

M.Sc CURRICULUM

Rheumatology & Rehabilitation Mission Statement

- To provide teaching for medical students the basic and advanced scientific principles of Rheumatology, Physical medicine & Rehabilitation medical practice. To promote and advance general and subspecialty knowledge in the science of Rheumatology, Physical medicine & Rehabilitation medical practice. To train postgraduates to be competent to deal efficiently, effectively with common and urgent rheumatologic problems. A strong commitment to continuing medical education for all health professionals interested in this field.
- To provide skilled health care of the highest quality in the field of Rheumatology, Physical medicine & Rehabilitation and to provide optimum care for those patients.
- Encourage infusion of scientific thinking in learning and research endeavors in clinical practice and pursuit of excellence in research related to Rheumatology, Physical medicine & Rehabilitation medical practice.

Postgraduate Rheumatology & Rehabilitation Teaching Objectives

The overall objective is to enable the student to acquire the ability to assess the patients and to efficiently and appropriately access the resources available.

General attitude of Postgraduate student in Rheumatology & Rehabilitation Department

1. To apply ethical principles to clinical work, such as to display patience and kindness in order to encourage the patient and his relatives for history taking and physical examination.
2. Treatment of the patient as a person not as a disease.
3. To recognize and deal with one's own anxieties ,and limitations.
4. Display the soul of trust in dealing with the patient , and keep all his/her private information confidential.
5. Give good attention and carefulness for all information given by the patient and his relatives.
6. Respect his colleagues and a commitment to cooperate with other members of the health care team.
7. Exhibiting and displaying a professional image in manner , dress, speech and inter personal relations that is consistent with the medical profession's accepted standards in the community and following the Islamic code medical ethics.
8. Accept attitude of self education and self assessment.

Postgraduate Rheumatology & Rehabilitation Course Specification:

A- RHEUMATOLOGY

1.1 DESCRIPTION OF THE DISCIPLINE

Rheumatology incorporates the investigation, diagnosis, management and rehabilitation of patients with disorders of the musculoskeletal system ie the locomotor apparatus, bone and soft connective tissues. The rheumatic disorders thus include diverse conditions such as inflammatory arthritis, autoimmune rheumatic disorders, soft tissue conditions including injuries, osteoarthritis, spinal pain and other chronic pain syndromes and metabolic bone disease. Many rheumatologists practice the specialty exclusively but others practice in internal medicine, rehabilitation, paediatric rheumatology or sports medicine. Rheumatology requires interdisciplinary knowledge and awareness of new developments in internal medicine, immunology, orthopaedics, neurology/pain management, rehabilitation, psychiatry, nursing and professions allied to medicine.

1.2 AIMS OF THE POST-GRADUATE TRAINING.

Post graduate training leading to recognition as a specialist should furnish the doctor with knowledge and skills which will enable them to become competent in the field of rheumatology. The curriculum will enable trainees the opportunity to be competent in the:

- Establishment of a differential diagnosis for patients presenting with clinical features of musculoskeletal conditions by appropriate use of history, clinical examination and investigation.
- Performance of the core investigations required for all physicians practising rheumatology
- Development of management plans for the “whole patient” and have sound knowledge of the appropriate treatments including health promotion, disease prevention and long term management plans.
- Communication of the diagnosis and management options with the patient and other members of the multidisciplinary team.
- Application of sufficient knowledge and skill in diagnosis and management to ensure safe independent practice.
- Provision of effective team working and leadership skills
- Application of knowledge of the appropriate basic sciences relevant to rheumatology
- Management of time and other resources to the benefit of their patients and colleagues
- Facilitation of effective learning by other clinical and allied staff.
- Maintenance of professional standards through continuing development and learning
- Critical appraisal and analysis of clinical research methodology and results.

1.3 TEACHING & LEARNING METHODS

The opportunities and facilities for teaching and learning will vary between training centers. For this reason, trainers will be expected to identify methods appropriate to their local circumstances and to specify these in their trainees manual. Examples of methods which are likely to be appropriate and effective are listed below, but are not intended to be prescriptive or exhaustive.

Teaching method:

a) Knowledge acquisition -

- Personal study including effective use of medical literature
- Tutorials
- Post graduate courses

b) Clinical skills and attitudes -

- Demonstration of examination skills in normal subjects & patients by trainer
- Presenting history, demonstrating clinical findings & use of investigations on ward rounds or tutorial sessions
- Presenting cases for group discussion – grand rounds, meetings etc
- Regular radiology meetings
- Personal study including the effective use of medical literature
- Review of paper or electronically based problem cases
- Observation of consultant trainers managing clinical problems in day to day practice
- Observation of consultant trainer communicating with patients and members of team in day to day practice
- Use of role play or video taping of interviews
- Reinforce skills by practice during on the job training with both in-patients and out-patients – the latter should include general unselected rheumatology cases, special rheumatology clinics (eg connective tissue or early arthritis), and some experience of related specialties (eg pain clinic, orthopaedic clinic, radiology reporting session)

c) Procedures –

- Demonstration of injection technique by trained operator in patients requiring the procedure.
- Use of models to practice technique
- Perform procedure under observation
- Reinforce skills during on the job training with both in-patients and out-patients

2.1 KNOWLEDGE

The overall aim is to acquire a sound knowledge of the natural history and pathophysiology of rheumatic disease and the basic scientific principles and evidence base underpinning the current practice of rheumatology. This knowledge base will be applied to ensure safe and competent clinical practice. The overall aim is to acquire a sound knowledge of the natural history and pathophysiology of rheumatic disease and the basic scientific principles and evidence base underpinning the current practice of rheumatology. This knowledge base will be applied to ensure safe and competent clinical practice.

Specific objectives & subject matter:

The trainee will be required to demonstrate working knowledge, as applied to the rheumatic diseases, of –

Basic science -

- anatomy
- biochemistry
- physiology
- immunology
- genetics
- pharmacology

Rheumatic disorders:

- epidemiology
- aetiology
- pathogenesis
- pathology
- clinical features
- natural history
- impact on physical and psychological growth and development in children and adolescents
- management, and its' evidence base, **OF THE FOLLOWING RHEUMATIC DISORDERS:**

1) Regional pain syndromes:

spinal pain

intervertebral disc disorders

spinal canal or foraminal stenosis & related syndromes

limb pain syndromes (eg rotator cuff disease, epicondylitis & other soft tissue conditions, non-specific limb pain, plantar fasciitis, bursitis, algodystrophy etc)

chest wall pain syndromes

fibromyalgia and related somatoform disorders

benign joint hypermobility

specific to childhood – eg nocturnal limb pain, Osgood-Schlatter's, Perthe's etc

2) Osteoarthritis and related conditions:

osteoarthritis

DISH

neuropathic arthritis

crystal associated arthropathy – urate, CPPD, basic calcium phosphate, oxalate

3) Juvenile Idiopathic Arthritis

4) Spondylarthropathy

ankylosing spondylitis

enteropathic arthropathies

psoriatic arthritis

reactive arthritis

Whipple's disease

5) Autoimmune rheumatic disease

rheumatoid arthritis

systemic lupus erythematosus and related overlap syndromes

systemic sclerosis, Sjogrens syndrome

inflammatory muscle disease

vasculitides, antiphospholipid syndrome, Behcet's disease

6) Metabolic, endocrine and other disorders

osteoporosis

rickets and osteomalacia

bone & joint dysplasias

renal bone disease

endocrine disorders affecting bone, joint or muscle (eg thyroid, pituitary, parathyroid)

metabolic disorders affecting joints (eg alkaptonuria, haemochromatosis etc)

heritable collagen disorders

haemoglobinopathies

haemophilia and other disorders of haemostasis

regional disorders – Paget's disease, HPOA, osteonecrosis, Perthe's disease

osteochondritis dissecans, transient regional osteoporosis

7) Neoplastic disease

primary and secondary neoplastic conditions of connective tissue

pigmented villonodular synovitis

paraneoplastic musculoskeletal syndromes

8) Infection and arthritis:

septic bone and joint lesions

Lyme disease

mycobacterial, fungal & parasitic arthropathies

viral arthritis

AIDS

post-infectious rheumatological conditions (eg rheumatic fever, post-meingococcal arthritis))

9) Miscellaneous:

Sarcoidosis, Eosinophilic fasciitis, Familial Mediterranean Fever, Relapsing

polychondritis

Hypogammaglobulinaemia & arthritis, Amyloidosis, Sweets syndrome (neutrophilic dermatoses)

10) Occupational and sporting related problems.

UNDERTAKING A CLINICAL EXAMINATION

a) Normal anatomy and function:

Subject matter – demonstrating normality.

The trainee should be able to demonstrate on examination

the surface anatomical features of the shoulder girdle, elbow, hand & wrist, hip/pelvis, knee, ankle/foot , and spine

the normal range of movement (active and passive) of these joints

the actions of major muscle/tendons acting on these joints

b) Abnormal anatomy and function:

The trainee should be able, through performing a clinical examination, to identify

General features of musculoskeletal pathology:

by inspection – swelling, erythema, muscle wasting or deformity

by palpation – tenderness of articular or specific periarticular structures, increased warmth, to distinguish bone from soft tissue swelling and identify fluctuance

by movement – abnormalities of active and passive movements, instability, the presence of tendon lesions by applying appropriate stress tests, and muscle wasting/weakness

to use these signs to identify inflammation or structural damage of limb joints, spinal joints, soft tissues (muscles, tendons, entheses, bursae)

to identify the clinical signs associated with the extra-articular & systemic features

to identify the general medical complications of rheumatic disease

Shoulder pathology:

- Rotator cuff lesions
- Glenohumeral/capsular pathology
- Muscle wasting, proximal myopathy (deltoid)
- S/C joint pathology - OA, synovitis
- A/C joint pathology - OA, synovitis
- Shoulder pain due to pain referred from viscera or neck

Elbow pathology:

- Olecranon bursitis
- Elbow joint pathology
- Radio-ulnar joint pathology
- Medial or lateral epicondylitis

Hand & wrist pathology:

- Radiocarpal joint pathology
- Inf. radio-ulnar joint pathology
- 1st CMC, MCP or IP joint pathology
- Hand deformities
- Muscle wasting
- Flexor or extensor tenosynovitis or tendon nodules
- Rupture or attenuation of flexor or extensor tendons of fingers or thumb
- De Quervain's tenovaginitis
- Carpal tunnel syndrome

Hip/pelvic pathology:

- trochanteric, iliopsoas, gluteal bursitis
- hip joint pathology
- real & apparent leg length inequality
- SI joint pathology
- muscle wasting, proximal myopathy, Trendelenberg sign
- deformities of the hip, Thomas' test
- pathology of symphysis pubis
- pathology of pelvis - fractures
- hip pain due to pain referred from lumbar region
- lesions of tendons and enthuses

Knee pathology:

- knee joint pathology, including internal derangements
- deformities
- muscle wasting, myopathy
- prepatellar, anserine bursitis

- popliteal cyst
- damage to collateral ligaments
- knee pain due to pain referred from hip or lumbar spine
- lesions of tendons and enthuses

Ankle & foot pathology:

- ankle (tibiotalar) pathology
- subtalar/midtarsal joint pathology
- MTP & IP joint pathology
- lesions of the Achilles tendon, enthesis and retrocalcaneal bursa
- deformities of the ankle and foot
- foot pain due to pain referred from lumbar spine
- plantar fasciitis
- tenosynovitis of tib post and peroneal tendons
- rupture of tib posterior or Achilles tendon
- lesions of bone (eg stress fracture)

Spinal pathology:

- Cervical spine pathology
- Thoracic spine pathology
- Lumbar spine pathology
- Spinal nerve root entrapment syndromes
- Spinal deformities

Extra-articular pathology:

- Raynauds phenomenon
- Vasculitic skin lesions
- Rheumatoid nodules
- Heberdens & Bouchard's nodes
- Rash – psoriasis, pustular psoriasis, onycholysis, balanitis, lupus rashes, erythema nodosum
- Scleritis, episcleritis, conjunctivitis, iritis
- Scerodactyly
- Tophi
- Other medical complications of rheumatic disease affecting internal organs

CLINICAL SKILLS & ATTITUDES

The overall aim is to develop the ability to perform a clinical assessment of patients with musculoskeletal disorders, select and interpret appropriate investigations and formulate a differential diagnosis and management plan. The trainee should be able to communicate their conclusions effectively to the patient and other clinical colleagues. The trainee should have experience of managing patients in Day Care units

Specific objectives & subject matter

History – To be able to elicit and correctly interpret a history of:

	Level of competence
the presenting symptoms of rheumatic disease ie pain, stiffness, weakness, loss of function & non-articular manifestations	5
the disability and handicap caused by rheumatic disease	5
the psychosocial problems associated with rheumatic disease	5
other general medical problems	5

Examination - To be able to undertake a physical examination as detailed in Appendix “B” and identify

the normal musculoskeletal system and its’ variations eg at extremes of age	5
the clinical signs associated with - inflammation or structural damage of joints & periarticular structures (muscles, tendons, entheses, bursae and bone) non-articular, systemic and other features of rheumatic disease general medical complications of rheumatic disease diffuse or regional pain disorders or somatisation disorders	5

Differential diagnosis – To be able to use the clinical findings to formulate a differential diagnosis and plan of investigation for patients presenting with –

monoarthropathy	5
oligoarthropathy	5
polyarthropathy	5
axial arthropathy	5
multisystem disorder	5
muscle weakness	5
regional limb & spinal musculoskeletal pain disorders	5
unexplained musculoskeletal pain	5
rheumatological and patient emergencies	5

Specific objectives & subject matter:

Use of investigations –

To know the indications for and limitations of the laboratory and imaging techniques used in the diagnosis and management of rheumatic diseases.

To be able, in the light of the clinical assessment, to select and interpret the most appropriate laboratory investigations

haematology	5
biochemistry	5
immunology	5
histopathology	4
bacteriology	5
qualitative imaging techniques	5
plain radiography	5
CT	5
MRI	5
ultra-sound	5
radioisotope scanning	5
quantitative techniques for assessing bone density DXA	5

Specific objectives & subject matter:

Management and communication –

To be able to communicate, explain and discuss with the patient -

- the diagnosis,
- the need for further investigations
- the evidence-based management options, their risks and benefits and need for clinical monitoring.
- the need for orthopaedic/surgical intervention, and the main risks and benefits
- the patient's views on causation, management and the risks and benefits of complementary or non-conventional approaches

To be able to identify the need for -

- paramedical intervention, and aids to assist self care, mobility or driving
- intervention by other relevant specialists including the neurologist, neurosurgeon, renal physician or rehabilitationist.
- referral of children to specialist paediatric colleague
- education and self management techniques
- disability benefits or re-training to reduce the socioeconomic impact of rheumatic disease on the patient.
- multidisciplinary pain management techniques and pain relieving procedures such as epidural and regional nerve blocks
- physical treatments such as manipulative and mobilisation techniques

To communicate these needs effectively

- with members of the multidisciplinary team (physiotherapist, occupational therapist, nurse specialist, orthotist, podiatrist or clinical psychologist)
- with other clinical colleagues
- with relevant support workers including medical social worker and voluntary agencies

Specific objectives & subject matter:

Perform procedures – To be able -

to identify the correct indications for joint injection/aspiration	5
soft tissue injection.	5
to aspirate and inject joints competently using the appropriate techniques	5
to recognise the macroscopic appearance of normal and abnormal synovial fluid (non-inflammatory, inflammatory, haemorrhagic and septic)	5
to inject soft tissue lesions competently using the appropriate techniques (tennis/golfer’s elbow, carpal tunnel, tenosynovitis/flexor tendon nodules, bursitis, tendinitis and plantar fasciitis).	5

2.3 CLINICAL AUDIT AND ASSESSING OUTCOMES

Specific objectives & subject matter:

To be able to design, plan and carry out an audit project on a relevant clinical topic.

To achieve this the trainee will be required to -

- specify an appropriate standard of practice for auditing,
- identify suitable outcome measures,
- apply appropriate statistical methods to achieve a robust study design and analysis of results
- complete the audit ‘loop’ to demonstrate whether change in practice has occurred.

2.4 MANAGING A RHEUMATOLOGY UNIT –

Specific objectives & subject matter:

To acquire the management skills relevant to participation in and leadership of a rheumatology team. To achieve this the trainee will be required to demonstrate -

- effective time management
- negotiating skills
- participation in staff organisation
- effective supervision of junior medical staff

B- REHABILITATION

MODULE 1: STROKE:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Introduction, Basic Neuroanatomical Review of the Major Vessels Involved in Stroke, Types of Stroke, Diagnostic Studies, Medical Treatment, Stroke Rehabilitation.

MODULE 2. TRAUMATIC BRAIN INJURY:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Introduction, Pathophysiology of TBI, Disorders of Consciousness, Posturing Secondary to Head Injury, Prognosis After TBI: An Evidence-Based Approach, Medical Management of TBI, Surgical Management in TBI, Medical and Neurologic Complications After TBI, Mild TBI (Concussion) and PostConcussive Syndrome.

MODULE 3. RHEUMATOLOGY:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Rheumatoid Arthritis (RA), Osteoarthritis (OA), Juvenile Rheumatoid Arthritis (JRA), Juvenile Spondyloarthropathies, Crystal Induced Synovitis, Seronegative Spondyloarthropathies (SEA), Other Rheumatoid Diseases, Vasculitides, Sjogren's Syndrome, Infectious Arthritides, Deposition/Storage Diseases and Arthritis, Other Systemic Diseases with Arthritis, Charcot Joint (Neuropathic Arthropathy), Fibromyalgia Syndrome (FMS), Complex Regional Pain Syndrome (CRPS), Tendon Disorders.

MODULE 4. MUSCULOSKELETAL MEDICINE:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Shoulder Disorders, Elbow Disorders, Wrist Disorders, Hand Disorders, Hip Disorders, Knee Disorders, Disorders of the Lower Leg, Disorders of the Ankle, Foot Disorders, Toe Disorders: Hammer Toe, Claw Toe, and Mallet Toe, Joint Injections and Aspirations, Spine Rehabilitation, Disc Disorders, Bone Disorders of the Spine, Joint Disorders of the Spine, Soft Tissue Disorders of the Spine, Infectious Disorders of the Spine

MODULE 5. ELECTRODIAGNOSTIC MEDICINE AND CLINICAL NEUROMUSCULAR PHYSIOLOGY:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Basic Peripheral Nervous System Anatomy, Pathophysiology, Clinical Instrumentation, Nerve Conduction Studies (NCS), Somatosensory Evoked Potentials (SSEP), Basic Needle Electromyography (EMG), Radiculopathy, Plexopathy, Upper Limb Mononeuropathy, Lower Limb Mononeuropathy, Peripheral Neuropathy, Neuromuscular Junction Disorders, Myopathy, Motor Neuron Disease, Weakness: Differential Diagnosis

MODULE 6. PROSTHETICS AND ORTHOTICS:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Gait Analysis, Prosthetics, Assistive Devices—Ambulation Aids, Shoes and Lower Limb Orthoses, Orthotics, Lower-Extremity Orthoses for Pressure Redistribution, Spinal Orthoses

MODULE 7. SPINAL CORD INJURIES (SCI):

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Epidemiology, Spine Anatomy, Spinal Pathology, SCI Classification, Medical Complications of SCI, Pain in the SCI Patient, Pressure Ulcers (PU)

MODULE 8. PHYSICAL MODALITIES, THERAPEUTIC EXERCISE, EXTENDED BEDREST, AND AGING EFFECTS:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Physical Modalities, Therapeutic Exercise, Effects of Extended Bedrest: Immobilization and Inactivity, Evaluation of Functional Independence, Physiologic Effects of Aging

MODULE 9. PULMONARY, CARDIAC, AND CANCER REHABILITATION:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Pulmonary Rehabilitation, Cardiac Rehabilitation, Cancer Rehabilitation

MODULE 10. PEDIATRIC REHABILITATION:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Genetics and Chromosomal Abnormalities, Development and Growth, Pediatric Limb Deficiencies
Diseases of the Bones and Joints, Connective Tissue and Joint Disease, Pediatric Burns, Pediatric Cancers, Pediatric Traumatic Brain Injury (TBI), Cerebral Palsy (CP), Spina Bifida (Myelodysplasia), Neuromuscular Diseases in Children

MODULE 11. ASSOCIATED TOPICS IN PHYSICAL MEDICINE AND REHABILITATION:

By the end of this module, the student must know and critically evaluate current general and practice-specific medical information; understand and incorporate evidence-based decision-making regarding:

Spasticity, Movement Disorders, Wheelchairs, Multiple Sclerosis (MS), Osteoporosis, Rehabilitation of Burn Injuries, Biostatistics

Skills and attitudes:

Skill	Level of competence
The examination and measurements of the musculoskeletal system;	5
The evaluation of a patient;	5
How to use/make EMG and other equipments for the examination and diagnosis of musculoskeletal dysfunction;	4
Pain assessment of patients;	5
Use of conservative and invasive therapies;	5
The performance of tests and scales assessment of physical medicine and rehabilitation;	4
The use of electrodiagnostic methods;	4
The evaluation of laboratory, radiological and other diagnostic reports (e.g. Duplex examination...);	5
The use of mechano-therapy and manipulation;	5
Gait analysis;	4
Planning the physiotherapy program for patients which include: massage, electrotherapy, thermotherapy, hydrotherapy, magnetotherapy, photo- and light therapy;	4
Planning and monitoring continuously patients;	5
Showing compassion in the treatment of patients and respect of their privacy, dignity and beliefs;	5
Lifelong continuing medical education and recognition of the importance of self assessment;	4
Willing to teach other medical doctors or professionals of the health care team and performance of scientific work	4

Attitude:

Patient Care

Improve performance skills, including medical interviews and physical examinations; incorporate a synthesis of clinical data.

Interpersonal and Communication Skills

Communicate effectively with patients and families, other professionals, and team members;

maintain comprehensive, legible medical records.

Professionalism

Demonstrate self-awareness and knowledge of limits, high standards of ethical and moral behavior, reliability and responsibility, respect for patient dignity, and autonomy.

ASSESSMENT

The main tool of formative assessment will be observation of the trainee's performance in day to day practice. This requires close interaction between the trainee and trainer, allowing direct observation of the trainee's performance in a range of clinical settings. Formative assessment of knowledge may be undertaken in future using MCQs, written exam, oral exam, clinical exam & practical exam.

COMPETENCE

Levels of competence:

- 1-To observe trainer in performance/management
- 2-To assess trainer in performance/management
- 3-To be able to perform/manage under supervision
- 4-To be able to perform/manage with supervision nearby
- 5-To be able to perform/manage independently

For each aspect of the curriculum, one method of defining levels of competence might be as –

Basic knowledge only, with little or no practical experience

Evidence of competence:

Using the methods described above, the documentary evidence of competence might include -

- the trainee's log book
- the trainee's portfolio of achievements and evidence of critical reflection
- the annual assessment
- other written evidence regarding the trainees performance provided by trainers, other members of the rheumatology team.