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

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

Prospectus

Board Certification in Paediatric Radiology

(To be effective from the year 2015)

Table of Contents

1. Background / Introduction

The Mission, justification and proposed outcome

The mission of this endeavour is to ultimately produce appropriately selected, properly trained, exquisitely competent and holistically caring Paediatric Radiologists who would be able to provide the best possible state-of-the-art radiological services and expert attention in the care and follow up of children with disease conditions, including being able to perform non vascular interventional and therapeutic procedures, where necessary.

Paediatric disease conditions differ from those of adults. Therefore it is necessary to have appropriately selected, properly trained, well skilled, knowledgeable dedicated, competent, efficient and holistically caring Paediatric Radiologists who can provide excellent state-of-the-art medical imaging for children who need expert attention in the care and follow up of their disease conditions, including being able to perform non vascular interventional and therapeutic procedures, where necessary.

2. Entry criteria

- Passed the Radiology MD part II examination
- Trainee should not have been Board Certified by the PGIM in any other Speciality or Subspeciality

3. Selection process

The candidates will be selected on the merit based ranking results of the Final MD (Radiology) Examination. The positions available will be offered to the candidates by the BOSR. The candidates, on the basis of the order of merit, would make the appropriate selection for training in Paediatric Radiology.

The selected candidate would be provided with full and comprehensive details of the training programme on subspeciality training in Paediatric Radiology. This would be available at the PGIM for perusal by prospective candidates prior to the Allocation Meeting.

4. Number to be selected for entry

The number of candidates will be predetermined by the BOSR in collaboration with the subcommittee and trainers in The Paediatric Radiology Sub Specialty Board each year and approved by the Board of Study in Radiology and Board of Management in consultation with the Ministry of Health.

5. Outcomes, competencies, learning objectives and content area

ANNEXURE 1

6. Structure of training programme

Overview of training

The structured training in paediatric radiology, outlines core knowledge, skills and experience and the optional experience acquired during core training. The trainee undergoing subspeciality training should ideally be actively involved in Paediatric radiology within an educational environment under supervision.

The training in Paediatric radiology will be for 3 years after passing the MD Radiology Part 2 Examination and after being selected for the Paediatric radiology subspeciality training on merit basis . The first year will be in General Radiology, which will be in the common post MD Radiology rotation. The second year will be a local training in Paediatric Radiology, in a centre/centres approved by the BOSR. The third year will be in a centre of excellence in Paediatric Radiology overseas. The training departments must provide access to appropriate plain radiograph interpretation, Computed Tomography (CT), MR, Ultrasound (US), radionuclide imaging, fluoroscopy and interventional procedures.

Clinical knowledge will be acquired by a variety of means, including close liaison with appropriate medical, surgical and oncological teams and combined clinical and radiological meetings. Multidisciplinary meetings should be emphasised.

The following inter-relationships are important:

- Paediatric surgery – to be obtained within the same hospital, around cases.
- Paediatric medicine – to be obtained within the same hospital, around cases.
- Paediatric oncology – to be obtained within the same hospital, around cases, with 2 weeks rotation at a Paediatric Oncology unit, approved by the BOSR and the relevant Board.
- neonatal unit – to be obtained , within the same hospital, around cases, with a 2 weeks rotation at a neonatal unit attached to an Obstetric Hospital approved by the BOSR and the relevant Board.
- obstetric unit – 1 months rotation at an Obstetric hospital, approved by the BOSR and the relevant Board, to be attached to the Consultant Radiologist, but should visit Obstetric wards and clinics, where relevant.

Additional clinical knowledge may be acquired through participation in appropriate ward rounds, attending outpatient clinics and theatre sessions. Training may require secondment to an appropriate specialist hospital to gain experience in neonatal radiology and/or paediatric neuroradiology. The paediatric radiology experience acquired during core training will count towards the total experience of subspecialty training in Paediatric radiology. Paediatric radiology is a mixture of image interpretation and practical procedures and it is essential that the trainee is exposed to appropriate numbers of each of these and to a broad case mix. The number of investigation/ procedures to be performed is given in the Trainee Personal Portfolio (TPP).

The trainee should be encouraged and given the opportunity to attend and lead appropriate clinico-radiological and multidisciplinary meetings. The trainee should attend appropriate educational meetings and courses.

The trainee should participate in relevant clinical audit, management, and clinical governance, and have a good working knowledge of local and national guidelines in relation to radiological practice.

Trainees will be expected to be familiar with current Paediatric radiological literature. The trainee should participate in research projects and clinical audits including publication. An understanding of the principles and techniques of research, including the value of clinical trials and basic biostatistics, should be acquired. The research and audit results should be presented at national and if possible international meetings.

The trainee should continue to participate in the specialist registrar on-call rota, with appropriate consultant back-up. Towards the completion of training, a trainee will be expected to provide expert advice and guidance to clinical colleagues as to the most appropriate imaging methods for investigation of Paediatric clinical problems.

7. Learning activities

- Regular meetings with other units / department
- Participation in Continuing Medical Education activities
- Participation in international meetings in Paediatric Radiology
- Conduct of audits
- Conducting a research project. This is a mandatory component, details of procedures for obtaining approval for the project, carrying it out and submitting the report will be provided in the form of Annexures.
- Engagement in the teaching and training of undergraduate and postgraduate students
- Maintaining a reflective portfolio – format and other details will be included as an annexure

8. Trainers and training units

Specialists with at least 3 years experience after Board Certification as a radiologist and permanently working as a consultant radiologist in a pediatric hospital will be appointed as principal trainers. Training units must be accredited by the PGIM's BOSR and the subcommittee in Paediatric Radiology as suitable for training in Paediatric Radiology".

9. Monitoring progress

Provisions for monitoring progress of trainees will be provided as appraisals and progress reports. 4 Local, including the final appraisal and 4 overseas. Forms to be used for progress reports will be included as Annexure 2 and 3.

9.1. Final appraisal

9.1.1. The final appraisal, which will take the form of an examination, will be conducted at the end of the 3-year period of post-MD training 1 month prior to the final Pre Board Certification Assessment (PBCA) – portfolio viva.

9.1.2. In order to be eligible to sit for the final appraisal, the trainee must provide evidence of satisfactory completion of ALL components of the training programme and

- Successful completion, and publication of the research project in the form of a full paper in a scientific, peer-reviewed journal (with the trainee as the first author) or submission of a dissertation on the research project and a pass mark of 50% (Annexure 9) and
- Successful conduct and presentation of two Clinical Audits and a pass mark of 50%

9.1.3. The final appraisal will take the form of an examination consisting of two components:

(A) Film Packet Reporting (FPR)

- 5 film packets. Each report will be marked out of 10 by two independent examiners. The final mark shall be the average of the marks awarded by the two examiners. If there is more than 15% discrepancy between the marks of the two examiners, the reason will have to be discussed and the marks adjusted accordingly before averaging the marks.
- Duration – 15 minutes for each film packet

(B) A Viva Voce Examination (VV) on images conducted by a panel with two examiners over 30 minutes. 15 minutes will be allocated for each examiner, who will mark the candidate independently, out of a total of 50 marks. Images of all available modalities covering all the systems will be questioned on, with no overlap. At least 10 images should be bought by each examiner with typed structured questions and a structured marking scheme. A blue print will be maintained. The final mark shall be the average of the marks awarded by the two examiners. If there is more than 15% discrepancy between the marks of the two examiners, the reason will have to be discussed and the marks adjusted accordingly before averaging the marks.

9.1.4. The examiners would be appointed by the BOSR and the Paediatric Radiology subcommittee, according to the rules and regulations laid down by the PGIM.

9.1.5. Allocation of marks for the final appraisal

FPR : 50 marks

VV : 50 marks
TOTAL : 100 marks

9.1.6. Pass mark

The candidate should obtain a minimum of 50% of the total 100 marks and secure a minimum of 50% in each of components (A) and (B), in order to be eligible for the Pre Board Certification Assessment (PBCA).

The PBCA and therefore Board Certification shall be deferred if the candidate fails the final appraisal. A failed candidate would need to attend a counselling session within 2 months of the failed appraisal and sit for the final appraisal again within a period of 6 months. The candidate would need to repeat only the component/s in which he or she failed to achieve 50 per cent.

On successful completion at the second attempt and the PBCA, the date of Board Certification shall be backdated. If unsuccessful, the date of Board Certification will be the date of passing the subsequent appraisal following further training for a minimum period of six months in an unit allocated by the BOSR and the PBCA. If still unsuccessful the final appraisal could be repeated once more in 6 month. However after three attempts at the final appraisal if the trainee is unsuccessful, the trainee will not be eligible to proceed for the PBCA or for Board Certification in the subspeciality and will be Board Certified as a General Radiologist. The date of Board Certification will be three years after the final MD Radiology examination.

9.2. Portfolio

All trainees are required to maintain a portfolio under the following broad outcomes.

1. Subject expertise
2. Research and audit
3. Ethics and medico legal issues
4. Information technology
5. Teaching and sharing knowledge

Details of what should be included in each of the above sections are shown in Annex 10.

10. Pre Board Certification Assessment (PBCA)

In order to be eligible for Pre-Board Certification Assessment, a trainee should fulfill all of the following requirements

a) Passed the Final Appraisal
b) Submitted the duly completed portfolio as described in Section 9.2

The PBCA will be in the form of a portfolio viva, conducted by two assessors nominated by the BOSR in collaboration with the subcommittee in Peadiatric Radiology. In order to pass the PBCA, the trainee must obtain a satisfactory rating for each of the 5 sections in the portfolio.

A trainee who does not pass the PBCA would need to resubmit the portfolio within a period of 3 months after making the relevant alterations according to the recommendations of the 2 assessors. If the trainee is unsuccessful on the 2nd resubmission, he/she will have to resubmit the portfolio after 6 months , following making the alterations according to the recommendations made by the assessors. The candidate would need to repeat only the component/s in which he or she was found unsatisfactory.

On successful completion at the second attempt, the date of Board Certification shall be backdated. If unsuccessful, the date of Board Certification will be the date of satisfactorily passing the subsequent PBCA . After three attempts at the PBCA if the trainee is unsuccessful, the trainee will not be eligible to proceed for Board Certification in the subspeciality and will be Board Certified as a General Radiologist. The date of Board Certification will be three years after the final MD Radiology examination.

11. Board Certification

A trainee who has successfully completed the Pre-Board Certification Assessment is eligible for Board Certification as a Specialist in Paediatric Radiology, on the recommendation of the Speciality Board in Paediatric Radiology and the Board of Study in Radiology.

ANNEXURE 1 - CURRICULUM CONTENT

1 Outcomes, competencies, learning objectives and content area

- The aim of establishing a curriculum for subspeciality training in Paediatric radiology is to ensure that trainees:
- develop an in-depth understanding of , increase their familiarity with children's disease and the practice of related radiology, emphasising the differences from adult practice
- understand the role of radiology in the management of sick children
- become sufficiently trained to become an integral member of the multidisciplinary teams required in hospitals providing full services to children
- acquire clinical knowledge relevant to medical and surgical management of Paediatric diseases such that the trainee may confidently discuss the appropriate imaging strategy for the clinical problem with the referring clinician
- acquire detailed knowledge of current developments in the speciality
- are subjected to direct practical exposure with appropriate guided supervision in all forms of Paediatric radiology and interventions and to consolidate and develop their practical skills
- acquire knowledge and skills to enable safe practice of analgesia and sedation
- become fully competent in paediatric life-support.

2 The expected outcome at the end of this subspeciality training will be that the trainee can select the appropriate imaging strategy for Paediatric problems, supervise (and perform where appropriate) the examination(s) and accurately report on the findings and when necessary carry out interventional procedures. The trainee should be competent in all aspects of Paediatric radiology

Overview of training

The trainee undergoing subspeciality training should be actively involved in Paediatric radiology within an educational environment under supervision. The training departments must provide access to appropriate plain radiograph interpretation, Computed Tomography (CT), MR, Ultrasound (US), radionuclide imaging, fluoroscopy and interventional procedures.

Clinical knowledge will be acquired by a variety of means, including close liaison with appropriate medical, surgical and oncological teams and combined clinical and radiological meetings. Multidisciplinary meetings are mandatory.

The following inter-relationships are important

- Paediatric surgery
- Paediatric medicine
- Paediatric oncology

- neonatal unit
- obstetric unit

Additional clinical knowledge may be acquired through participation in appropriate ward rounds, attending outpatient clinics and theatre sessions. Training may require secondment to an appropriate specialist hospital to gain experience in neonatal radiology and/or Paediatric neuroradiology.

The Paediatric radiology experience acquired during core training will count towards the total experience of subspecialty training in Paediatric radiology.

Paediatric radiology is a mixture of image interpretation and practical procedures and it is essential that the trainee is exposed to appropriate numbers of each of these and to a broad case mix. The number of investigation/ procedures to be performed is given in the Trainee Personal Portfolio (TPP).

The trainee should be encouraged and given the opportunity to attend and lead appropriate clinico-radiological and multidisciplinary meetings.

The trainee should attend appropriate educational meetings and courses. The trainee should participate in relevant clinical audit, management, and clinical governance, and have a good working knowledge of local and national guidelines in relation to radiological practice.

Trainees will be expected to be familiar with current Paediatric radiological literature.
The trainee should participate in research projects and clinical audits including publication. An understanding of the principles and techniques of research, including the value of clinical trials and basic biostatistics, should be acquired. The research and audit results should be presented at national and if possible international meetings.

The trainee should continue to participate in the specialist registrar on-call rota, with appropriate consultant back-up.

Towards the completion of training, a trainee will be expected to provide expert advice and guidance to clinical colleagues as to the most appropriate imaging methods for investigation of paediatric clinical problems.

Requirements of subspecialty training

A sound understanding of the basis of Paediatric imaging including:

- the embryology, anatomy, normal variants, developmental abnormalities and relevant physiology of children
- the pathological processes of both benign and malignant disease in the Paediatric age group local, national and where appropriate, international imaging guidelines
- Knowledge of the full range of radiological diagnostic techniques available, in particular: the indications, contra-indications and complications of each imaging method
- the factors affecting the choice of contrast media and radiopharmaceuticals
- the effects and side effects of these agents

Particular emphasis should be placed on the strengths and weaknesses of the different imaging methods in various pathological conditions. The appropriate choice of imaging techniques and/or the appropriate sequence of imaging techniques in the investigation of specific clinical problems should be emphasised.

Acquisition of specific skills to enable:

- the conduct, supervision and accurate interpretation of all imaging techniques used in the investigation of Paediatric diseases to a high professional standard with good communication skills
- where appropriate the safe and effective practice of interventional techniques, obtaining informed written consent and suitable sedation

Professionalism

- It is envisaged that the trainees in Paediatric radiology would act and behave in a most professional manner in all dealings with senior and junior colleagues and others involved in the management of Paediatric disorders
    - good communication with patients, their parents and professional colleagues
    - accurate informed consent to be obtained
    - continuing accreditation of Paediatric life-support status

A clear understanding of the role of multidisciplinary meetings, including:

- planning of investigations including the selection of appropriate tests and imaging techniques for the diagnosis of benign and malignant disease
- staging of malignant disease
- planning and outcomes of treatment
- the detection of errors in diagnosis and complications of treatment
- an understanding of relevant Paediatric pathology

Detailed knowledge of dose reduction techniques in Paediatric radiology

Procedural competence will need to be reviewed at intervals, and this regular review should also assess the number of cases performed including quality required in order to ensure competence.

During the training period it is recommended that the trainee obtains experience in the following:

- plain radiography interpretation, to include the full range of clinical subspecialities, eg trauma, accident and emergency, orthopaedics, rheumatology, chest and abdomen
- performing and reporting US examinations : of the abdomen, gastrointestinal (GI) tract (including bowel), genitourinary tract, chest, head and musculoskeletal system
    - Doppler studies, including spectral, basic colour and power Doppler, as well as basic calculations
- performing and reporting routine fluoroscopic examinations of the GI and urinary tract, together with more complex investigations such as:
    - small bowel enema
    - reduction of intussusception
    - management of neonatal distal intestinal obstruction
    - velopalatal competence and studies of phonation
    - disorders of swallowing
- undertaking and reporting Paediatric CT and Magnetic Resonance examinations
- undertaking and reporting basic Paediatric radionuclide imaging examinations:
    - static and dynamic renal studies, including cystography
    - musculoskeletal imaging
    - ventilation and perfusion lung scintigraphy
    - GI studies, including pertechnetate studies for Meckel's diverticulum, identification of a GI bleeding site
    - thyroid imaging
    - MIBG studies
    - dynamic biliary examinations
    - PET-CT

A trainee will keep abreast of all other imaging techniques relevant to their practice.

Interventional techniques

Trainees should acquire experience in the following procedures:

- biopsy procedures
- abscess drainage
- insertion of percutaneous nephrostomies
- joint aspiration, eg hip

Optional experience

- arthrography
- angiography
- balloon dilatation of oesophageal strictures
- angioplasty and embolisation techniques
- musculoskeletal interventions

Trainees should acquire experience in all the practical procedures listed above, and the number of cases undertaken should be recorded in their Trainee Personal Portfolio.

Understanding of the medico-legal aspects of Paediatric Radiology practice.
Regardless of the imaging technique or procedure, the consultant trainer must be satisfied that the trainee is clinically competent, as determined by an in-training performance appraisal, and can consistently interpret the results of investigations accurately and reliably.
The techniques listed and the time devoted to each will be reviewed at intervals. It is recognised that some studies will become obsolete and new imaging techniques will be developed.
The trainee should become familiar with providing analgesia and/or sedation where required, as well as the necessary continuous monitoring required to perform this safely and post procedure monitoring.

The trainee should be aware of local and national guidelines on consent, and be capable of obtaining informed consent for practical procedures.
The details of the curriculum and syllabus can be subject to change with approval of the BOSPR and BOSR with adequate notice to the candidate according to the PGIM guidelines.
It is the responsibility of the trainee to obtain training in all modalities and aspects making use of all the available training centres.

ANNEXURE 2 - FORMAT FOR PROGRESS REPORT ON TRAINEES (LOCAL)

Name of trainee:

Name of trainer:

Training centre:

Period of report:

Please use the following key to rate your trainee's performance during the period in question, with regard to each of the areas listed below

Outstanding	A
Above average	B
Adequate	C
Below expected	D

PRACTICAL SKILLS	**Rating**	**Specific comments**
A. Clinical judgment		
1. Assessment of request forms		
2. Selection of appropriate investigations		
B. Bench skills		
1. Preparation of patients & contrast media		
2. Hands-on work		
3. Interpretation of results		
C. Record keeping		
PROJECTS OR OTHER ACTIVITIES CARRIED OUT DURING THE PERIOD OF TRAINING:		

INTERPERSONAL SKILLS	Rating	Specific comments
1. Communication & working with others in the lab		
2. Communication & working with persons of other disciplines		
3. Supervising & helping juniors and willingness to serve when required		
4. Following instructions of senior colleagues		
5. Power of expression (oral and written)		
6. Standard of punctuality, ethics, professional attitudes and reliability		
7. Teaching medical students and juniors		

ACADEMIC SKILLS	Rating	Specific comments
1. Theoretical background and knowledge		
2. Reads widely in medical literature		
3. Participates actively in academic discussions		
4. Thinks independently and rationally		

GENERAL COMMENTS

Particular strengths

Particular weaknesses

Signature of trainer **Name** **Date**

ANNEXURE 3 - FORMAT FOR PROGRESS REPORT- OVERSEAS APPOINTMENT

NAME OF TRAINEE :

PERIOD OF TRAINING :

SPECIALTY :

HOSPITAL AND UNIT :

COUNTRY :

NAME OF THE CONSULTANT :

	Excellent	Good	Average	Poor
Theoretical knowledge				
Participation in Educational Activities (Seminars/ workshops/ Journal club/ Clinical meetings)				
Research interest				
Clinical decision making				
Clinical skills				
Operative skills				
Ability to cope with emergencies & complications				
Thinks independently & 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				
Other Comments:				

ANNEXURE 4 - FORMAT OF DETAILED RESEARCH PROJECT PROPOSAL AND CLINICAL AUDIT

Section 1

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

Section 2

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

Section 3

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

ANNEXURE 5 - REPORT OF THE AUDIT AND RESEARCH PROJECT REVIEWER

1. Name of Trainee
2. Training Centre
3. Supervisor
4. Reviewer
5. Name
6. Designation
7. Address Official
8. Tel//Fax
9. Email
10. Title of Project

1. Please comment on each of the following headings.

Introduction : Rationale(Justification) – problem identified and quantified. Hypothesis and expected outcome, impact and relevance of the study.
Comment : …….

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

Objectives : Clearly defined . relevant and stated in measurable terms .
Comment : ……..

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
Comment : ……..

Results: Order of presentation and appropriate presentation of tables, figures, graphs. Appropriate statistical analyses and interpretations
Comment :…….

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

Conclusion and recommendation: Based of the results of the study and to address the objectives
Comment : ……

Limitations: Any inherent and / or inadvertent biases and how they were dealt with.
Comment :……

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

Institution(s) where work would be carried out:
Ethical considerations/institution from where ethical approval will be /has been obtained:
Comment : ……

Overall presentation: Overall presentation of the proposal (grammar, spelling, typographical mistakes etc.
Comment : ……

Recommendation of reviewer:
Comment : ……

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

Signature: **Date:**

Recommendation of the BOS:

Signature of Chairperson/Secretary: **Date:**

ANNEXURE 6 - INSTRUCTIONS TO DISSERTATION AND CLINICAL AUDIT SUPERVISORS

- The dissertation is based on a 1-3 year research project.
- Acceptance of the dissertation is a requirement to sit the PBCA
- The trainee should write up the project work as a dissertation conforming to the format approved by the Board of Study.
- The supervisor should guide the student in planning and designing, carrying out the research and in presentation of the work.
- The supervisor should obtain recommendation of the research proposal from a reviewer.
- The supervisor should forward Progress Report(s) in the prescribed form at the end of 3 months after the trainee commences work on the research project and 3 months after completing the project work.
- 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 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 ethical approval was obtained by a recognized Ethical Review Committee.
- The trainee is required to make a short (10 min.) presentation of the project proposal in their year 1 training to obtain a feedback from other trainers and invitees, regarding feasibility, appropriateness of study design and method and statistical considerations, prior to commencement of the project.

- Prior to submission of the dissertation, the trainee will be required to make a short (15 – 20 minutes) presentation of the project once completed, to the BOS members and other invitees This will give the trainee an opportunity to discuss his / her work and obtain a feedback from peers and colleagues. It will not be used for evaluation in any form. The supervisors will also be invited for these presentations.
- 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.
- The trainee will be questioned on the clinical audits 3 months and the dissertation two months at a viva-voce examination prior to the portfolio viva which will be the final Pre Board Certification Assessment (PBCA).

ANNEXURE 7 - DISSERTATION PROGRESS REPORT

To be forwarded by the supervisor to the BOS at least once in SIX months

1. Name of trainee:
2. Training Centre:
3. Supervisor:
4. Title of project:
5. Description of work carried out to date:

To be filled in by trainee: briefly describe progress in lab / field work and dissertation writing

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:

10. **Recommendation of the BOS:**

Signature of Secretary: Date:

ANNEXURE 8 – DISSERTATION AND CLINCAL AUDIT SUBMISSION FORMAT

General instructions

It is essential 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 is likely to be in the region of 30 - 40 pages.

Number of copies

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

Layout

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

<u>Layout of typescript</u>

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.

<u>Tables, diagrams, maps and figures</u>

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

Notes

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

Abbreviations

Where abbreviations are used, a key should be provided.

Preliminaries

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

1. Title page

Title of dissertation
Author's name
Board Certification in Paediatric Radiology
Postgraduate 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.

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

Section 2 – Literature Review: This section should be reasonably comprehensive, and most of the references to be quoted normally occur here. The relevant references dealing with the general problems should be reviewed first and this should be followed by a detailed review of the specific problem. The review is in many cases approached as a historical record of the development of knowledge of the subject.

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

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

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

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

ANNEXURE 9 – FORMAT FOR ASSESSMENT OF RESEARCH PROJECT

The two examiners appointed by the BOS shall use the following marking grid to allocate marks for the dissertation.

1.	Title	(05 marks)
2.	Author's name and address	
3.	Abstract	(10 marks)
4.	Table of contents	
5.	List of tables	
6.	List of figurers	
7.	Introduction	(20 marks)
8.	Objectives	(15 marks)
9.	Review of literature	(20 marks)
10.	Materials and methods	(50 marks)
11.	Results	(40 marks)
12.	Discussion (including limitations)	(45 marks)
13.	Conclusion and recommendations (if any)	(10 marks)
14.	Acknowledgements	
15.	References (Vancouver system should be used)	(15 marks)
16.	The overall presentation	(20 marks)

Two examiners will be appointed by the BoS to assess and award a mark independently out of 250 using the marking system described above. The final mark for the dissertation out of 500 shall be the total of the marks given by each examiner.

The candidate should obtain a minimum of 50% of the total 500 marks in order to be eligible for the Pre Board Certification Assessment (PBCA).

If it is less than 50% the trainee should resubmit the Dissertation within two months attending to the recommended amendments and improvements for reassessment by the same pair of examiners. At the reassessment the maximum mark to be awarded shall be 50%. If still unsuccessful another period of six months will be given prior to reassessment.

On successful completion at the second attempt and the PBCA, the date of Board Certification shall be backdated. If unsuccessful, the date of Board Certification will be the date of passing the subsequent reassessment after a period of six months and the PBCA. After three attempts if the trainee is unsuccessful, the trainee will not be eligible to proceed for the reassessment or for the PBCA. The candidate will not be eligible for Board Certification in the subspeciality and will be Board Certified as a General Radiologist. The date of Board Certification will be three years after the final MD Radiology examination.

Where a trainee has written up the work from the research project approved by the BoS, in the form of an original scientific paper which has been published or accepted for publication in a peer-reviewed journal, with the trainee as the first author, then such a trainee will not be required to submit a dissertation or face the dissertation viva. He / she will be considered to have fulfilled the requirement for satisfactory completion of a research project.

FORMAT FOR ASSESMENT OF AUDIT

The two examiners appointed by the BOS shall use the following marking grid to allocate marks for the clinical audit.

1.	Title	(05 marks)
2.	Author's name and address	
3.	Abstract	(10 marks)
4.	Table of contents	
5.	List of tables	
6.	List of figurers	
7.	Introduction	(10 marks)
8.	Objectives	(10 marks)
9.	Review of literature	
10.	Materials and methods	(30 marks)
11.	Results	(25 marks)
12.	Discussion (including limitations)	(35 marks)
13.	Conclusion and recommendations (if any)	(10 marks)
14.	Acknowledgements	
15.	References (Vancouver system should be used)	(5 marks)
16.	The overall presentation	(10 marks)

Two examiners will be appointed by the BOS to assess and award a mark independently out of 150 using the above mentioned marking scheme. The final mark should be out of 300 and shall be the total of the marks given by the each examiner.

The candidate should obtain a minimum of 50% of the total 300 marks in order to be eligible for the Pre Board Certification Assessment (PBCA).
If it is less than 50% the trainee should resubmit the audit within two months attending to the recommended amendments and improvements for reassessment by the same pair of examiners. At the reassessment the maximum mark to be awarded shall be 50%. If still unsuccessful another period of six months will be given prior to reassessment.
On successful completion at the second attempt and the PBCA, the date of Board Certification shall be backdated. If unsuccessful, the date of Board Certification will be the date of passing the subsequent reassessment after a period of six months and the PBCA. After three attempts if the trainee is unsuccessful, the trainee will not be eligible to proceed for the reassessment or for the PBCA. The candidate will not be eligible for Board Certification in the subspeciality and will be Board Certified as a General Radiologist. The date of Board Certification will be three years after the final MD Radiology examination.

ANNEXURE 10 - TRAINEE PERSONAL PORTFOLIO

TRAINEE PERSONAL PORTFOLIO
FOR
SUBSPECIALITY TRAINING IN PAEDIATRIC RADIOLOGY

1. Name of Specialist Registrar in Paediatrc Radiology : _____
2. Date of Commencement of Training in the Subspeciality : _____
3. Date of Completion of Training in the Subspeciality : _____
4. Local Training :
   Training Centre/s _____

   _____

   Supervisor/s _____

   _____

   Appraisals: Were all the appraisals completed. Yes /No
   If No, details _____
5. Overseas training :
   Training Centre/s _____

   _____

   Supervisor/s _____

   _____

   Appraisals: Were all the appraisals completed. Yes /No
   If No, details _____
6. Were all the progress reports received from the local and overseas trainers? :
   Yes/ No
   If No, details _____

   _____
7. Date of Pre – Board Certification Assessment : _____
   No. of attempts:

   _____
8. Date of Board Certification as a Specialist in Radiology with special Interest in Paediatric Radiology

   .....

Instructions to trainees

The portfolio should be maintained under the following broad outcomes.

1. Subject expertise
2. Research and audit
3. Ethics and medico legal issues
4. Information technology
5. Teaching and sharing knowledge

A guideline as to what sections should be considered under these broad outcomes are given below. However the trainees have the freedom to add any other relevant events which they came across during their training under the above broad outcomes, mentioning the outcome and reflective thinking.

PART 1 – Subject expertise

LOG OF:

- EXAMINATIONS /PROCEDURES PERFORMED
- EDUCATIONAL COURSES/SCIENTIFIC SESSIONS ATTENDED
- ATTACHMENTS/ROTATIONS COMPLETED
- FINAL APPRAISAL

Please add extra pages for documentation of examinations and procedures if required

REPORTING OF PLAIN RADIOGRAPHS

Date	Chest 300	Skull and Spine 100	MSK 200	Abdomen and Pelvis 100	Outcome	Reflective Thinking	Name of Supervisor	Signature of Supervisor
Total								

FLUROSCOPIC EXAMINATIONS AND PROCEDURES

Date	Upper GI 100	Lower GI + Loopogram 100	MCUG + Ure'gram 50	Ante,Retro Grade Pyelogrm 15	Miscellaneous Sialo,Sino Fistulo etc. 40	Reduction of Intussusception 30	Outcome	Reflective Thinking	Name of Supervis.	Signature of Supervis.
Total										

ULTRASOUND SCANNING

Date	Abdomen + Pelvis 300	Brain 150	Chest 50	Hips 100	Other MSK + Small parts 50	Outcome	Reflective Thinking	Name of Supervisor	Signature of Supervisor
Total									

CT SCANNING

Date	Brain 200	Head & Neck 50	Chest Respiratory CVS HRCT 100	Abdomen & Pelvis 100	MSK 50	Outcome	Reflective Thinking	Name of Supervisor	Signature of Supervisor
Total									

MRI SCANNING

Date	Brain 150	Head & Neck + Spine 50	Cardiac 30	Abdomen & Pelvis 50	MSK 50	Outcome	Reflective Thinking	Name of Supervisor	Signature of Supervisor
Total									

NUCLEAR MEDICINE

Date	DMSA 100	DTPA 100	HIDA 30	PET - CT 30	Miscellaneous Bone, Thyroid, Meckel, Cystogram, Milk scan etc. 50	Outcome	Reflective Thinking	Name Supervis.	Sig.of Superv.
Total									

INTERVENTIONAL PROCEDURES

Date	Biopsy compulsory 30	Others- Optional Specify	Outcome	Reflective Thinking	Name of Supervisor	Signature of Supervisor
Total						

EDUCATIONAL COURSES/SCIENTIFIC MEETINGS ATTENDED

Annual Academic Sessions and Clinico-radiological meetings organized by the Sri Lanka College of Radiologists can be included

Title	Date	Venue	Perceived Benefit to Trainee (Outcome)	Reflective Thinking and contribution to the field from the benefit gained

ATTACHMENTS/ROTATIONS COMPLETED

YEAR OF TRAINING	DATES	SPECIALTY	HOSPITAL	TRAINER'S SIGN.	OUTCOME	REFLECTIVE THINKING

PART 2 - Research and Audits

Please use the format given below for documentation

Audit/Research, Presentations/Publications

Two Audits or One Research, Presentations/Publications

AUDIT

Project Title

Start Date

Completion Date

Findings

Implementation of Findings (Y/N)

Re-audit(Y/N) Consultant Supervisor

RESEARCH, 'PRESENTATIONS' and/or 'PUBLICATIONS'

For presentations and publications indicate whether presented, in press or published.

Put details separately in 'PRESENTATIONS' and/or 'PUBLICATIONS' on following sheets.

Title of project

Names of Authors (underline own name)

Date study completed

Presented (Y/N)

In press (Y/N)

Published (Y/N)

PRESENTATIONS

Authors

Title

Meeting

Abstract was peer reviewed (Y/N)

Abstracts published (provide citation)

PUBLICATIONS

<u>NB</u>. Published *abstracts* should be placed in PRESENTATIONS section

Authors

Title

Journal

Year

Vol

Page nos.

In press (Y/N)

PART 3 – Ethics and medico-legal issues

Peer team rating should be included under this section. See Annexure 9 mentioning the outcome and reflective thinking on the rating given.

PART 4 – Information technology

A summary of All power point presentations should be included under this section mentioning the outcome and reflective thinking.

PART 5 – Lifelong learning

Appraisals

1. The trainee is recommended to take an active part with the supervisor/s in the appraisals with regard to academic and self improvement.
2. Number of Appraisals to be carried out

   Appraisal once in every 3 months

   4 local and 4 overseas

Only a single page follows for documentation of local and overseas appraisals. Please add more copies for the additional appraisals

RATING

1 - Excellent
2 - Good
3 - Average
4 - Poor

(Local)

Appraisal Number ..... ***(date)***

Supervisors' comments

Score			Subject	Score			Subject
A	B	C		A	B	C	
			Knowledge (Radiology)				Interpersonal & communication skills
			Reports				Professional attitudes & behaviour
			Problem solving / decision making skills				Ongoing education
			Presentations at Clinoco - Radiological & Journal club meetings				Self assessment
			Attendance / Punctuality				Relationship with other staff members

Remedial action taken if below expected level of training

……

……

Leave Taken: Casual / Vacation / Other

No. of Days…….

	Name of supervisor	Signature and Date
A		
B		
C		

(Overseas)

Appraisal Number ..... ***(date)***

Supervisors' comments

Score			Subject	Score			Subject
A	B	C		A	B	C	
			Knowledge (Radiology)				Interpersonal & communication skills
			Reports				Professional attitudes & behaviour
			Problem solving / decision making skills				Ongoing education
			Presentations at Clinoco - Radiological & Journal club meetings				Self assessment
			Attendance / Punctuality				Relationship with other staff members

Remedial action taken if below expected level of training

……

……

Leave Taken Casual / Vacation / Other

No. of days …….

	Name of supervisor	Signature and Date
A		
B		
C		

INTERESTING CASES

No. of cases to be documented - 10

Cases should be documented with available results of Plain Radiographic, Ultrasound, CT,MRI, Nuclear Medicine, Interventional procedure/s done, Surgical findings, Histopathalogical, Microbiological, Haematological findings and a literature survey on the Case. Include the outcome and Reflective thinking of each case at the end.

Please add extra pages for documentation of cases

PART 6 - Teaching and Sharing knowledge

TEACHING BY TRAINEE

One Training Session per month

Date	Topic	Audience	Outcome	Reflective Thinking

Recommendations by the portfolio viva assessors

- Satisfactory -
- Unsatisfactory -
- Further course of action -

(If it is unsatisfactory the trainee should resubmit the portfolio within two months attending to the recommended amendments and improvements for reassessment by the same pair of examiners. If at the reassessment it is still unsatisfactory another period of six months will be given prior to reassessment.
On successful completion at the second attempt of the PBCA, the date of Board Certification shall be backdated. If unsuccessful, the date of Board Certification will be the date of passing the subsequent PBCA. After three attempts at the PBCA if the trainee is unsuccessful, the trainee will not be eligible to proceed further for the PBCA. The candidate will not be eligible for Board Certification in the subspeciality and will be Board Certified as a General Radiologist. The date of Board Certification will be three years after the final MD Radiology examination.)

Name of assessors –

Signature –

Date –

ANNEXURE 11 - RECOMMENDED READING MATERIALS

1. Diagnostic and Surgical Imaging Anatomy: Brain, Head and Neck, Spine: Published by Amirsys®
H. Ric Harnsberger (Author), Anne G. Osborn (Author), Jeff Ross (Author), Andre Macdonald (Author)

2. Diagnostic Imaging: Brain: Published by Amirsys
Anne G. Osborn (Author), Karen L. Salzman (Author), A. James Barkovich (Author)

3. Diagnostic Imaging: Spine: Published by Amirsys®
Jeffrey S. Ross (Author), Kevin R. Moore (Author), Bryson Borg (Author), Julia Crim (Author), Lubdha M. Shah (Author)

4. Pediatric Neuroimaging (Pediatric Neuroimaging (Barkovich))
A. James Barkovich (Author), Charles Raybaud (Author)

5. Imaging of the Temporal Bone
Joel D. Swartz (Author), Laurie A. Loevner (Author)

6. Fundamentals of High-Resolution Lung CT: Common Findings, Common Patterns, Common Diseases, and Differential Diagnosis
Brett M Elicker MD (Author), W. Richard Webb (Author)

7. High-Resolution CT of the Chest: Comprehensive Atlas
Eric J. Stern (Author), Stephen J. Swensen (Author), Jeffrey P. Kanne (Author)

8. Principles and Practice of Cardiac Magnetic Resonance in Congenital Heart Disease: Form, function and flow
Mark A. Fogel MD

9. Pediatric and Adolescent Musculoskeletal MRI: A Case-Based Approach [Book] by J. Herman Kan, Paul K. Kleinman in Books
Overview - Online stores - Related books

10. MRI Normal Variants and Pitfalls
Author(s): Laura W Bancroft MD Mellena D Bridges

11. Grainger & Allison's Diagnostic Radiology [Book]:
by Andy Adam (Author, Editor), Adrian K. Dixon (Author, Editor), Ronald G. Grainger (Author, Editor)

12. Pediatric Gastrointestinal Imaging and Intervention [Book]:
By David A. Stringer(Author, Editor), Paul S. Babyn (Author, Editor)

13. Text book of Radiology and Imaging [Book]
Author: David Sutton

14. Nuclear Medicine, The Requisites.
By James H. Thrall (Author), Harvey A. Ziessman(Author)

15. An Imaging Atlas of Human Anatomy
By J. Weir (Author), P. H. Abrahams (Author)