CURRICULUM

FOR

M.D (MEDICINE)

POST GRADUATE MEDICAL INSTITUTE

QUETTA

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Section -1

INTRODUCTION

University of Balochistan was established in 1970. The University awarded its first medical undergraduate Bachelor of Medicine and Bachelor of Surgery in 1977. The University of Balochistan is oldest and the most prestigious seat of learning in Balochistan.

The University runs courses of Undergraduate Education, Postgraduate Diploma Courses, Postgraduate diploma Courses in Faculty of Medicine.

The Postgraduate Medical Institute possesses all the relevant learning facilities like qualified and well trained faculty, teaching hospitals, libraries, lecture halls, Clinicopathological conference halls, laboratories, audiovisual aids, internet access, etc.

In this document Statutes and Regulations regarding the Scheme of the Course, eligibility criteria for admission to the course, details of training program, Syllabus, Specific Objectives of the training program, Research Thesis /Dissertation and format of examination of the Postgraduate degree course of MD (Medicine) of the Post Graduate Medical Institute Quetta is presented.

Section -2

ADMISSION CRITERIA

REGULATIONS REGARDING ADMISSION FOR MEDICINE COURSE

The requirements for Admission in Post Graduate Degree Programme in MD Medicine are laid down by PGMIQ are as under:

ELIGIBILITY CRITERIA FOR ADMISSION.

1. MBBS from the University of Balochistan or equivalent recognized by PM&DC.
2. One year House job after graduation with six months compulsory in Medicine and allied.
3. Only those doctors are eligible who are in the active service of Government of Balochistan for a minimum period of two years.
4. Selection through entry test and selection committee approval.

Section -3

AIMS AND OBJECTIVES OF THE COURSE.

AIM

The aim of four years MD Programme in Medicine is to train residents to acquire the competency of a specialist in the field so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

1. That the student accepts Medicine in its full sense as a life long activity and that he/she is prepared to invest time and effort to acquire, maintain and further improve his/her own knowledge and skills.
2. The formulation of a differential diagnosis with up-to-date scientific evidence and clinical judgment using history and physical examination data and the development of a prioritized problem list to select tests and make effective therapeutic decisions.
3. A critical appreciation of techniques, procedures carried out in Medicine an understanding of scientific methods, reliability and validity of observations and the testing of hypothesis.
4. The ability and willingness to adopt a problem solving approach to mange clinical situations included in the definition of Medicine.
5. The ability to plan and interpret a management program with due regards to the patients Comfort and economic factors.
6. His/ her awareness of the role of specialists of Medicine in health / rehabilitation / welfare teams and his/ her willingness to work cooperatively within such teams.
7. The awareness that he/ she have to create his/ her own professional impact as a capable Specialist/ Teacher/ Scholar of Medicine in the world.
8. To pursue and develop the basic scientific pursuits and guideline for scientific discoveries to strengthen knowledge further about human body requirements.

Section -4

TRAINING PROGRAM

As a policy, active participation of students at all levels will be encouraged.

Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological Conferences
6. SEQ as assignments on the content areas
7. Skill teaching in ICU, Operation Theatres, emergency and ward settings
8. Attend genetic clinics and rounds for at least one month.
9. Attend sessions of genetic counseling
10. Self study, assignments and use of internet
11. Bedside teaching rounds in ward
12. OPD & Follow up clinics
13. Long and short case presentations

In addition to the conventional teaching methodologies interactive strategies like conferences will also be introduced to improve both communication and clinical skills in the upcoming consultants. Conferences must be conducted regularly as scheduled and attended by all available faculty and residents. Residents must actively request autopsies and participate in formal review of gross and microscopic pathological material from patients who have been under their care. It is essential that residents participate in planning and in conducting conferences.

Section -5

DURATION AND SCHEME OF THE COURSE

A summary of Four (04) Years Course in MD Medicine is presented as under:

4 YEARS COURSE

PHASE-I (1st Year)	PHASE-II (3 Years)
• **Basic Training in Specialty of admission (10 Weeks)**	• **Advanced Professional Education in Medicine**
• **Biostatistics & Research Methodology** • **Submission of Synopsis** **(04 Weeks)**	**Compulsory/Optional Rotation** **Six Weeks Rotation in each specialty)** • **Cardiology.** • **Neuro Medicine** • **Nephrology** • **ICU / Casualty** • **Chest Medicine**
• **Basic Training in Medicine** • **Basic Sciences Theory Classes** (Anatomy, Physiology, Biochemistry, Pharmacology & Pathology relevant to the specialty) • **Approval of Synopsis** (**34 Weeks)**	• **Log Book, Research / Thesis (assignments, assessments)** Submission and approval of research Thesis / dissertation at least 06 Months before Part-II examination. • **Eligibility to appear in final** Examination is subject to approval of research thesis and completion of Log Book.
INTERMEDIATE EVALUATION **(PART-I EXAM)** ❖ **Written** **Two Papers For Part-1** The Part-I Examination will be held at the end of 1st Calendar Year. • **Principles of Medicine** (100 MCQ Single Best Type) • **Basic Science Education** (100 MCQ Single Best Type)	**FINAL EVALUATION** **(PART-II EXAM)** ❖ **Written** **Four Papers For Part-II** Part-II Examination will be held at the end of 4th Calendar Year • **Medicine Paper-A** (100 MCQ Single Best Type) • **Medicine Paper-B** (100 MCQ Single Best Type) • **Medicine Paper-A** (10 Short Essay Questions) • **Medicine Paper-B** (10 Short Essay Questions) ❖ **Oral & Practical / Clinical Examination** • **Long Case 01** • **Short Cases 04** • **TOCS 10 Stations**

Section-6

SYLLABUS FOR MD MEDICINE.

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- A Context for Decision Making
- Areas of Current Ethical Debate
- THE MORAL LIMITS OF MEDICAL INTERVENTION IN AN ERA OF TECHNOLOGICAL IMPERATIVES
- THE ENIGMA OF WHAT CONSTITUTES A PERSON AND WHEN LIFE BEGINS AND ENDS
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- Other Therapeutic Considerations
- General Anesthesia
- Prognosis
- Treatment
- Genetic Counseling, Contraception, and Pregnancy
- SICKLE VARIANTS
- Sickle Trait
- Sickle Cell-b-Thalassemia

- Sickle Cell-Hemoglobin C Disease
- OTHER HEMOGLOBINOPATHIES
- Hemoglobin C Disease
- Unstable Hemoglobinopathies
- Hemoglobin with Abnormal Oxygen Affinity
- Methemoglobinemia
- THE THALASSEMIAS
- Pathophysiology
- Molecular Genetics
- Clinical b-Thalassemia
- a-Thalassemia
- Diagnosis
- Genetic Counseling and Prenatal Diagnosis
- Extracorpuscular Defects
- MECHANICAL INJURY: MICROANGIOPATHIC HEMOLYSIS
- Pathophysiology
- Diagnosis
- Management
- IMMUNE HEMOLYSIS
- General Mechanisms
- Autoimmune Hemolytic Anemia
- Drug-Related Immune Hemolysis
- Delayed Hemolysis of Transfused Erythrocytes
- Cold Agglutinin Disease
- Paroxysmal Cold Hemoglobinuria
- HYPERSPLENISM
- Pathophysiology
- Diagnosis
- Management
- DRUGS, TOXINS, VENOMS, AND PHYSICAL AGENTS AS CAUSES OF HEMOLYSIS
- Pathophysiology
- Treatment
- Other Forms of Drug-Induced Hemolysis
- Enzymatic Attack on Erythrocytes
- Physical Causes of Hemolysis
- Infectious Diseases Causing Hemolysis
- HEMOLYSIS ASSOCIATED WITH LIVER DISEASE
- Echinocytosis, Acanthocytosis, and Spur Cell Anemia
- OTHER CAUSES OF HEMOLYSIS
- Copper Accumulation
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- Normal Hemostasis
- PLATELET AND ENDOTHELIAL CELL FUNCTIONS IN HEMOSTASIS

- PLASMA PROCOAGULANTS
- INHIBITORS OF COAGULATION
- AT-III-Heparan (or AT-III-Heparin) System
- Protein C-Protein S-Thrombomodulin System
- Tissue Factor Pathway Inhibitor
- THE FIBRINOLYTIC SYSTEM
- Lipoprotein(a)
- Platelet Production and Kinetics
- Coagulation Tests and Their Use
- TESTS OF PROCOAGULANTS
- TESTS OF PLATELETS AND OF PLATELET FUNCTION
- TESTS OF INHIBITORS OF HEMOSTASIS
- Approach to the Patient with a Hemorrhagic or Thrombotic Disorder
- Decreased Platelet Count-Thrombocytopenia
- PLATELET PRODUCTION DEFECTS
- Diagnosis
- Management
- ACCELERATED PLATELET REMOVAL DUE TO IMMUNE DESTRUCTION
- Idiopathic Thrombocytopenic Purpura/Autoimmune Thrombocytopenic Purpura (ITP/ATP)
- Secondary Thrombocytopenic Purpura
- Posttransfusion Purpura
- Drug-Induced Immune Platelet Destruction
- ACCELERATED REMOVAL OF PLATELETS BY NONIMMUNOLOGIC MECHANISMS
- Thrombotic Thrombocytopenic Purpura and Adult Hemolytic-Uremic Syndrome
- Disseminated Intravascular Coagulation
- Thrombocytopenia Induced by Infection
- Thrombocytopenia during Pregnancy and Peripartum Period
- Thrombocytopenia in Hypothermia
- Platelet Washout and Vascular Bed Abnormalities
- PLATELET SEQUESTRATION
- Platelet Function Disorders
- HEREDITARY ABNORMALITIES
- Platelet Membrane Disorders
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- Von Willebrand's Disease
- ACQUIRED ABNORMALITIES
- Myeloproliferative Diseases
- Uremia
- Liver Disease
- Macroglobulinemia and Other Dysproteinemias
- Drug-Induced Disorders
- Thrombocytosis and Thrombocythemia
- DIAGNOSIS

- MANAGEMENT
- Vascular Purpuras
- HEREDITARY HEMORRHAGIC TELANGIECTASIA
- SCURVY
- CORTICOSTEROID EXCESS
- AMYLOIDOSIS
- LEUKOCYTOCLASTIC VASCULITIS
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- DAMAGE TO THE MICROVASCULATURE DUE TO EMBOLI
- Hereditary Coagulation Disorders
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- HEMOPHILIA A
- General Management Principles for Hemophilia
- Management of Acute Hemorrhage
- Principles of Replacement Therapy
- Elective Surgery and Dental Extraction
- Management of an Inhibitor
- OTHER HEREDITARY HEMORRHAGIC DISORDERS
- Factor IX Deficiency
- Mild Factor VII Deficiency
- Fibrinolytic Abnormalities
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- VITAMIN K DEFICIENCY
- DRUG-INDUCED HEMORRHAGE
- DYSPROTEINEMIAS
- DISSEMINATED INTRAVASCULAR COAGULATION
- Diagnosis
- Management
- PRIMARY FIBRINOLYSIS
- SEVERE HEPATIC DISEASE
- CIRCULATING INHIBITORS (ANTICOAGULANTS)
- CHRONIC EXPANDING HEMATOMAS
- BLEEDING AFTER CARDIOPULMONARY BYPASS
- LUPUS ANTICOAGULANT-ANTIPHOSPHOLIPID SYNDROME
- Hypercoagulable States
- ANTIPHOSPHOLIPID SYNDROME
- ANTITHROMBIN III DEFICIENCY
- HEPARIN COFACTOR II DEFICIENCY
- PROTEIN C AND PROTEIN S DEFICIENCY
- ABNORMAL RESISTANCE TO ACTIVATED PROTEIN C
- ABNORMALITIES OF FIBRINOLYSIS
- DYSFIBRINOGENEMIA
- HOMOCYSTINURIA
- DRUG ADMINISTRATION
- TROUSSEAU'S SYNDROME
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- Surgical Mishap versus Systemic Disorder
- FREQUENT CAUSES OF POSTOPERATIVE HEMORRHAGE
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- Primary Fibrinolysis
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- Biology of the Leukemias
- ONCOGENESIS
- Identification and Diagnosis of the Leukemias
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- CELL SURFACE MARKERS
- OTHER CELLULAR MARKERS
- GENETIC MARKERS
- Principles of Management
- CHEMOTHERAPY
- BONE MARROW TRANSPLANTATION
- Myeloproliferative Disorders
- Chronic Myeloproliferative Disorders
- ESSENTIAL THROMBOCYTHEMIA
- AGNOGENIC MYELOID METAPLASIA
- Diagnosis
- Management
- CHRONIC MYELOID LEUKEMIA
- Chronic Stable Phase
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- ACUTE MYELOBLASTIC LEUKEMIA
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- Treatment
- VARIANTS OF ACUTE MYELOBLASTIC LEUKEMIA
- Therapy-Related Acute Myeloblastic Leukemia
- Acute Promyelocytic Leukemia
- Acute Megakaryoblastic Leukemia
- Acute Erythroleukemia
- Myelodysplastic Syndromes
- MANAGEMENT
- Chronic and Subacute Leukemias of B Cell Origin
- CHRONIC LYMPHOCYTIC LEUKEMIA
- Pathophysiology
- Clinical Manifestations
- Diagnosis

- Staging
- Management
- PROLYMPHOCYTIC LEUKEMIA
- HAIRY-CELL LEUKEMIA (LEUKEMIC RETICULOENDOTHELIOSIS)
- Chronic and Subacute Leukemias of T Cell Origin
- SEZARY SYNDROME (THE LEUKEMIA PHASE OF MYCOSIS FUNGOIDES)
- ADULT T CELL LEUKEMIA/LYMPHOMA
- T CELL PROLYMPHOCYTIC LEUKEMIA
- LYMPHOCYTOSIS OF LARGE GRANULAR LYMPHOCYTES
- T Cell Large Granular Lymphocyte Leukemia
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- Histiocytic Medullary Reticulosis
- Angioimmunoblastic Lymphadenopathy
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X Transfusion Therapy

- Blood Donation
- Autologous and Directed Donation
- AUTOLOGOUS DONATION
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- Screening Procedures
- POSTDONATION TESTING
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- False Positive Test Results during Donor Screening
- PRETRANSFUSION TESTING
- Antigen Phenotyping
- Screening for Antibodies
- Transfusion of Blood Components
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- PLATELETS
- PLASMA
- INDICATIONS FOR TRANSFUSION OF RED CELLS
- Acute Blood Loss
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- INDICATIONS FOR TRANSFUSION OF PLATELETS
- Low Platelet Count
- Nonfunctioning Platelets
- Contraindications to Platelet Transfusion
- Response to Platelet Transfusions
- Platelet Transfusions in a Refractory Patient
- TRANSFUSION OF FRESH FROZEN PLASMA

- Factor VIII Concentrates
- Factor IX Concentrates
- TRANSFUSION OF GRANULOCYTES
- TRANSFUSION OF IMMUNE GLOBULIN
- TRANSFUSION OF STEM CELLS
- Complications of Transfusions
- HEMOLYTIC TRANSFUSION REACTIONS
- Diagnosis of Hemolytic Reactions
- Treatment of Hemolytic Reactions
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- FEBRILE TRANSFUSION REACTIONS
- Diagnosis of Febrile Reactions
- Treatment of Febrile Reactions
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- TRANSFUSION-RELATED ACUTE LUNG INJURY
- ALLERGIC TRANSFUSION REACTIONS
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- TRANSFUSION-ASSOCIATED GRAFT VERSUS HOST DISEASE
- BACTERIAL AND PROTOZOAN INFECTIONS
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- IMMUNE MODULATION AS A RESULT OF TRANSFUSION
- Apheresis
- INDICATIONS FOR APHERESIS THERAPY
- Neurologic Diseases
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- Stem Cell Collection and Infusion
- Engraftment
- Complications of Transplantation
- EARLY DIRECT TOXICITIES OF THE PREPARATIVE REGIMEN
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- GRAFT FAILURE

- GRAFT VERSUS HOST DISEASE
- INFECTIOUS DISEASES
- Hematopoietic Stem Cell Transplantation for Specific Diseases
- TREATMENT OF IMMUNODEFICIENCY STATES
- TREATMENT OF NONMALIGNANT DISEASES OF HEMATOPOIESIS
- Aplastic Anemia
- Thalassemia
- Sickle Cell Anemia
- Other Nonmalignant Diseases
- TREATMENT OF MALIGNANT DISEASES
- Acute Myeloid Leukemia
- Acute Lymphocytic Leukemia
- Myelodysplastic Syndromes
- Chronic Myeloid Leukemia
- Chronic Lymphocytic Leukemia
- Non-Hodgkin's Lymphoma
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6. IMMUNOLOGY

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- The Characteristics of the Immune System
- Lymphocytes
- T CELLS
- B CELLS
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- NATURAL KILLER CELLS
- MONOCYTES AND MACROPHAGES
- Lymphoid Organs and Lymphocyte Traffic
- THE THYMUS
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- Immunologic Memory and Specificity
- AMPLIFICATION
- ANAMNESTIC RESPONSE
- SELF AND NONSELF
- GENETIC CONTROL
- T CELL RECEPTOR GENE REARRANGEMENT
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- RESPONSE TO ANTIGENS
- Antibodies
- CLASSIFICATION OF IMMUNOGLOBULINS
- ANTIGENIC DIFFERENCES
- STRUCTURE AND SEQUENCE OF IMMUNOGLOBULINS
- SYNTHESIS OF ANTIBODY (IN VITRO AND IN VIVO)
- Affinity Maturation
- Control Mechanisms
- Antigenic Competition
- Switch in Production
- IMMUNOGLOBULIN RECEPTORS
- B Cell Receptors
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- GENETIC SOURCE OF ANTIBODY DIVERSITY
- LYMPHOCYTE HYBRIDOMAS
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- T Cell Receptors
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- Antigen Processing and Presentation to T Cells
- NORMAL PEPTIDE BINDING WITH MHC CLASS I AND CLASS II MOLECULES
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- ANTIGEN PROCESSING
- MHC Class I Molecules
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- PRESENTATION OF ANTIGEN TO T CELLS
- ADHESION MOLECULES
- Signal Transduction in T Cells on Antigen Recognition
- T CELL RECEPTOR SIGNALING
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- THE ROLES OF CD4 AND CD8
- Cytokines and Cytokine Receptors
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- GRANULOCYTE-MACROPHAGE COLONY-STIMULATING FACTOR
- The Role of Carbohydrates in Regulating T Cell Responses
- B Cell Activation
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- THE CD40-CD40 LIGAND INTERACTION
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- Components of the Complement System
- The Classical Pathway
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- The Biologic Activity of the Complement System
- Inherited Deficiencies of the Complement System
- HEREDITARY ANGIOEDEMA
- SUSCEPTIBILITY TO BACTERIAL INFECTIONS
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- Structure and Antigens of the Major Histocompatibility Complex
- ANTIGENS OF THE MAJOR HISTOCOMPATIBILITY COMPLEX
- MHC Class I Antigens
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- Sequence Analysis and HLA Nomenclature
- Frequency of Different HLA Alleles
- Role of MHC in Immune Response

- THE MIXED LYMPHOCYTE REACTION
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- CLONAL SELECTION OF T CELLS
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- Immune Response Genes
- COMPLEMENT FACTOR GENES
- NONIMMUNOLOGIC FUNCTIONS OF MHC GENES
- Disease and the Major Histocompatibility Complex
- HLA-ASSOCIATED DISEASE
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- MECHANISMS OF TOLERANCE
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- Role of T Cells
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- MECHANISMS OF IMMUNE RESPONSE
- Regulating Lymphocyte Responses
- Preventing Autoimmune Reactions
- Mechanisms of Autoimmunity
- FAILURE OF CENTRAL TOLERANCE
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- Activation of Self-Antigen-Specific T Cells
- Molecular Mimicry
- POLYCLONAL LYMPHOCYTE ACTIVATION
- Autoimmune Diseases
- Definition and Classification
- PATHOGENESIS OF TISSUE INJURY
- Host Susceptibility to Autoimmune Diseases
- THE ROLE OF HUMAN LEUKOCYTE ANTIGENS
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- Autoantibodies to Cell Surface Molecules
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- Signals for Switching to IgE Production
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- MAST CELLS AND BASOPHILS
- Mast Cell Distribution and Subtypes
- Mediators
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- Mechanisms of Mast Cell and Basophil Degranulation
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- Allergy and Atopy
- GENERAL DIAGNOSTIC AND THERAPEUTIC PRINCIPLES
- History and Physical Examination
- In Vivo and In Vitro Assays of IgE
- Therapeutic Principles
- ALLERGIC RHINITIS
- Clinical Manifestations
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- Clinical Manifestations
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- LATEX ALLERGY
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- Epidemiology
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- MULTIPLE CHEMICAL SENSITIVITY SYNDROME
- Clinical and Immunologic Profile
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- Immunoglobulin Deficiency Syndromes
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- X-Linked Agammaglobulinemia
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- CONGENITAL THYMIC HYPOPLASIA
- Pathogenesis
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X Immune Complex Disease

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- FORMATION OF AN ANTIGEN-ANTIBODY LATTICE
- PHYSIOLOGIC CLEARANCE OF IMMUNE COMPLEXES
- ABERRANT DEPOSITION OF IMMUNE COMPLEXES
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- OTHER EFFECTS OF IMMUNE COMPLEXES
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- CHRONIC IMMUNE COMPLEX NEPHRITIS
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- Infections
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- Gastrointestinal Diseases
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- Deficiencies of Complement Proteins
- Miscellaneous Conditions
- Detection of Circulating Immune Complexes
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- Venomous Snakebites
- CLINICAL MANIFESTATIONS
- Pit Viper Venom
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- FIRST AID
- MEDICAL TREATMENT
- HYPERSENSITIVITY AND ANAPHYLAXIS
- spider Bites
- WIDOW SPIDERS
- Clinical Manifestations
- Treatment
- BROWN RECLUSE SPIDER AND HOBO SPIDER
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- TICK
- Coelenterate Stings
- CLINICAL MANIFESTATIONS
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- Other Marine Envenomations

7. INFECTIOUS DISEASE

- Infections Due To Gram-Positive Cocci
- Infections Due To Gram-Negative Bacilli
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- Infections Due To Gram-Positive Bacilli
- Anaerobic Infections
- Syphilis And Nonvenereal Treponematoses
- Leptospirosis, Relapsing Fever, Rat-Bite Fever, And Lyme Disease
- Infections Due to Mycobacteria
- Mycotic Infections
- Infection In The Immunosuppressed Host
- Specific and Nonspecific Host Defense Defects
- HYPOGAMMAGLOBULINEMIA
- DEPRESSED CELL-MEDIATED IMMUNITY

- DECREASE IN THE NUMBER OF FULLY FUNCTIONAL GRANULOCYTES
- Conditions Predisposing to Infection
- UREMIA
- DIABETES
- SPLENECTOMY
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- THERAPIES THAT MAY CAUSE IMMUNOSUPPRESSION
- RISK OF INFECTION
- PREVENTION OF INFECTION
- CLINICAL SYNDROMES ASSOCIATED WITH INFECTION
- Fever in the Absence of Localizing Findings
- Fever and Pneumonitis
- Aspergillosis
- EPIDEMIOLOGY
- PATHOGENESIS AND PATHOLOGY
- CLINICAL MANIFESTATIONS AND DIAGNOSIS
- Invasive Aspergillosis
- Allergic Disease
- Mycetoma
- TREATMENT
- Mucormycosis
- EPIDEMIOLOGY
- PATHOGENESIS AND PATHOLOGY
- CLINICAL MANIFESTATIONS
- Rhinocerebral Mucormycosis
- Pulmonary Mucormycosis
- Disseminated Mucormycosis
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- DIAGNOSIS AND TREATMENT
- Candidiasis
- EPIDEMIOLOGY
- PATHOGENESIS AND PATHOLOGY
- CLINICAL MANIFESTATIONS
- Mucosal Candidiasis
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- Chronic Mucocutaneous Candidiasis
- Candidal Peritonitis
- Candidal Endocarditis
- Pulmonary Candidiasis
- Urinary Tract Candidiasis
- Disseminated Candidiasis
- DIAGNOSIS
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- Cryptococcosis
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- PATHOGENESIS AND PATHOLOGY
- CLINICAL MANIFESTATIONS
- Pulmonary Cryptococcosis
- Cryptococcosis of the Central Nervous System
- Other Sites of Cryptococcal Infection
- DIAGNOSIS
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- Epidemiology
- Natural History
- Diagnosis and Initial Clinical Assessment
- RISK FACTORS
- SEROLOGIC TESTS
- STAGING OF HIV INFECTION
- Vaccinations and Chemoprophylaxis for Opportunistic Infections
- Clinical Approach to Antiretroviral Chemotherapy
- FACTORS AFFECTING INITIATION OF ANTIRETROVIRAL CHEMOTHERAPY
- CHOICE OF INITIAL DRUGS
- WHEN TO CHANGE ANTIRETROVIRAL REGIMENS
- Antiretroviral Chemotherapeutic Agents
- NUCLEOSIDE ANALOGUE REVERSE TRANSCRIPTASE INHIBITORS
- Zidovudine
- Didanosine
- Zalcitabine
- Stavudine
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- NONNUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS
- Nevirapine
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- HIV-1 PROTEASE INHIBITORS
- Saquinavir
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- Resistance to Antiretroviral Drugs
- Prevention of Perinatal Transmission of HIV-1

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- BACTERIAL SUSCEPTIBILITY TO ANTIMICROBIAL AGENTS
- Antimicrobial Susceptibility Patterns
- RELATIVE SUPERIORITY OF BACTERICIDAL TO BACTERIOSTATIC AGENTS
- DEFINITION OF THE SITE OF INFECTION
- THE USE OF ANTIBIOTICS IN COMBINATION
- CLINICAL PHARMACOLOGY OF ANTIMICROBIALS
- Dosage
- Absorption and Route of Administration
- Serum Levels and Protein Binding
- Excretion and Inactivation
- Adverse Drug Interactions
- ADVERSE REACTIONS TO ANTIMICROBIAL AGENTS
- Hypersensitivity Reactions
- Direct Drug Toxicity
- Microbial Superinfection
- DURATION OF ANTIMICROBIAL THERAPY
- ANTIMICROBIAL RESISTANCE IN HOSPITALS
- ANTIBIOTICS IN PREGNANCY
- ANTIBIOTICS IN THE ELDERLY
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- The Choice of Antimicrobial Drugs
- PENICILLINS
- Penicillin G and Penicillin V
- Penicillinase-Resistant Penicillins
- Penicillinase-Susceptible Broad-Spectrum Penicillins (Second-Generation Penicillins)
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- Penicillin-b-Lactamase Inhibitor Combinations
- cephalosporins
- First-Generation Cephalosporins
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- Choosing a Cephalosporin
- OTHER B-LACTAM ANTIBIOTICS
- Carbapenems
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- AMINOGLYCOSIDE ANTIBIOTICS
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- TRIMETHOPRIM
- TRIMETHOPRIM-SULFAMETHOXAZOLE
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- HYPERCAPNIA
- Principles of Management of Respiratory Failure
- ASSURANCE OF AIRWAY PATENCY
- RESTORATION OF ARTERIAL OXYGEN LEVEL
- MECHANICAL VENTILATORY SUPPORT
- Management of Respiratory Failure in Specific Clinical Settings
- RESPIRATORY FAILURE IN PATIENTS WITH AIRWAY OBSTRUCTION
- RESPIRATORY FAILURE IN PATIENTS WITH ACUTE RESPIRATORY DISTRESS SYNDROME
- Management of Patients on Mechanical Ventilatory Support
- SEDATION AND PARALYSIS
- COMPLICATIONS OF MECHANICAL VENTILATION
- Infection
- Alveolar Overdistention
- Barotrauma

- Atelectasis
- Neuromuscular Weakness
- WITHDRAWAL OF MECHANICAL VENTILATORY SUPPORT

IX Disorders Of The Pleura, Hila, And Mediastinum
X Pulmonary Edema

- Pathogenesis
- Clinical Features
- Pulmonary edema caused by increased capillary pressure
- PATHOGENESIS
- CLINICAL FEATURES
- MANAGEMENT
- Pulmonary Edema Caused by Increased Capillary Permeability: Acute Respiratory Distress Syndrome
- PATHOGENESIS
- CLINICAL FEATURES
- OUTCOME
- Miscellaneous Causes of Pulmonary Edema
- NEUROLOGIC INSULTS
- EXPOSURE TO HIGH ALTITUDE
- REEXPANSION OF COLLAPSED LUNG
- UPPER AIRWAY OBSTRUCTION
- DRUGS

15. RHEUMATOLOGY

- Introduction to The Rheumatic Diseases
- Rheumatoid Arthritis
- Seronegative Spondylarthropathies
- Systemic Lupus Erythematosus
- Scleroderma
- Idiopathic Inflammatory Myopathies
- Acute Rheumatic Fever
- Systemic Vasculitis
- Crystal-Induced Joint Disease
- Osteoarthritis
- Diseases of Bone Metabolism
- Back Pain and Common Musculoskeletal Problems

Section -7

SPECIFIC OBJECTIVES.

The objective of M.D postgraduate programme is as follows:-

- Block-1. First one year of training.
- Block-2. Four years of training.

Block-1.

A postgraduate student of MD Medicine programme at the end of the one year training is able to:-

- After attending research methodology works synopsis develop the skill to
  - Write synopsis
  - Write Research work
- Perform and document comprehensive history and physical examination [H&P] abilities
- Understand and interpret indications for laboratory studies and imaging
- Develop skills necessary to establish and implement an effective patient management plan
- Perform service examination
- Demonstrate a solid foundation of knowledge
- Develop accuracy in clinical evaluation skills
- Provide compassionate ward and outpatient care as determined by patients, families, colleagues and ancillary health
- Develop and nurture sound and appropriate interpersonal and communication skills

Block-2.

A postgraduate student of MD Medicine programme at the end of 04 years training is able to:-

- Teach medical students the fundamentals of the Medicine
- Accurately interpret complex laboratory and imaging tests and other fundamental skills
- Develop complex patient diagnostic and managerial skills
- Demonstrate clear and concise patient care plans

- Demonstrate the ability to implement the aforementioned patient care plans.
- Acquire trauma and commensurate critical care skills
- Demonstrate the ability to evaluate medical literature in journal clubs and on rounds
- Demonstrate an ongoing and improving ability to learn from errors
- Develop critical care and trauma care and technical skills
- Perform a clinical or basic research project that is appropriate
- Develop fundamental research skills
- Begin to direct ward and clinic patient care
- Instruct residents and medical students regarding their performance of selected procedures appropriate to their level of training
- Demonstrate clear and concise patient care plans
- Demonstrate the ability to implement the aforementioned patient care plans
- Provide high level non-operative care
- Manage and administrate the complexities of a large clinical and academic service
- Demonstrate the highest level of patient care skills, problem solving skills and technical skills
- Demonstrate an ability to prescribe appropriate parenteral and enteral feeding.
- Recognize and treat the complications of parenteral and enteral feeding.
- Demonstrate an ability to manage the fluid and electrolyte requirements, including acid- base issues of pediatric and adult patients.

Section -8

RESEARCH THESIS / DISSERTATION

(a) CHARACTERISTICS OF THE RESEARCH TOPIC.

The Research Topic in clinical subjects should address 20% to the Related Applied Basic Sciences and in Basic Sciences should address 20% to the Related Applied Clinical Sciences. The research topic must consist of a reasonable sample size and sufficient no. Of variables to give training to the candidate to conduct research to acquire data, analyze data and reach results, discuss results and draw conclusions and thus test the hypothesis.

During course on Research Methodology and Biostatistics held during Phase-I of the Course, the Candidate is expected to develop synopsis of Research.

(b) GUIDELINES FOR PREPARATION OF SYNOPSIS

The applicants should organize the synopsis to address the following points:-

a) Title :

b) Introduction	:	Should clearly manifest why the present work is undertaken.
c) Literature review	:	Place the project in academic context by referring to the major work by others on the topic.
d) Objectives	:	Define clearly the aims of the research proposal.
e) Significance	:	Explain the significance of the proposal for the field and the country.
f) Plan	:	Give year wise tentative plan of the work.
g) Methodology	:	Explain the approach and methods he will follow.
h) Bibliography	:	Upto dated references.

(c) SUBMISSION / EVALUATION OF SYNOPSIS.

Synopsis of research project will be submitted during the year-1 of the course. The synopsis will be submitted through the supervisor to the Dean / Director PGMI, Quetta. The synopsis will be evaluated by the following committee.

1. Dean / Director or his representative. Chairman
2. Supervisor of the student Member/ Secretary
3. One Prof. appointed by the Dean / Director Member
4. Co-opted member whenever required

After the approval, by the Committee the synopsis will be submitted to the Board of Higher Studies in the University of Balochistan for further approval by the Vice Chancellor University of Balochistan.

(d) GUIDELINES FOR THESIS / DISSERTATION FORMAT

The thesis must be bound in accordance with the following specification:

a) Four hard copies and one soft copy (CD) of thesis / dissertation to be submitted.

b) A4 paper size to be used, except for drawings and maps on which no restriction in placed.
A margin 1.5 inches to be left on left hand side. Thesis copy should be properly hard bounded.

c) The front should bear the title, name of the candidate and the insignia of the University.

(e) SUBMISSION OF THESIS / DISSERTATION.

1) The Thesis / Dissertation must be bound in accordance with specifications.
2) Four (4) copies of the Thesis must be submitted at least 6- months before the commencement of the written and oral Examination.

3) The minimum duration between approval of synopsis of research and submission of thesis should by 2 years, the maximum duration will be 5 years.
4) The Thesis will be submitted along with Bank Challan Form of amount as fixed by University of Balochistan paid in the account of University of Balochistan.
5) Application for Thesis Evaluation recommended by the Supervisor.

Section -9

LOG BOOK.

The residents must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for MD examination. Log book should include adequate number of diagnostic and therapeutic procedures observed and performed the indications for the procedure, any complications and the interpretation of the results, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:

Candidate's Name: _____

Roll No. _____

The above mentioned procedures shall be entered in the log book as per format

PROCEDURES PERFORMED

S #	Date	Name of Patient, Age, Sex & Admission No	Diagnosis	Procedure Performed	Supervisor's Signature

EMERGENCIES HANDLED

S #	Date	Name of Patient, Age, Sex & Admission No	Diagnosis	Procedure / Management	Supervisor's Signature

CASE PRESENTED

S #	Date	Name of Patient, Age, Sex & Admission No	Case Presented	Supervisor's Signature

SEMINAR / JOURNAL CLUB PRESENTATION

S #	Date	Topic	Supervisor's Signature

Evaluation Record
(Excellent, Good, Adequate, Inadequate, Poor)

At the end of the rotation, each faculty member will provide an evaluation of the clinical performance of the fellow.

S #	Date	Method of Evaluation (Oral, Practical, Theory)	Rating	Signature

- Log Book will be signed by the supervisor / Co- Supervisor regularly.
- Log Book completion is must before the candidate examination forms are signed.
- Log Book should be used in Practical / Clinical Examination at viva voice table or at TOCS cabin.

Section -10

EVALUATION / EXAMINATION

INTERMEDIATE EVALUATION PART-I EXAMINATION.

1. Eligibility to appear in Part – I Examination

(a) Application by the candidate recommended by the Supervisor.

(b) Certificate by the Supervisor , counter signed by Dean PGMI that candidate has regularly attended at least 75% of the basic sciences classes, Lectures, Seminars, Practical, demonstrations of Phase–I education.

(c) Bank Challan Form of Payment of examination fee as fixed by the university of Balochistan.

2. REGULATIONS.

a) All candidates admitted in MS Medicine course will appear in Part – I examination at the end of 1st Calendar Year.

b) The candidate who fails to pass the examination in 3 consecutive attempts availed or un-availed, shall be dropped from the course.

c) The candidates who will not pass this examination within two years after their admission, their name will be removed from the course.

d) The Part-I Examination will Consist of Paper-I on Basic Sciences Education (relevant to the specialty) and Paper-II on Principles of Medicine.

e) For Part-1 Examination the Paper-I and Paper-II will be set from the MCQ bank. The question for MCQ bank will be provided by all the subject specialist involved in teaching the curriculum of the course

f) Paper Weight age; each paper will carry 100 Marks. Time allowed for each Paper will be three hours.

g) The Pass Marks will be 60 % in each paper.

h) Papers will have 100 MCQ Single Best in each paper.

3. CONTENTS OF THEORY PAPER PART-I EXAMINATION.

SUBJECT	COMPONENTS	NO OF QUESTIONS	MARKS
Basic Science Education Paper-I	MCQ's Single Best Type	100	100
Principles of Medicine Paper-II	MCQ's Single Best Type	100	100

FINAL EVALUATION: (PART-2 EXAMINATION)

(a) ELIGIBILITY TO APPEAR IN PART-2 EXAMINATION.

1. The candidate has completed the prescribed period of training of the course.
2. The candidate has passed the Intermediate Evaluation.(Part-1 Examination).
3. The thesis / dissertation must be dully approved by University of Balochistan.
4. Certificate by the Supervisor that the Log Book of candidate is complete in all aspects and is signed by the Co-Supervisor and the Supervisor. The original Log Book will be presented by the candidate during Practical / Oral examination.
5. A certificate by the Supervisor /Counter signed by Dean PGMI, that the candidate has attended at least 75% of the lectures, seminars, practical/clinical demonstrations;
6. The application form for Part-II examination with recommendation of the Supervisor.
7. The Bank Challan Form for the payment of the Examination Fee of amount as fixed by University of Balochistan.

(b) <u>COMPONENTS OF THE PART-2 EXAMINATION.</u>

1- Theory (300 Marks)
2. Clinical / Practical (300 Marks)

Total = (600 Marks)

(i) CONTENTS OF THEORY PAPERS.

SUBJECT	CONTENTS	NO OF QUESTIONS	WEIGHTAGE	MARKS
Medicine	MCQ Paper-A Single Best Type	100	0.75/Per	75
Medicine	MCQ Paper-B Single Best Type	100	0.75 /Per	75
Medicine	Short Essay Paper-A	10	0.75/Per	75
Medicine	Short Essay Paper-B	10	0.75 /Per	75

Total 300 Marks

- **Candidate must secure 60% in each paper to pass theory examination**.

(ii) CLINICAL / PRACTICAL EXAMINATION FOR MD MEDICINE

SUBJECT	COMPONENTS	ASSESSMENT TECHNIQUES	MARKS
Medicine	Long Cases	1	100
	Short Cases	4	100
	TOCS	Specimens, Instruments, Investigation for interpretation including X-ray, MRI, ICT, Nuclear scans, Table Viva on Log book, Table Viva on Thesis / Dissertation, Slides etc.	100 (10 Stations 10 Marks Each station).

- **Candidate must obtain 60% in total clinical component and 50% in each component to pass clinical examination.**

(d) NUMBER OF EXAMINERS.

The Final Evaluation (Part-2 Examination) will be conducted by a board of four examiners of Medicine. All examiners have equal functions except the chairman who will be responsible to conduct the examination process and send result to the controller university.

(e) RESULT.

The candidates who will Pass their Theory and Clinical / Practical examination separately will be declared pass The Candidates who will Pass in Theory but fail in Clinical / Practical examination will re-appear only in Clinical / Practical examination again for another two times. After total of three attempts in Clinical / Practical examination the candidate will have to appear in all the parts of Theory and Clinical / Practical Part-II examination.

- To pass as ordinary, the candidate must obtain 60% marks in each of 2 components.
- To pass with distinction, the candidate must obtain overall marks should be 80% or above.

Section -11

SUPERVISION OF POST GRADUATE STUDENT (TRAINEE MEDICAL OFFICER)

Purpose:

To ensure that Trainee Medical Officers / residents are provided adequate and appropriate levels of supervision during the course of the educational training experience and to ensure that patient care continues to be delivered in a safe manner.

Policy and Procedure:

The Supervisor is responsible for all care delivered by trainees. Trainees shall always be appropriately supervised and the supervision of trainees is ultimately the responsibility of the supervisor, who is accountable to the PGMIQ. PGMIQ shall have a mechanism in place that communicates to the trainees the identity of the Supervisor and back-up coverage by another faculty member in the event that the Supervisor is not immediately available. All program faculty members supervising Trainee Medical Officers / residents must have a faculty or clinical faculty appointment in the Bolan Medical College Department of Medicine or be specifically approved as supervisor by the PGMIQ. Faculty schedules will be structured to provide Trainee Medical Officers / residents with continuous supervision and consultation.

Trainee Medical Officers / Residents must be supervised by faculty members in a manner promoting progressively increasing responsibility for each Trainee Medical Officer / resident according to their level of education, ability and experience be provided information addressing the method(s) to access a in a timely and efficient manner at all times while on duty.

The program provides additional information addressing the type and level of supervision for each post-graduate year in the program that is consistent with the PGMI Quetta program requirements and, specifically, for supervision of Trainee Medical Officers / Residents engaged in performing invasive procedures.

1. To provide patients with quality care and Trainee Medical officers/Resident trainee with a meaningful learning experience, a

supervising attending physician shall be clearly identified for each patient admitted to, or consulted by, the surgical service. It is the responsibility of the Trainee Medical Officers / Residents trainee to notify an attending physician that a consultation or admission has been initiated on his/her service, based on the call schedule and back-up mechanisms established in the department.

2. The supervising attending physician is ultimately responsible for all recommendations rendered and care delivered by Trainee Medical Officers / Residents trainee, paramedical personnel and other trainees on the surgical service.
3. Supervision shall be readily available to all Trainee Medical Officers / Residents on duty. Each program or service in the department shall maintain a clear call list of attending physicians; with appropriate back up in the event the supervising physician is not immediately available (this typically represents another attending faculty on call that same day). A comprehensive call list of Trainee Medical Officers / Residents and attending physicians is disseminated to all switchboard operators, patient affair coordinators, clinical care areas and all covering Trainee Medical Officers / Residents on a monthly basis.
4. Supervision shall be conducted to ensure that patients receive quality care and Trainee Medical Officers / Residents assume progressively increased responsibility in accordance with their ability and experience, based on curriculum objectives for the respective level of training.
5. Levels of supervision include an attending physician demonstrating a procedure, assisting with the procedure, present physically in the area where intervention is performed, attending available by telephone, senior Trainee Medical Officer / Resident or other supervisor present physically or available by telephone. The attending physician in charge of a respective procedure shall determine the level of supervision for a particular resident and the specific invasive procedure.
6. The responsible attending physician may delegate supervision of more junior residents to a more senior resident as appropriate. These determinations shall be consistent with the individual resident

knowledge base and skills, the complexity of the case and procedure, and the residents prior evaluations regarding levels of performance per the residency program core curriculum objectives for each level of training.

7. The Trainee Medical Officers / Residents must request help when the need for assistance is perceived, and responsible attending physicians must respond personally when such help is requested. When a patient's attending physician is not available, a previously designated physician or the attending on call shall assume all coverage responsibilities for the patients.
8. The Senior Trainee Medical Officer / Resident shall relay to the Department Chair or the Supervisor any incident where another Resident did not notify a responsible faculty member, a responsible faculty member was not responsive, or any other breach of supervision as outlined in this policy.

Section -12

GRIEVANCES

The entire faculty is dedicated to Trainee Medical Officer / Resident education and to providing the best possible environment in which to learn. If there are any problems that arise; personal problems, communication issues with team members, complaints about working conditions, the perception or allegation of harassment or abuse etc, the faculty encourages the residents to ask for help. The residents are welcome to contact the Registrar and Dean / Director of PGMIQ.

GRIEVANCE POLICY AND PROCEDURE

Grievances are limited to allegations of wrongful suspension during the training year. The decision to suspend, recommendation to dismiss or termination is an academic responsibility of the Supervisor If a Trainee Medical Officer / Resident believes he/she has been wrongfully suspended or recommended for dismissal or termination, the grievance process described below can be invoked. The process is intended to protect the rights of the Trainee Medical Officer / Resident and the training program and to ensure fair treatment for both parties.

In all cases of suspension, termination, or non-renewal of contract, it is expected that the appropriate probationary and remedial periods will have been performed.

All "written notification" associated with the formal grievance process shall be by certified mail.

Grievance Procedure

1. Notification of intent to appeal: After receiving the written notification of suspension dismissal or termination, the Trainee Medical Officer / Resident will have 10 calendar days to file, in writing, a formal appeal to the dean PGMIQ. The Trainee Medical Officer / Resident may be represented by an attorney in an advisory capacity, but the attorney may not function as a spokesperson for the Trainee Medical Officer / Resident during this grievance process.

2. Assembly of Disciplinary committee: Upon receipt of an appeal, the Dean will refer to disciplinary committee to review the Trainee Medical Officer / Resident case. The committee shall seek advice from PGMI Council who shall be present for the hearing to advise the committee. The disciplinary committee may also seek advice from outside experts in the field of Trainee Medical Officer / Resident specialty if deemed necessary.

The disciplinary committee will include the deputy dean for clinical affairs (or designee), two regular faculty member from a different training program. The deputy dean for clinical affairs will chair the disciplinary committee. The Resident may object to a member of the disciplinary committee for cause. The Dean has sole discretion to replace a member if deemed warranted.

3. Hearing: The disciplinary committee will assess the merits of the case and hear evidence and arguments by the Trainee Medical Officer / Resident and the supervisor, or department chair, or division head.

The supervisor, department chair, or division head is obligated to present to the disciplinary committee the reasons for and substantiating evidence of the resident suspended / dismissed or termination. The Trainee Medical Officer / Resident may question witnesses who testify on behalf of the program director, department chair, or division head. The Trainee Medical Officer / Resident may present documents, letters of support and call the testimony of witnesses. These witnesses may be questioned by the supervisor, department chair, or division head.

The disciplinary committee shall tape / record the hearing proceedings, but not its deliberations. Either party may, at its own expense, have a verbatim transcript made of the proceedings. Both parties may request a copy of the tape / recording made by the committee.

4. Final Determination: The disciplinary committee will make its determination within 30 days from the close of the hearing. The disciplinary committee will notify the supervisor PGMI, division head, or program director; and the dean in writing of its decision. The decision of the committee to

uphold the termination or to reinstate the resident is final. Should the Trainee Medical Officer / Resident be reinstated, the disciplinary committee may impose an additional period of probation and/or remediation as a condition of continuation.

Notification Required:

1. Reporting required for Resident dismissed, suspended, or required Notice will be according to the PGMI Policy, any Trainee Medical Officer / Resident "who has not progressed satisfactorily in the program or who has been dismissed from the program for inadequate performance or ethical reasons". The phrase, "not progressed satisfactorily in the program," means those residents who have been dismissed, suspended or required to repeat a year of the program.

2. Probation: Probation is a remedial mechanism utilized by the PGMI in a variety of circumstances. It is designed to improve the academic performance of a Trainee Medical Officer / Resident. In most instances, Trainee Medical Officers / Residents by supervisor placed on probation continue to progress satisfactorily in a program. Regular reporting of Trainee Medical Officers / Residents placed on probation to the PGMIQ is required.

3. Referral to Health Department Government of Balochistan.

If a Trainee Medical Officer / Resident is government employee and is on deputation for his postgraduate studies to PGMIQ. The PGMIQ Directorate will report the final recommendation of disciplinary committee to his parent department e.g. Health Department Government of Balochistan.

Section -13

TRAINING SITE

ATTACHED TEACHING HOSPITALS.

Sandeman Provincial Hospital Quetta.

Bolan Medical Complex Hospital Quetta.

BED STRENGTH.

SPH, QUETTA.

UNIT	MALE	FEMALE	TOTAL
Medicine-A	**20**	**10**	**30**
Medicine-B	**20**	**10**	**30**
		Total	**60**

BMCH, QUETTA.

UNIT	MALE	FEMALE	TOTAL
Medicine-A	**20**	**20**	**40**
Medicine-B	**20**	**20**	**40**
		Total	**80**

Grand Total: - 140

Section -14

RECOMMENDED BOOKS & JOURNALS

Section -15

FACULTY MEMBERS

Professors

Prof: Dr. Abdul Baqi Durrani	MBBS, FCPS
Prof: Zahir Khan Mandokhail	MBBS, FCPS

Associate Professors

Dr. Mohammad Nasir Khan	MBBS, MCPS
Dr. Syed Khalid Shah	MBBS, FCPS
Dr. Muhammad Essa Tareen	MBBS, FCPS

Assitant Professors

Dr. Jehanzaib	MBBS, FCPS
Dr. Saeed Ahmed	MBBS, FCPS
Dr. Bashirullah	MBBS, FCPS
Dr. Irfana Hassan	MBBS, FCPS
Dr. Muhammad Ahmed	MBBS, FCPS
Dr. Shamina Hanif	MBBS, FCPS

Senior Registrars

Dr. Zahid Iqbal	MBBS, FCPS
Dr. Zafar Ahmed Khan	MBBS, FCPS
Dr. Muhammad Sohail	MBBS, FCPS
Dr. Ubaidullah Barech	MBBS, FCPS
Dr. Naseebullah Shah	MBBS, FCPS
Dr. Kaleem ullah kakar	MBBS, FCPS
Dr. Humera Sami	MBBS, FCPS
Dr. Syed Ehsan ullah	MBBS, FCPS
Dr. Amir Hamza	MBBS, FCPS
Dr. Asma Hameed	MBBS, FCPS
Dr. Abdul Ghafoor	MBBS, FCPS