopic features of the range of normality within tissues at different ages and different stages of development
- Macroscopic and microscopic features of tissues altered by disease (with routine, special, histochemical and immunohisto-chemical stains)
- Major common pathological processes ( malformation, inflammation, neoplasia) patterns of disease and how they interact with normal development
- Specific childhood diseases ( metabolic disease, bowel dysmotility disorders and children's tumours) and their specific diagnostic features
- Developmental disorders, syndromes and their presentation
- Specific microscopic features associated with organ (including bone marrow)transplantation in children
- Integration of clinical and pathological data for accurate diagnosis
- Attention to detail and timeliness of reports
- Self-awareness to acknowledge where the limits of their competence lie and when it is appropriate to refer to other senior colleagues for advice

## **02. Paediatric, perinatal and fetal autopsy**

- Identification of the deceased
- Principles of dissection of the body, organs and placenta
- Basic principles of pathology in order to avoid 'pattern matching' to solve complex medico-legal problems
- Accepted guidelines of best autopsy practice and protocols for investigations
- Common tissue dissection techniques relevant to autopsy practice
- Perform autopsies in a variety of situations (sudden unexpected death in hospital, iatrogenic deaths, intraoperative deaths, neurosurgical deaths, post-abdominal surgery deaths, post-cardiac surgery deaths, non-accidental injury in childhood, early fetal loss, spontaneous mid trimester abortion, termination of pregnancy due to risk to mother, late stillbirth, intrapartum death, cardiac/endocrine /metabolic/ hepatic/intra-abdominal disease of unknown cause, infections/infestations, where death occurs in the community and there are no suspicious circumstances)
- Autopsy as a teaching aid
- Identify issues to be addressed by the autopsy examination
- Distinguish between genuine lesions and resuscitation/postmortem artifacts
- Use clinical information, laboratory records and the health record in autopsy examination while interrogating the utility and limitations associated with various

types of investigations (including imaging, haematology, microbiology, medical genetics and biochemistry)

- Operation of a digital or optical camera including downloading and manipulating images
- Take appropriate samples
- Understand the importance of accuracy and requirement for attention to detail during specimen description
- Understand the importance of ensuring that request form and specimen identification is accurate and the requirement to identify and resolve any errors or discordance
- Request appropriate investigations considering cost-benefit issues
- Take advice from the appropriate professional group in the interpretation of investigations
- Manual dexterity to perform dissection safely and accurately, without damage to tissues  
To demonstrate abnormalities, even in small fetus (including a normal full evisceration, dissection of internal organs)
- Describe appearances accurately and succinctly in different forms of pathologies (trauma, natural and unnatural deaths)
- Interpret macroscopic and microscopic findings in the light of the clinical information available
- Know where to find relevant information from Sri Lanka and other professional pathology associations elsewhere in the world
- Develop a critical approach to autopsy reports and how well they address the questions raised by a death
- Importance of child death review meetings
- Current clinical practice, main side effects of common treatments and the major complications of most paediatric surgical procedures (if necessary liaising with clinical colleagues)
- Pathological basis of disease and the macroscopic/ microscopic features of various causes of death
- Normal growth of a child, its assessment and prenatal and postnatal growth restriction
- Normal pregnancy, labour and the causes of fetal loss
- Common syndromes and diseases associated with fetal malformation
- Iatrogenic diseases
- Neonatal intensive care and paediatric oncology
- Classification of fetal and perinatal death
- Integrate multiple comorbidities to explain a death
- Address questions and issues raised by the death
- Understand the training undertaken by support staff (laborers, technologists) and their role within all aspects of the mortuary function
- Maximize the autopsy learning opportunities and diagnostic outcome by liaising with relevant persons (e.g., clinical microbiologist in interpretation of post-mortem bacteriology)
- Appreciate controversial issues, difficulties in interpreting subjective change and uncertainty in determining the cause of death in some cases

- Process of inquest, current legislation and regulations relating to medico-legal autopsies and related matters.
- Law relating to death, the investigation of death and disposal of the dead
- Impartial stance and a commitment to justification of any opinion from a balanced interpretation of medical literature
- Provision of information for multi-disciplinary mortality reviews and for open investigations
- Interpret autopsy findings in the context of past medical history, clinical progression of disease or injury and circumstances of death and an ability to communicate those findings and opinions fully, clearly and simply to those who need explanation of them
- Relevant protocols and documentation of mortuary practice
- Regulatory aspects of health and safety issues

### **03: Molecular pathology**

- Origins and consequences of germline variation and somatic mutations, including DNA methylation and gene expression changes
- Understand origins of and justifications for molecular tests
- Explain the underlying principles of molecular genetics and molecular pathology
- Fundamentals of databases and bioinformatics
- Knowledge of basic molecular databases
- Retrieve relevant data from public sources
- Appreciation of state of knowledge and how to update that knowledge
- Procedure by which histological samples are taken, prepared and how nucleic acids are extracted from them
- Collect appropriate samples, retrieve and prepare for the common molecular tests, whether performed on extracted nucleic acid or *in situ*
- Relate histological sample types and availability to the molecular analyses which might be performed on them
- Principles of the most up-to-date molecular methods
- Knowledge of sequencing, PCR, microarrays (DNA and RNA), *in situ* hybridization, mutation detection
- Appreciation of the available technologies
- Molecular tests currently available on histological samples, especially in relation to paediatric tumours, including the limitations of those tests, and of tests which are anticipated in the near future
- Assess the demand for molecular tests and the modes of supply, even in small fetuses
- How molecular methods can contribute to patient care, particularly in relation to childhood cancer, and could do so in the future

### **04: Legal and ethical aspects**

- Practice according to Standards of Conduct /Performance and Ethics set by the Sri Lanka Medical Council
- Appropriate knowledge of contemporary legislation with adherence to management of children

- Recognize factors influencing ethical decision making such as religion, personal/moral beliefs and cultural practices with specific reference to paediatric autopsies.
- Use and share information according to regulations and take action where breaches of guidelines occur.
- Promote strategies to ensure that confidentiality is maintained
- Recognize problems posed by disclosure in the public interest, without consent of the patient
- Ensure patients, relatives and carers are aware of the need to share information within members of the immediate healthcare team.
- Make appropriate decisions based on ethical reasoning where complex and conflicting issues are involved.
- Take appropriate action if you suspect you or a colleague may not be fit to practice
- Ensure honesty with regard personal qualifications, knowledge, experience and position in the scientific community and in the signing of documents
- Ensure honesty with respect to written and verbal information provided to any formal or legal enquiry
- Develop and maintain appropriate patient-professional relationships in practice.
- Work with patients and carers in a respectful and non-discriminatory manner.
- Be conversant with current policy in relation to consent for autopsies, for tissue or organ retention and for tissue or organ donation
- Understand the legal basis of consent to autopsy examination and the circumstances in which consent is not required
- Provide feedback to families and other interested parties
- Explain to families the reasons for and if requested details of the investigations required by an autopsy examination, when tissue or organs may need to be sent for expert review and options for funeral, disposal
- Understand issues of autopsy consent, tissue/organ retention and Inquest practice
- Obtain consent for autopsies and for further investigation of tissue or whole organs
- Be aware of religious and cultural sensitivities relating to autopsy
- Respond to people in an ethical, honest, and non-judgmental manner
- Use appropriate methods of ethical reasoning to come to a balanced decision where complex and conflicting issues are involved
- Ensure that all decisions and actions are in the best interests of the patient and the public good
- Be familiar with and uphold the rights of children, disabled people and vulnerable adults
- Professional and ethical conduct in challenging situation
- Recognize the inequality/discrimination/ stigmatizing effects of
  - health systems backgrounds
  - some illnesses
  - Negligence
  - myths, stigma, dogma
  - insufficient advocacy and support
- Recognize the effects of exclusion and discrimination on physical and mental health
- Respect diversity of status and values in patients and colleagues and recognize the benefits as well as associated stigma

- Be aware of the possible influence of socio-economic status, household poverty, employment status and social capital in taking a medical history
- Assess the patient's ability to access various services in the health and social system and offer appropriate assistance
- Help to empower patients and negotiate complex systems to improve health and welfare including, where appropriate, the right to work
- Where values and perceptions of health and health promotion conflict, facilitate balanced and mutually respectful decision-making
- Adopt assessments and interventions that are inclusive, respectful of diversity and patient centered
- Recognize that personal beliefs and biases exist and understand their impact (positive and negative) on the delivery of health services
- Recognize issues of health that are related to social class

## **Annex 30      Special interest in forensic anthropology**

### **1.1 Background to the special interest:**

The course leading to MD in Forensic Medicine covers a wide range of special interests in an ever expanding discipline. Due to the nature of developments in the field, the limitations placed on course duration and the pressure to provide high quality evidence to courts it is necessary to identify areas in the discipline which require in-depth training. Since precision and accuracy are keys to the provision of medico-legal expertise, it would be beneficial to consider sub-specialization in important areas in Forensic Medicine. The identification of such subspecialties should be based on the needs of the judicial system of the country.

### **1.2 Justification for special interest in forensic anthropology:**

Most developed countries consider Forensic Anthropology as an important special interest when forensic skills and expertise of their practitioners are concerned. Even though Forensic Anthropology is a subcomponent of the MD programme in Forensic Medicine in Sri Lanka, comprehensive training of this special interest is not provided to candidates currently. However Sri Lankan forensic pathologists are frequently confronted with examination and reporting of decomposed bodies and human remains to respective courts which require the application of knowledge and skills pertaining to forensic anthropology. The necessity of incorporating expertise in forensic anthropology into current forensic practice was also felt significantly in the recent past due to multiple inquiries into enforced disappearances and torture associated with reported cases in the country. As a part of these inquiries multiple mass grave exhumations have been performed by the Sri Lankan forensic pathologists over the last two decades for which the expertise in forensic anthropology was a requirement. The organized development of forensic anthropology special interest among specialists in Forensic Medicine will enable Sri Lankan courts and judicial system to access comprehensive evidence from expert witnesses where forensic anthropological evidence is of critical importance.

### **1.3 Pathway to MD in Forensic Medicine with special interest in forensic anthropology**

The candidate would be required to successfully complete the MD in Forensic Medicine. Subsequently the trainee would receive 06 months of training in general Forensic Medicine and further 06 months in Forensic Toxicology in Sri Lanka as a Senior Registrar (in-service training under an expert / specialist), and minimum of 06 months of overseas training in Forensic Toxicology at his/her one year overseas training at a recognized centre, approved by the PGIM,. The local training of 12 months may be completed prior to overseas training or in 2 blocks of six months each, before and after overseas training.

During two year post MD training period, progress reports have to be submitted as specified by the PGIM based on the format shown in Annex 23.

Certification of satisfactory completion of local and overseas training should be forwarded to the Director, PGIM by the respective supervisors within one month of completion of training.

#### **1.4 Aims of establishing a special interest in forensic anthropology**

To enable utilization of forensic anthropological expertise to provide accurate and up to date, expert opinion to courts in clear and concise manner while ensuring continuity and development of the specialty.

#### **1.5 Learning outcomes**

On completion of the two year in-service training period, the candidate should achieve the following outcomes at the level of a specialist in Forensic Medicine with special interest in forensic anthropology.

1. Subject expertise, practical knowledge and application
2. Ethics and medico-issues
3. Teaching
4. Research and audit including creativity and problem solving
5. Information technology
6. Life-long learning and vision for life
7. Communication
8. Professionalism
  - 8.1. Attitudes and values
  - 8.2. Teamwork & Leadership
  - 8.3. Managerial and Entrepreneurship
  - 8.4. Networking and social skills
  - 8.5. Adaptability and flexibility

##### **1.5.1 Subject expertise:**

- Sound theoretical knowledge with the ability to analyse, synthesise, evaluate and apply knowledge
- Ability to perform a range of technical and clinical skills and procedures to demonstrate analyse, evaluate and synthesise relevant knowledge and its application to their professional practice in relation to methods of standardisation and calibration

- Reason scientifically and critically in providing oral and written evidence based on scientific evidence, quoting current medical literature and evaluating forensic data
- Engage in Holistic medico– legal management by examining, investigating, recording findings, analysing, making judgments on complex issues
- Engage in the practice of evidence based medicine
- Apply the knowledge in relation to: responsibility and accountability,
- Monitoring/reporting adverse events, availability and adherence to agreed protocols anthropological audit
- Application of professional practice in reaching different conclusions in anthropology
- Relating to biological anthropology, forensic taphonomy, forensic archeology, osteoarcheology, forensic DNA etc.
- Application of anthroposcopic and anthropometric aspects in broad range of field
- situations where the forensic anthropological laboratory may be called on to resolve various issues of human identification

#### **1.5.2 Ethical and legal aspects – trainee shall observe and follow**

- Ethical guidelines and principles of good medical practice outlined by the Sri Lanka medical Council
- Ethical aspects and specific guidelines related to skeletal examinations of victims of extrajudicial executions
- Confidentiality and privileged communication in forensic practice, with special reference to handling corpses of missing persons
- Legal provisions and international conventions regarding mass grave excavations
- Ethical issues in medical examinations of victims of war and torture
- Health Department standards on management of mass disasters

#### **1.5.3 Research, Creativity and problem solving**

- Conceptualize, design and implement new projects to generate new knowledge and applications
- Identify, conceptualize, make judgments and provide creative insights on complex issues even in the absence of complete data
- Demonstrate self-direction and confidence in solving problems
- Ensure development of the discipline by engaging in scholarly activities, research and teaching which satisfy peer review and merit publication
- Supervise and guide original research to generate substantial insight in the discipline



- Disseminate findings of scientific/intellectual enquiry through publications and/or presentation at an internationally accepted level.
- Respond efficiently and effectively to the changing developmental needs of the discipline
- Participate in the development of guidelines for good practice
- Analyse the laboratory and population data

❖ The outcomes 4 to 8 are commonly shared with General Forensic Medicine stream and described in [Annex 26](#).

#### 1.5.4 Teaching/learning method

Skills developed through lectures, small group discussions, video demonstrations, data interpretation, case studies, practical work, research projects, group/individual presentations & problem solving.

Practical work including hands on experience through laboratory assignments, mortuary assignments, mock excavations/exhumations, field visits to archaeological excavation sites, mass grave sites etc., will be organized for the candidates.

#### 1.6 Evaluation of MD in Forensic Medicine with special interest in forensic anthropology [Refer to annex 24 – 25]

Each trainee will be assessed on a portfolio comprising of their experiences during training. A minimum of 4 of the 6 cases presented should be related to forensic anthropology. The candidate should directly be involved in the case selected and supervised by the specialist.

#### 1.7 Detailed curriculum for MD in Forensic Medicine with special interest in forensic anthropology

Synopsis	Area	Duration
<b>Basic principles of Anthropology</b>	Basic principles/framework of anthropology and physical anthropology, Theories of evolution, human embryology and developmental anatomy through to the adult form – primarily musculo-skeletal focus with associated soft tissue structures, particularly of the skull & intracranial skeleton	<b>6 weeks</b>

<b>Forensic Taphonomy &amp; Forensic Archaeology</b>	The process and sequence of human decomposition, the burial and surface dispersal of human remains, excavation and exhumation of single and mass graves, clandestine graves, archaeological techniques of excavation	<b>10 weeks</b>
<b>Laboratory Techniques</b>	Basic human osteology, laboratory methods and analysis of human remains in a forensic setting (age sex, stature, ancestry etc.), Use of Minnesota protocol, methods of individual identification, identification of trauma and pathology	<b>12 weeks</b>
<b>Management</b>	Emergency planning/Body recovery, temporary mortuaries & identification in major incidents, role of anthropologists in mass disaster management & mass grave exhumation	<b>4 weeks</b>
<b>Legal and ethical aspects</b>	Provide expert opinion in forensic anthropological issues to courts; Communicate effectively orally and in writing with courts and other relevant authorities, Anthropology and law, Civil and Criminal procedure rules, human rights & humanitarian law, international case law on disappearances/mass graves, international declarations /conventions on enforced disappearances and torture	<b>Periodic training sessions on Ethical and legal aspects and Research project: 0 – 24 months</b>
<b>Research</b>	Conduct research, current issues in taphonomic research and practical application including both domestic and international examples of mass disasters and mass graves	

### Resources, trainers and stations will be determined by BOS F/M

#### 01: Basic principles of anthropology and physical anthropology

- Anthropology as a behavioral science; branches of anthropology(physical/biological, sociocultural, linguistic and archeology); History of anthropology - classical age, middle ages, renaissance; anthropological theories
- Physical/biological anthropology  
Paleoanthropology, paleontology, paleopathology, primatology, bioarcheology, human biology, forensic anthropology; Gregor Mendel and heredity; humans from prehistory to the modern day; hominids: (*Australopithecus*), *Homo habilis*, *Homo erectus*, *Homo sapiens*: Cro-Magnon, Neanderthal, and *Homo sapiens sapiens*; race categories; Single Origin Theory, Multiple Origin Theory, and Geographical Race Theory
- Developmental anatomy

Human embryology and developmental anatomy through to the adult form. The focus is primarily musculo-skeletal but associated soft tissue structures, particularly of the skull & intracranial skeleton, will be emphasised

## **02: Forensic Taphonomy and Forensic Archeology**

- Identification of the non – decomposed cadaver in the mortuary and of the body at different stages of decay
- Estimating Postmortem Interval(PMI) – estimating PMI using decomposition, animal scavenging, deterioration of clothing and other materials
- Recovery Scene Methods – surface-deposited body, interred body
- Principles of Crime Scene Investigation(CSI); Identification from CSI
- Excavation and exhumation of single/multiple body/bodies
- Forensic context-multiple deaths/mass fatality incidents: natural vs. non-natural circumstances, mass burials vs. surreptitious burials, single vs. multiple sites, mass graves vs. clandestine graves; primary vs. secondary graves
- Excavation of mass graves – basic principles and structure of mass grave investigations, methodology of mass grave excavations, operational and logistical challenges in mass grave investigations, recovery of surface evidence at mass grave/mass killing sites, recovery of human remains in a mass grave context
- Recovery of buried evidence - science and study of deception, search and location, aerial photography, principles of geophysics, police search techniques, cadaver dog use, principles of surveying, stratigraphy and recording, scatter scenes, scavenger behavior, soil analysis, running a forensic excavation, recording and planning
- Methods used when exhuming clandestine graves – geophysical methods including ground-penetrating radar (GPR), terrain conductivity (EM), thermal infrared (IR) imagery, magnetometers and metal detectors; multidisciplinary approach
- Recovery, packing and transportation of human remains from clandestine graves

## **03: Laboratory competencies, analytical techniques, instrumentation and safety**

- Application of Human Osteology - Cranium & Dentition; Axial & Appendicular Skeleton
- Forensic Context – Bone v. Nonbone, Human vs. Nonhuman, Contemporary v. None contemporary(antiquity of remains)
- Initial Processing – reconstruction, sorting, reassembly, inventorying remains; issues of commingling
- Preparation and preservation of osteological remains/specimens
- Attribution of Sex: using pelvic anthroposcopy, pelvic metrics( ischium-pubic index), cranial anthroposcopy, cranial metrics(discriminant functions), postcranial metrics
- Estimation of Age at Death: Adults – pubic symphysis, auricular surface, sternal rib ends, suture closure
- Estimation of Age at Death: Sub-adults – long limb bone measurements, union of primary ossification centers, tooth formation and eruption, epiphyseal union

- Calculation of Stature – using complete/partial long limb bones, Fully method, Pearson's formula, Adjustments to calculations
- Attribution of Ancestry – using cranial anthroposcopy, cranial metrics (interorbital indices and discriminant functions), postcranial anthroposcopy and osteometry; application of FORDISC and CRANID programmes in determination of the ancestry of human skeletal remains
- Ante-mortem Skeletal conditions – pathological conditions, skeletal anomalies, occupational stress markers
- Death & Skeletal Trauma – basics of bone trauma, forces causing trauma, types of trauma, timing of bone injury
- Projectile Trauma; Blunt force Trauma; Sharp force Trauma
- Post-mortem Alterations – saw marks, other postmortem damage
- Individualization – Positive personal identification from skeletal remains; additional aspects of individualization – facial reproduction, assessing handedness, estimating body weight
- Fingerprint analysis
- Cranio-facial reconstruction & Facial superimposition; Identification through Facial and Body image comparison
- Psychological concepts involved in facial recognition
- The human genome/molecular biology techniques
- Molecular biology tools used in human identification: Short tandem repeats, mitochondrial DNA, Y chromosome DNA
- The use of DNA as an intelligence tool, standardization of DNA analysis, accreditation and competence
- Forensic Odontology – case examples; bite marks and age assessment, dental pathology
- Be conversant with performance and limitations of widely used metric and non-metric methods in forensic anthropology
- Mastery/Knowledge of relevant technical and laboratory procedures - Mass/volume of interaction, Materials identified by X-ray diffraction, Special techniques used in X-ray diffraction, X-ray fluorescence, Electron microscopy and micro-analysis, Optical microscopy, Spectroscopic methods: Infrared and Raman spectroscopy, Mass spectrometry, Chromatographic and other separation methods: GC, HPLC, CE, Hyphenated techniques, Isotope ratios and carbon dating, DNA profiling, Hardness measurements (micro- and Nano-hardness), Radiography-mobile/portable, digital
- Appreciate the importance of personal health, wellbeing and stress handling
- Ensure occupational safety of workers
- Contribute to establishing and validating a new anthropometric methods
- Produce a competency assessment/training programme
- Laboratory accreditation and writing standard operating procedures
- Evaluate and appropriate selection of analytical method/s
- Supervised participation in analytical anthropological report authorization
- Consult other colleagues about findings/results that are not readily interpretable

#### **04: Management**

- Mass disaster management – the role of the forensic anthropologist in a multidisciplinary team
- Emergency planning/Body recovery, temporary mortuaries & identification in major incidents
- Presentation and evaluation of identification evidence (scientists perspective)
- Perform and evaluate laboratory audit to assess efficacy of system and take remedial action as required
- Appraise approaches to procedures for identifying and reporting critical incidents
- Appraise approaches to procedures for receiving and responding to complaints
- Identify and evaluate innovations and developments, to improve service delivery
- Fluency in IT and communication skills
- Understanding the implications of electronic evidence and right to information of aggrieved families/persons
- Principles of audit (vertical audit, horizontal audit, etc.)
- Principles of quality control and quality assurance/EQA
- Presentation/debriefing, opinion and interpretation
- Evaluation of internal quality control/external quality assessment data for quality control and assurance

#### **05: Legal and ethical aspects**

- Legal issues in the identification of a body
- Evaluation of identification evidence (legal perspective)
- Mass Disasters & Investigations into Human Rights Violations - Issues in both domestic and international contexts of forensic work
- Local vs. international case law on enforced disappearances – Embilipitiya students disappearance case, Krishanthi Kumaraswamy case, Reports of international tribunals(Nuremberg trial proceedings, ICTY, ICTR .....etc.)
- Standards recommended by international declarations/conventions on enforced disappearances and torture; recommendations of Minnesota protocol
- The Humanitarian perspective of Forensic Human Identification
- Practice according to Standards of Conduct, Performance and Ethical guidelines set by the Sri Lanka Medical Council
- Adhere to legislation/regulations covering the recovery, transport, storage, identification and disposal of human remains
- Recognize factors influencing ethical decision making such as religion, personal/moral beliefs and cultural practices
- Use and share information according to regulations and take action where breaches of guidelines occur.
- Promote strategies to ensure that confidentiality is maintained
- Recognize problems posed by disclosure in the public interest, without consent of the families/next of kin
- Ensure families and relatives are aware of the need to share information within members of the investigative team
- Make appropriate decisions based on ethical reasoning where complex and conflicting issues are involved

- Take appropriate action if you suspect you or a colleague may not be fit to practice
- Ensure honesty with regard to personal qualifications, knowledge, experience and position in the scientific community and signing of documents
- Ensure honesty with respect to written and verbal information provided to any formal or legal enquiry
- Develop and maintain appropriate professional relationships in practice

#### **06: Research**

- Evaluate evidence to verify information in reports, documents and research
- Create, interpret and construct new knowledge of scientific, clinical and professional developments within a framework of ethical conduct
- Critical assessment of published work and an understanding of basic statistical methods
- Networking with other forensic anthropology centres/agencies to enhance the knowledge and research outcome within the existing ethico-legal framework
- Derive standard skeletal identification profiles for all ethnicities living in Sri Lanka through appropriate research studies

## **Annex 32 Documents to be incorporated into the post MD portfolio**

- Document of self-introduction and Document on mission and vision as a specialist in Forensic Medicine (learning outcome 11)

### **Learning outcomes No 1. Subject expertise: specialist and an expert witness in a court of law**

- Report on reflective learning related to the outcome of Holistic medico – legal management This report should document what the trainee hoped to achieve at the beginning of the post MD training appointment, and how much of this was achieved and lessons learnt for further improvement. This section should include the following supportive documents as proof of evidence for the reflective learning. (max of 1000 words)
  - Post MD in-service log book (local training)
  - 03 PMR reports (two local one overseas; two must be of special interest area for special interest trainees)
  - 03 MLR reports (two local one overseas/ or three local – two must be from special interest area for special interest trainees)
  - 10 brief reflective reports on medico-legal opinions (6 PMR and 4 MLR) during local training [ six 6 out of ten must be of special interest area for special interest streams]
  - Reflective notes on events which resulted in self-directed learning/ change of practice (2 during local training & 2 during overseas training; special interest areas to be appropriately incorporated)
  - Reflective report on court attendance. The court attendance can be on cases where the trainee gave evidence or trainee participated as an observer in trainer's cases during post MD training either local or overseas [ Address special interest area if applicable]

### **Learning outcome No 2. Ethics and medico-legal issue: A specialist who maintain professional and ethical standard in the delivery of medico-legal services**

- A narration of at least one learning event experienced by the trainee, in relation to the outcome of ethics and medico-legal issue with reflection on what and how the trainee learned from this experience during local training. This section should be certified by the local trainer/s and can add appreciation letters of other as proof of conduction of the activity (Maximum word count 1000 )
- A narration of at least one learning event experienced by the trainee, in relation to the outcome of ethics and medico-legal issue with reflection on what and how the trainee learned from this experience during overseas training. This section should be certified by the overseas trainer/s and can add appreciation letters of other as proof of conduction of the activity (Maximum word count 1000 )
- Completed Professionalism Observation Forms (from integrated learning component of Professionalism Strand)
- Completed PTR forms during post-MD training

**Learning outcome 03: Research and audit: A researcher in Forensic Medicine and other related fields in generating new knowledge and improving the standards of medico-legal practice appreciation.**

- A narration of at least one learning event experienced by the trainee, in relation to learning outcome 04 Research and audit with reflection on what and how the trainee learned from this experience certified by the trainer either local/overseas[ Related to special interest area if applicable]
- Dissertations / theses
- Research papers published or accepted for publication ( index or non-index journals)
- abstracts of presentations with evidence of presentation (oral / poster)
- Clinical audits : presentations or publications either local or international setting

**Learning outcome 04 Teaching: As a Forensic Medicine teacher**

- A narration of at least one learning event experienced by the trainee, in relation to learning outcome 03 Teaching with reflection on what and how the trainee learned from this experience certified by the trainer (Maximum word count 1000 )
- Evidential proof of teaching undertaken e.g. Time table, request letters, letters of acknowledgement.

**Learning outcome 05: Information technology: An ICT user in professional work**

- A narration of at least one learning event experienced by the trainee, in relation to learning outcome 05 Information technology : An ICT user in professional work with reflection on what and how the trainee learned from this experience certified by the trainer either local/overseas (Maximum word count 1000 )
- Evidence of proof of participation in training programmes / workshops (invitation letters and certificates of participation )
- Evidence of searching for information and application of findings in practice (reference list/ references in reports)

**Learning outcome 06: Lifelong learning/ updating self: A lifelong Forensic Medicine learner**

- A narration of at least one learning event experienced by the trainee, in relation to learning outcome 06Lifelong learning/ updating self : A lifelong Forensic Medicine learner in reflection on what and how the trainee learned from this experience certified by the trainer either local/overseas (1000 words)
- Evidence of Participation in conferences and meetings any number e.g.: certificate of attendance, letter of invitation, letter of participation, appreciation letter.



**Learning outcome 07: Communication**

- A narration of at least one communication issues especially during his overseas attachment while interacting with multicultural community, faced by the trainee, in relation to objectives listed under outcome 07.
- Trainee is expected to provide evidence of effective scientific communication during his training – e.g. participation in scientific discussions.

**Learning outcome 08: Professionalism**

- A narration of at least two events where trainee has experienced value of professional approach in solving medico-legal issues [ Maximum 1500 words]
- The narration should address the following areas of professionalism, specifically the last three highlighted outcomes
  - Attitudes and values
  - Teamwork and leadership
  - Social skills and networking
  - Managerial and entrepreneurship
  - Adaptability and flexibility

**Annex 33 Post MD Portfolio and pre-board certification assessment**

No	Activity of Pre-Board Certification assessment
1	<p>Post MD Portfolio maintained by the trainee during the period of post-MD training.</p> <p>The contents of the portfolio should encompass all of the above learning outcomes, (Learning outcome 1-11 and contain evidence of achievement of these outcomes by the trainee.</p> <p>Although some of these may have been evaluated before the MD examination, the portfolio assessed at the PBCA should mainly contain evidence of achievements during post-MD training, either locally or overseas.</p> <p>The portfolio should be reviewed at least every 6 months by the local supervisor(s), with regular feedback to the trainee on how the portfolio may be improved. When the trainee is eligible for PBCA, 3 copies of the completed portfolio should be submitted to the PGIM Examinations Branch.</p> <p>In addition to the 3 hard copies of completed portfolio two soft copies should be submitted. (The soft copies may be in one CD). One soft copy should include all the references and should be identical to the submitted hard copy. It should be named using the term 'with references'</p> <p>3. The second soft copy should NOT have the reference lists/bibliographies. It may have in text citations. It should be named using the term 'without references' These soft copies will undergo plagiarism checking by the PGIM and once that results are satisfactory PGIM will commence the next process i.e. sending the hard copies of the portfolio to the examiners. If the plagiarism checking is not satisfactory, the trainee will be given one month to re-submit the portfolio.</p> <p>Portfolio assessment is based on objective evaluation whether the trainee has achieved the learning outcomes stipulated by the BOS.</p> <p>The PBCA should take the form of a final, summative assessment of the trainee's portfolio, carried out by 3 independent examiners appointed by the relevant Board of Study and approved by the Senate of the University of Colombo. The 3rd examiner will be from outside the discipline to improve objectivity.</p> <p>The portfolio will be assessed by three assessors independently on the rating scale (fail, boarder line, pass, and good, excellent) according to the marking grid. Each examiner will assess the portfolio independently according to the marking grid. The examiners will be given one moth to</p>

	do the assessment. The average of the three examiners will be taken as the final mark. If the discrepancy between two assessors is more than 15 marks a discussion will be held to rectify the matter to arrive at an agreed mark.
2	<p>Portfolio Viva (B)</p> <p>The portfolio viva will be held once the marks of the portfolio assessment are available. The portfolio viva will be held by the same panel of examiners.</p> <p>The trainee will start the viva voce with a presentation of 10 – 15 minutes, on the post-MD training. After the presentation the viva will be conducted about 30 minute duration where the examinee will get a chance to defend or clarify queries of the examiners. The examinee will be marked according to the rating scale (fail, boarder line, pass, good, excellent) to assess whether the answers given were focused, correct as well as clarified the queries raised by the examiners.</p>
	<b>The three examiners shall assess the portfolio and candidate will be invited for viva based on the portfolio.</b>

#### **If trainee is unsuccessful at PBCA**

If the examiners are of the view that the trainee's performance is unsatisfactory, and the trainee should not be given immediate Board Certification, the examiners must provide the trainee with written feedback on how the portfolio should be improved in order to reach the required standard. The trainee should then re-submit the portfolio within a specified period of time (up to 3 – 6 months), and face another oral examination based on the re-submitted portfolio. If the trainee is successful at this 2nd oral examination, the date of Board Certification should be backdated as done routinely. If unsuccessful again, the date of Board Certification will be the date of passing the subsequent PBCA following further training for a minimum period of six months in a unit selected by the Board of Study.

Overall view of the marking grid for PBCA		
Evaluated Activities/Events of competences		Marks
<b>Introducing oneself &amp; Mission and vision as a specialist in Forensic Medicine (vision for life)</b>		<b>50</b>
<b><i>A - Learning outcome 1 Subject expertise: specialist and an expert witness in a court of law</i></b>		<b>250</b>
<b>Learning outcome 1</b> Subject expertise: specialist and an expert witness in a court of law [ At least 50% of the case material is of special interest area for trainees following special interest streams]	i. Report on reflective learning related to the outcome of Holistic medico – legal management (Max 1000 words)	
	ii. Post MD in-service log book (local training)	
	iii. 03 PMR reports (two local one overseas)	
	iv. 03 MLR reports (two local one overseas/ or three local)	
	v. 10 brief reflective reports on medico-legal opinions (6 PMR and 4 MLR) during local training (10 marks x 10)	
	vi. Reflective notes on events which resulted self-directed learning/ change of practice (2 on local training & 2 on overseas training (25marks x4) (E.g. Mass disaster, maternal deaths, Sexual assault, Anthropology, Significant cases handled in past, etc.)	
	vii. Reflective report on court attendance- Expert evidence in a court of law (50 marks per reflective report when trainee give evidence as an expert witness during post MD training or 20 marks per reflective report when trainee participate as an observer in trainer's cases during post MD training either local or overseas)	
<b><i>B - Learning outcome 2 : Ethics and medico-legal issue: A specialist who maintain professional and ethical standard in the delivery of medico-legal services</i></b>		<b>100</b>
<b>Learning outcome 2</b> Ethics and medico-legal issue: A specialist who maintain professional and ethical standard in the delivery of medico-legal services ( Appropriately address special interest area where applicable)	i. A narration of at least one learning event experienced by the trainee, in relation to the outcome of ethics and medico-legal issue with reflection on what and how the trainee learned from this experience <b>during local training</b> . This section should be <b>certified by the local trainer/s</b> and can add appreciation letters of other as proof of conduction of the activity (25 marks x 1)	
	ii. A narration of at least one learning event experienced by the trainee, in relation to the outcome of ethics and medico-legal issue with reflection on what and how the trainee learned from this <b>experience during overseas training</b> . This section should be certified by the <b>overseas trainer/s</b> and can add appreciation letters of other as proof of conduction of the activity (25 marks x 1)	

	iii. Completed Professionalism Observation Forms (from integrated learning component of Professionalism Strand)	
	iv. Completed PTR forms during post-MD training	
<b>Learning outcome 03: Teaching: A Forensic Medicine teacher</b>		<b>50</b>
<b>Learning outcome 03:</b> Teaching: A Forensic Medicine teacher ( At least 50% of material shall cover the special interest area where applicable)	A narration of at least one learning event experienced by the trainee, in relation to learning outcome 03 Teaching with reflection on what and how the trainee learned from this experience certified by the trainer	
	Evidential proof of teaching undertaken e.g. Time table, request letters, letters of appreciation.	
<b>C - Learning outcome 04: Research and audit : A researcher in Forensic Medicine and other related fields in generating new knowledge and improving the standards of medico-legal practice</b>		<b>350</b>
<b>Learning outcome 04:</b> Research and audit : A researcher in Forensic Medicine and other related fields in generating new knowledge and improving the standards of medico-legal practice (At least 50% of the material shall be related to special interest area where applicable)	A reflective account on how candidate has developed his/ her research skills [ Max 500 words]	
	<ul style="list-style-type: none"> <li>• Research papers published or accepted for publication</li> <li>• abstracts of presentations</li> <li>• Clinical audit</li> </ul>	
<b>D - Learning outcome 05: Information technology : An ICT user in professional work</b>		<b>50</b>
<b>Learning outcome 05:</b> Information technology : An ICT user in professional work	A narration of at least one learning event experienced by the trainee, in relation to learning outcome 05 Information technology : An ICT user in professional work with reflection on what and how the trainee learned from this experience certified by the trainer either local/overseas	
	<ul style="list-style-type: none"> <li>• Participation in training programmes / workshops</li> </ul>	

	<ul style="list-style-type: none"> <li>Evidence of searching for information and application of findings in practice</li> </ul>	
<b>E - Learning outcome 06: Lifelong learning/ updating self : A lifelong Forensic Medicine learner</b>		<b>50</b>
<b>Learning outcome 06:</b> Lifelong learning/ updating self : A lifelong Forensic Medicine learner (At least 50% of the material shall be related to special interest area where applicable)	A narration of at least one learning event experienced by the trainee, in relation to learning outcome 06 Lifelong learning/ updating self : A lifelong Forensic Medicine learner in reflection on what and how the trainee learned from this experience certified by the trainer either local/overseas (1000 words)	
	<ul style="list-style-type: none"> <li>Evidence of Participation in conferences and meetings (one activity 05 marks)</li> </ul>	
<b>F - Learning outcome 07-08:</b>		<b>100</b>
<b>Learning outcome 07 and 08</b> <b>Professionalism: Teamwork &amp; Leadership, Managerial and Entrepreneurship, Networking and social skills, Adaptability and flexibility</b> <b>[ Trainees following special interest streams are advised to specifically address their desired area of expertise]</b>	<b>i. Communication</b> <i>Evidence for participation as a resource person in training programme/ short communication in a scientific conference, giving evidence at the Court of Law etc.</i>	
	<b>ii. Professionalism</b> <b>8.1 Attitudes and values</b> Assessment of Two final reports and periodic progress reports from local and overseas supervisors [ Annex 23]	
	<b>8.2 Teamwork &amp; Leadership</b> Assessment of four PTR documents [According to PGIM guidelines]	
	<b>8.3 Social skills and networking</b> Reflective account on use of social encounters faced by the trainee/ use of social networking for sharing knowledge during his/her local and overseas training (Maximum 500 words)	
	<b>8.4 Managerial and Entrepreneurship</b> Reflective account on administrative / managerial dilemma faced by the candidate during his/ her local and overseas training( Maximum 500 words)	
	<b>8.5 Adaptability and flexibility</b> A narration of at least one learning event experienced by the trainee, in relation to adaptability and flexibility, on what and how the trainee learned from this experience certified by the trainer either local/overseas( Maximum 500 words)	
	<b>Total</b>	<b>1000</b>