Residency Program

1. Introduction
Medical education is a continuum from undergraduate through internship to postgraduate medical training, which is further divided into two stages: basic and higher professional training. Universally postgraduate medical training is competency-based and structures. In fact, self-learning aided by continued medical education (CME) programmes, should continue throughout the career of a medical practitioner and re-training is desirable whether re-certification is mandatory or not. This should not be construed to mean that doctors are not adequately trained for their job at graduation or on exit from higher professional training, but that Medical Science is complex and evolving; therefore, continued update, review and re-education are mandatory in the Medical Profession.

Recently BSMMU has introduced its competency-based Residency Programme in Oncology Phase A training of the programme, which lasts for two years, aims at a broad-based training in Oncology and allied subjects.

2. Objectives
1. To provide a broad experience in Oncology, General Medicine and allied subjects.
2. To enhance medical knowledge, clinical skills, and competence in bedside diagnostic and therapeutic procedures.
3. To achieve the professional requirements for specialty-specific training (phase B).
4. To cultivate the correct professional attitude and enhance communication skill towards patients, their families and other healthcare professionals.
5. To enhance sensitivity and responsiveness to community needs and the economics of health care delivery.
6. To enhance critical thinking, self-learning, and interest in research and development of patient-care service.
7. To cultivate the practice of evidence-based Oncology and critical appraisal skills.
8. To inculcate a commitment to continuous medical education and professional development.

3. Admission Requirements:
Medical graduate with successful completion of internship and with full registration with the BMDC will be selected by competitive admission test.
A. Pre-requisites for admission in Phase-A
   a) MBBS or equivalent degree as recognized by BMDC
   b) One year of internship/in-service training
   c) Completion of one year after internship/in-service training
   d) BMDC registration
B. The applicants should not be above 45 years of age on enrolment.
C. Candidates for residency have to sit for a written MCQ-based admission test on Basic Medical Sciences and faculty-based topics.

4. Phase A (Core Clinical) Training:
The two-year Core Medical Training provides foundation training in Medical Oncology, General Medicine and allied subjects which includes components of educational (academic) and training programme in relevant fields of Applied Medical Sciences. This training program will focus on developing core knowledge and skills, providing a foundation for consolidation and further study within advanced specialty-specific training.

4.1. Expected outcome at the completion of Phase A Training programme
At the completion of Phase A training, it is expected that Residents will have:
- Built on the knowledge and skills acquired during medical College and the internship years.
- Gained experience in, and had the opportunity to develop and demonstrate competency in, a comprehensive range of "core" generic and discipline-specific knowledge, clinical skills and attitudes.
- Gained a background knowledge and understanding of the full range of disciplinary areas which will facilitate cross referral/multi-specialty teamwork etc.
- Acquired the skills to be able to work within, and fully utilize, multidisciplinary team-based approach to the assessment, management and care of their patients.
- Implemented their future career-planning and decision making processes based on a more informed level of knowledge and understanding.

4.2. Structure of Training:
1. The core programme consists of two years of supervised training with formative assessment and feedback.
2. The Residents should have at least one year of training in units dealing with general medical problems, of which at least six month should be spent in a unit dealing with a comprehensive range of acute medical emergencies. They should also attend general and specialty outpatient clinics for no fewer than three hours per week throughout the two years of training.
3. Exposure to various specialty services in parallel with duties in Oncology, General medicine and allied subject should be encouraged.
4. Residents should acquire competence through supervised performance of the required numbers of diagnostic and therapeutic procedures during their Phase A Training.
5. Residents should attend the mandatory courses, workshops, etc as per curricular requirements.

4.3. Training Rotations:
Residents will undergo training rotation in different clinical services and radiation therapy centers during first 21 month and the last 3 month for eligibility assessment and Phase Final Examination.
Phase A training rotations will be as follows:
1. General Medicine including Medical Oncology - 15 Months
2. Surgery, Radiology and Nuclear Medicine - 03 Months
3. Gynaecology, Paediatric Oncology & Haematology - 03 Months
4. Eligibility assessment and Phase Final Exam - 03 Months

5. Domains of Learning
5.1. Knowledge
1. Knowledge on Radiation Physics and Radiobiology.
2. Knowledge on Onco-pharmacology.
3. Aetiology, clinical manifestation, disease course and prognosis, investigation and management of common cancers.
4. Scientific basis and recent advances in pathophysiology, diagnosis and management of common diseases of allied disciplines.
5. Spectrum of clinical manifestations and interaction of multiple diseases in the same patient.
6. Psychology and social aspects of medical illnesses.

7. Cost-effective use and interpretation of investigations and special diagnostic procedures.
9. Patient safety and risk management
10. Medical audit and quality assurance
11. Ethical principles and medicolegal issues related to medical illnesses.

5.2 Skills
1. Chemotherapy procedures
2. Orientation on radiotherapy machines.
3. Ability to take a detailed history, gather relevant data from patients, and assimilate the information to develop diagnostic and management plans.
4. Competence in eliciting abnormal physical signs and interpreting their significance.
5. Ability to relate clinical abnormalities with pathophysiologic states and diagnosis of cancers and other diseases.
6. Ability to select appropriate investigation and diagnostic procedures for confirmation of diagnosis and patient management.
7. Skills in performing important bedside diagnostic and therapeutic procedures and understanding of their indications, Residents should acquire competence through supervised performance of the required number of procedures during the 2-year training period and should record them in the Logbook.
8. Ability to present clinical problems and literature review in grand rounds, journal club and seminars.
9. Good communications skills and interpersonal relationship with patients, families, medical colleagues, nursing and allied health professionals.
10. Ability to mobilize appropriate resources for management of patient at different stages of cancers including palliative consultation of medical specialties and other disciplines, ambulatory and rehabilitation services, and community resources.

5.3. Attitudes
1. The well-being and restoration of health of cancer patients must be of paramount consideration.
2. Empathy and good rapport with patient and relatives are essential attributes.
3. An aspiration to be the team-leader in total patient care involving nursing and allied healthcare professionals should be developed.
4. The cost-effectiveness of various investigations and treatments in patient care should be recognized.
5. The privacy and confidentiality of patients and the sanctity of life must be respected.

5. Teaching and Learning Methods:
For trainees to maximize their learning opportunities it is important that they work in 'a good learning environment'. This includes encouragement for self-directed learning as well as recognizing the learning potential in all aspect of day-to-day work. The bulk of learning occurs as a result of clinical experiences (experiential learning, on-the-job learning) and self-directed study. The degree of self-directed learning will increase as trainees become more experienced. Teaching and learning occurs using several methods that range from formal didactic lectures to planned clinical experiences. Aspects covered will include knowledge, skills and practices relevant to Oncology in order to achieve specific learning outcomes and competencies. The theoretical part of the curriculum presents the current body of knowledge necessary for practice as an internist. In this programme this will be imparted using lectures, grand teaching rounds, clinico-pathological meetings, morbidity/mortality review meetings, literature reviews and presentations, journal clubs, self-directed learning, conference and seminars.

6. Record of Training:
The evidence require to confirm progress through training includes:
- Details of the training rotations, weekly timetables and duty rosters; case-mixes and numbers of practical procedures and outcomes.
- Confirmations of attendance at events in the educational programme, at departmental and inter-departmental meeting and other (optional) educational events.
- Confirmation (certificates) of attendance at subject-based/skills-training/instructional courses.
- Recorded attendance at conference and meetings.
- A properly completed logbook with entries capable. Of testifying to the training objectives which have been attained and the level of performance achieved.
- CME activity.
- Supervisor's reports on observed performance in the workplace.

7.1. Logbook:
Residents are required to maintain a logbook in which entries of academic/professional work done during the period of training should be made on a daily basis, and signed by the supervisor. Completed and duly certified logbook will form a part of the application for appearing in Phase Final Examinations.
7.2 Portfolio:
This is a collection of evidence documenting trainee's learning and achievements during their training. The trainee takes responsibilities for the portfolio's creation and maintenance. It will from the basis of assessment of progression.

8. Assessment:
The assessment method is comprehensive, integrated and phase-centered attempting to identify attributes expected of specialists for independent practice and lifelong learning and covers cognitive, psychomotor and affective domains. It keeps strict reference to the components, the contents, the competencies and the criteria laid down in the curriculum. Assessment includes both Formative Assessment and Summative (Phase final) Examinations.

8.1 Formative Assessment:
Formative assessment will be conducted throughout the training phases. It will be carried out for tracking the progress of residents, providing feedback, and preparing them for final assessment (Phase completion exams). There will be Continuous (day-to-day) and periodic type of formative assessment.

- **Continuous (day-to-day) formative assessment** in classroom and workplace setting provides guide to a resident's learning and a faculty's teaching/learning strategies to ensure formative lesson/training outcomes.

- **Periodic formative assessment** is quasi-formal and is directed to assessing the outcome of a block placement of academic module completion. It is held at the end of Block Placement and Academic Module Completion. The contents of such examinations include Block Units of the Training Curriculum and Academic Module Units of the Academic Curriculum.

8.2 Summative (Phase A Final) Examination:
Phase A Final examination will be common for Medicine and Allied and will have following components:
- Written examination (SAQ/SEQ)------ Two papers:
  1. Topics on Oncology
  2. Topics of rotation subjects
- Clinical examination:
  - Long case (1)
  - Short case (4)
  - Structured Clinical Assessment (SCA- 10)

9. Supervision and Training Monitoring
The Training will incorporate the principle of gradually increasing responsibility, and provide each trainee with a sufficient scope, volume and variety of experience in a range of settings that include inpatients, outpatients, emergency and intensive care. All elements of work in training rotation will be supervised with the level of supervision varying depending on the experience of the Resident and the clinical exposure. Outpatient and referral supervision must routinely include the
opportunity to personally discuss all cases. As training progresses the Resident should have the opportunity for increasing autonomy, consistent with safe and effective care of the patient. Residents will at all times have a Supervisor, responsible for overseeing their education and training.

Supervisors are responsible for supervision of learning throughout the program to ensure patient safety, service delivery as the progress of the resident with learning and performance. They set the lesson plans based on the curriculum, undertake appraisal, review progress against the curriculum, give feedback on both formative and summative assessments and ensuring proper recording of the and signing the logbook. The residents are made aware of their limitations and are encouraged to seek advice and receive help at all times.

The Course Coordinator of each department coordinates all training and academic activities of the program in collaboration with the Course Manager(s). The Course Director of each faculty directs, guides and manages curricular activities under his/her jurisdiction and is the person to be reported to for all events and performances of the residents and the supervisors.

10. Curriculum Implementation, Review and Updating:
Both Supervisors and Residents are expected to have a good knowledge of the curriculum and should use it as a guide for their training programme. Since Medicine has historically been rapidly changing specialty the need for review and updating of curricula is evident. The Curriculum is specifically designed to guide an educational process and will continue to be the subject of active redrafting, to reflect changes in both Medicine and educational theory and practice. Residents and Supervisor are encouraged to

11. Syllabus
The aim the syllabus for Phase A training is to guide the Residents to acquire broad based knowledge on Oncology, Pharmacology, Radiation Physics and General Medicine, etc before entering the Phase B specialty-specific training. Patients present themselves with problems and it is the problem that needs solving. A specialist who has broad based knowledge of Oncology will be able to solve the problem in a better way. So the ultimate objective of Phase A training is to produce a knowledgeable, competent, altruistic specialist with up to date background knowledge of Oncology. Emphasis has been laid on common diseases frequently encountered in this part of the world.
By the end of Phase A Training (Core Medical Training) the Resident should be able to:
a) To gather knowledge on
1. Oncopharmacology
2. Radiation physics
3. Radiobiology.
b) Assess presenting symptoms and signs of cancer patients in different organs/sites
c) Formulate appropriate investigations and accurately interpret investigation reports
d) Communicate the diagnosis and prognosis
e) Institute appropriate treatment recognizing indications, contraindications and side effects of common clinical
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conditions: On this background, it is expected that Residents will be able to (i) acquire knowledge of common cancer conditions, emergencies, and palliation, (ii) acquire skills in diagnostic, clinical, and decision-making and (iii) develop attitude (caring, learning, & ethical).

11.1. Learning Objectives:
A. Clinical Skills
1. Elicit the history and obtain other relevant data
2. Conduct an appropriate physical examination
3. Synthesize findings from history and physical examination to develop a differential diagnosis, identify problems, make a problem list and formulate management plan
4. Plan and arrange investigation appropriately.

B. Patient Care and Therapeutics
1. Manage general care in the cancer and other patients
2. Prescribe appropriate and safe Chemotherapy procedures
3. Incorporate health and wellness promotion in clinical practice
4. Manage patients with co-morbid problems
5. Facilitate ongoing care planning

C. Procedural Skills
1. Prepare patient for procedure
2. Competently perform procedures relevant to medical, surgical, and Oncology
3. Provide care following procedure

D. Management of Acute Clinical Problems
1. Recognize and manage the critically ill patient
2. Manage specific acute problems
3. Communicate with patients and their families in an emergency situation

E. Manage Patients with Undifferentiated Presentations
1. Manage patients with undifferentiated presentations (eg, Chest pain, cough, weight loss, anorexia, cachexia etc.)

F. Manage Patients with Common Disorders of Organs
1. Disorders of the cardiovascular system
2. Endocrine and metabolic disorders
3. Disorders of the gastrointestinal system
4. Disorders of the haematological system
5. Mental health disorders
6. Disorders of the musculoskeletal system
7. Disorders of the neurological system
8. Disorders of the renal and genitourinary systems
9. Disorders of the respiratory and sleep systems
10. Skin disorders
11. Gynaecological disorder

G. Manage Patient with Defined Disease Processes
1. Manage patients with palliative problems
2. Manage patients with Nutritional problems
3. Manage patients with infectious diseases
4. Paediatric & Geriatric problem
5. End of life care

11. OUTLINE OF CORE SYLLABUS:
Core Syllabus in which the Resident should acquire good knowledge, clinical competence including appropriate technical abilities is outlined below.

A. ONCOLOGY
Knowledge on
1. Cancer Biology
2. Oncological Pharmacology
3. Tumour Pathology
4. Radiation Physics
5. Radiobiology
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**Cancer Biology**

The understanding of carcinogenesis, cellular and molecular features of malignancy, including biochemical control, signaling and cell death. Tumour development, growth kinetics, microenvironmental changes, metastasis and immune response. Common laboratory techniques to demonstrate these features.

**Onco-pharmacology**

The emphasis is on cytotoxic drugs, hormones and biological therapies used in clinical practice, their mode of action and side-effects. The syllabus also includes the basic principles of pharmacokinetics and pharmacodynamics, clinical trials and the basic pharmacology of drugs used in the supportive care of patients with cancer.

**Tumour Pathology**

Emphasis in the examination will be on the pathology of neoplasia, including natural history. Candidates will be expected to discuss the aetiology, taxonomy, progression and regression of tumours and the pathological features of individual tumours, including staging, molecular biology and immunohistochemistry. Particular attention should be given to those conditions that illustrate important pathological principles. There will be some overlap between the pathology syllabus and that of cancer biology.

**Radiation Physics**

The emphasis is based upon candidates acquiring a broad knowledge of physics relevant to the clinical practice of radiotherapy. It is essential that during the course of instruction there should be demonstrations of therapeutic and related equipment and procedures to illustrate the importance of the subject to radiotherapeutic practice.

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**Radiobiology**

A knowledge of the cellular and molecular basis for the response of cells, tissues and tumours to ionizing radiation is expected. Candidates are also expected to understand the chemical interactions between radiation and cells and to understand the development of malignancy and the principles underlying the application of radiotherapy to the treatment of disease. This involves an understanding of the main biological principles and developments underpinning the therapeutic applications of radiation. A knowledge of current models of radiation response is expected.

**B. GENERAL MEDICINE**

After completion of placement in Medicine, students will gather:-

1. Knowledge on:-
   - The etiology, pathogenesis, diagnosis and management of common infections disease, cardio-vascular disease, respiratory disease, nephrological disease, endocrinological disease, gastroenterological disease, hepato pathological disease, rheumatological disease, dermatological, neurological disease.

2. Skill on:-
   - Indications, basic techniques and application of every day instrumental procedures.

3. Ability on:-
   - Facing and managing medical emergencies and complications.

**C. GENERAL SURGERY**

1. Principles of diagnosis and staging of malignant tumors of surgically importance, specially-
   a) Breast
   b) Colorectum and anal canal
   c) Stomach
   d) Oesophagus
   e) Endocrine cancer
   f) Thyroid
   g) Skin cancer
   h) Soft tissue malignance
2. Principles of curative surgery
3. Principles of palliative surgery
4. Knowledge on surgical technique
   A. En-bloc technique
   B. Biopsy procedure
   C. Sentinel node biopsy
5. Minimally invasive surgical Procedure in cancer
   i) Laparoscopic surgery
   ii) ERCP
   iii) Sterling etc.
6. Conservative and radical surgery
7. Reconstructive surgery
8. Microsurgery
9. Prophylactic cancer surgery
10. Principles of management of:
    A. Bowel obstruction
    B. Fistulas
    C. Obstructive Jaundice
    D. Ascites
    E. Gastrointestinal bleeding
11. Surgical management of cancer pain
12. Surgery in metastatic disease especially
    A. Lymphatic clearance
    B. Liver metastasis
    C. Lung Metastasis
    D. Bone metastasis
    E. Brain metastasis
13. Malignant pleural effusion
14. Bedside surgical procedures of dressings, bandaging etc.
15. Wound healing
    > Surgical
    > Non surgical

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D. GYNAECOLOGY
1. Review of the anatomy and physiology of female reproductive system.
3. Investigations in gynaecology.
5. General discussion on-
   a) P/V bleeding
   b) P/V discharge
   c) Menstrual irregularities
   d) Pelvic pain
   e) Pelvic mass
   f) Endometriosis, PID, cervicitis etc.
   g) Menopause
   h) Others if, concern department feels necessary
6. Epidemiology and screening of gynaecological malignancy.
7. Common obstetrical problems in our country.
8. Principles of common surgical procedure in gynaecology including hysterectomy, BLSO, lymph node dissection (pelvic/para-aortic), resection of growth in gynaecology practice, D&C, evacuation, etc.

E. HEMATOLOGY
1. Introduction of common haematological problems in Bangladesh
2. Epidemiology of haematological malignancies
3. Common presentations of haematological malignancy.
5. Basic concepts on haematological malignancies, and its management.

**E. PAEDIATRIC ONCOLOGY**
1. Introduction of common paediatric problems in Bangladesh.
2. Epidemiology of paediatric malignancies.
3. Common presentations of paediatric cancer patients.

**G. RADIOLOGY**
1. Radiological anatomy
2. Oncological imaging
3. Interventional radiology in Oncological field

**H. NUCLEAR MEDICINE**
1. Knowledge about nuclear medicine instruments.
2. Various radio-isotopic scanning.
3. Radiopharmaceutical procedures and therapeutic radio-isotopes.
4. Different radio-isotopic imaging.
5. Surface application of radiation.
6. Intravascular radiation techniques.
7. PET-CT scanning and cyclotron.