Curriculum

DrNB Super Specialty

Clinical Immunology and Rheumatology

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I. INTRODUCTION

A broad experience in general (internal) medicine is considered essential for the practice of clinical Immunology & Rheumatology, hence students enrolling for this course should have a strong background of Internal Medicine.
During the course the individual should have the experience of continuing care for Rheumatology patients on in-patient and outpatient basis.
During this time, the trainee should acquire the knowledge, experience and skills detailed in the syllabus and record the mint he training record.

1. Description of the Discipline

Clinical Immunology & Rheumatology incorporates the investigation, diagnosis, management and rehabilitation of patients with disorders of the musculoskeletal system i.e. 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. Rheumatology requires interdisciplinary knowledge and awareness of new developments in internal medicine, immunology, orthopedics, neurology/pain management, rehabilitation, psychiatry, nursing and professions allied to medicine.

II. 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:

i. Establishment of a differential diagnosis for patients presenting with clinical features of musculoskeletal conditions by appropriate use of history, clinical examination and investigation
ii. Performance of the core investigations required for all physicians practicing rheumatology

iii. 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
iv. Communication of the diagnosis and management options with the patient and other member soft haemulidsciplinary team.
v. Application of sufficient knowledge and skill in diagnosis and management to ensure safe independent practice.
vi. Provision of effective team working and leadership skills
vii. Application of knowledge of the appropriate basic sciences relevant to rheumatology
viii. Management of time and other resources to the benefit of their patients and colleagues
ix. Facilitation of effective learning by other clinical and allied staff.
x. Maintenance of professional standards through continuing development and learning
xi. Critical appraisal and analysis of clinical research methodology and result

III. PROGRAMME GOAL

The goal of the DrNB program is to provide advanced training in Clinical Immunology & Rheumatology to produce competent sub-specialists who can provide clinical care of the highest order to patients and serve as future teachers, trainers and researchers in the field.

1. PROGRAMME OBJECTIVES: At the end of the course, the student should be able to:

i. Clinically diagnose, investigate and manage a whole spectrum of non-immune mediated and immune-mediated rheumatologically disorders
ii. Practically perform and interpret the common laboratory techniques used in a Rheumatology Laboratory
iii. Plan and undertake research in Rheumatology in the clinic, laboratory and community
iv. Competent to understand and critically analyze the new literature in the field of Rheumatology
v. Teachthesubjecttoundergraduatesandpostgraduatesin MedicineandPediatrics.

2. Competencies:

As professionals, rheumatologists must:

i. Demonstrate a commitment to their patients, profession, and society through ethical practice;
ii. Demonstrate a commitment to their patients, profession and society through participation in profession-led regulation;
iii. Demonstrate a commitment to physician health and sustainable practice, and specific training requirements.
iv. These competencies will develop and mature through continuing professional development. Training programmes must, however, establish the appropriate standards and reinforce the attitude that will lead to lifelong commitment to the principles.

At the completion of training rheumatologists must be able to:

i. Demonstrate a commitment to their patients, profession, and society through ethical practice
ii. Exhibit appropriate professional behavior in practice, including honesty, integrity, commitment, compassion, respect and altruism
iii. Demonstrate a commitment to delivering the highest quality care and maintenance of competence
iv. Demonstrate responsiveness to the needs and interests of patients that super-sedes self-interest
v. Demonstrate the ability to provide autonomy to their patients to decide upon treatment once all treatment options and risks have been outlined for them. Provide and obtain key elements of informed consent in an understandable manner for therapeutic interventions and clinical research endeavors
vi. Recognize and appropriately respond to ethical issues encountered in practice

3. Professional Role

i. Appropriately manage conflict of interest, with special focus on relationships with the pharmaceutical industry
ii. Recognize the principles and limits of patients' confidentiality as defined by professional practices standards and the law
iii. Maintain appropriate relation with the patients
iv. Demonstrate a commitment to their patients, profession and society through participation in profession-led regulation
v. Appreciate the professional, legal and ethical codes of practice
vi. Fulfil the regulatory and legal obligations required of current practice
vii. Demonstrate accountability to professional regulatory bodies
viii. Recognize and respond to other's unprofessional behavior in practice

ix. Participate in peer review and audit
x. Demonstrate a commitment to physician health and sustainable practice:
xi. Balance personal and professional priorities to ensure personal health and sustainable practice
xii. Strive to heighten personal and professional awareness and insight
xiii. Recognize other professionals in need and respond appropriately

IV. TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme:

Local departmental level

i. Casepresentations&discussion-Atleast12casesperstudentperyear.
ii. Seminar–atleast4seminarsperstudentperyear.
iii. Journalclub-Atleast4journalclubsperstudentperyear.
iv. Grand round presentation (by rotation departments and subspecialties)-once a week.
v. Faculty lecture teaching-Once a month.
vi. Clinical Audit-Once a Month. (Clinical audit including mortality review, prescription audit, discharge summary, patients 'data).
vii. A poster and have one oral presentation at least once during their training period in a recognized conference.

National
A national level teaching program is launched with one-hour webinar per week Currently, in a month one seminar, one journal club, one faculty lecture, one case discussion, and a clinical topic is done. All trainees are provided link to the webinar and a faculty moderates the activity.

The ward rounds should include bedside sessions (file rounds & documentation of case history and examination, progress notes, round discussions, investigations and management plan), and interesting and difficult case unit discussions.

The training program would focus on knowledge, skills and attitudes (behavior), all essential components of education. It is being divided into theoretical, clinical and practical in all aspects of the delivery of their facilitative care, including methodology of research and teaching.

i. Theoretical: The theoretical knowledge would be imparted to the candidates through discussions, journal clubs, symposia and seminars. The students are exposed to recent advances through discussions in journal clubs. These are considered necessary in view of an in adequate exposure to the subject in the undergraduate curriculum.

ii. Clinical: The trainee would be attached to a faculty member to be able to pick up methods of history taking, examination, prescription writing and management in rehabilitation practice.

iii. Bedside: The trainee would work up cases, learn management of cases by discussion with faculty of the department.

iv. Journal Clubs: A list of suggested Journals is given towards the end of this document. The candidate would summarize and discuss the scientific article critically. A faculty member will suggest the article and moderate the discussion, with participation by other faculty members and resident doctors. The contributions made by the article in furtherance of the scientific knowledge and limitations, if any, will be highlighted.

v. Research: The student would carry out their search project and write a thesis dissertation in accordance with NBE guidelines. He/ she would also be given exposure to partake in the research projects going on in the departments to learn their planning, methodology and execution so as to learn various aspects of research.

vi. Seminar: Trainees would be required to present topics based on the curriculum in a period of three years to the combined class of teachers and students. A free discussion would be encouraged in these seminars. The topics of the seminar would be given to the trainees with the dates for presentation.

V. SYLLABUS

1. Structure and function of bone, Joints, and connective tissue:
2. Biology of the normal joint and articular structures:

i. Hands
ii. Wrists
iii. Elbows

iv. Shoulders
v. Neck
vi. Low Back
vii. Spines
viii. Hip joint and Pelvic Girdle
ix. Knees
x. Ankles-feet
xi. Synovium, Cartilage, Bone and Chondrocytes

3. Normal and Pathological synovial tissue and cartilage
4. Connective tissue:

i. Collagen-collagenases
ii. Proteoglycans-mediators derived from polyunsaturated fatty acids
iii. Prostaglandins
iv. Thromboxane's
v. Leukotrienes
vi. Mediators of acute and chronic inflammation
vii. Vascular endothelium
viii. Interleukins
ix. Free radicals
x. Nitric oxide
xi. Apoptosis.

5. Formation and resorption of Bone- Bone as a tissue and an organ.
6. Muscle: Anatomy - contractile proteins - ultrastructure of the muscle fibre –neuro muscular junction-physiology of motor unit-excitation-contraction
7. Coupling - biochemistry of contraction- Muscle energy metabolism — pharmacology of the motor unit.
8. Nerve: Neuropathies of special interest in Rheumatology – laboratory investations –pain bath ways.
9. Synovial physiology
10. Collagen in normal and diseased connective tissue
11. Articular cartilage, Chondrocyte structure and function
12. Basics of immunology
13. Pharmacology of drugs in rheumatology practice
14. Broad issues in the approach to Rheumatic Disease:

i. Principles of Epidemiology in Rheumatic Disease
ii. Economic Burden of Rheumatic Diseases
iii. Clinical Trial Design and Analysis
iv. Assessment of Health Outcomes
v. Design of clinical trials in rheumatology
vi. Comorbidities of rheumatic disease
vii. Social aspects(work)
viii. Registries
ix. Outcomes of pediatric rheumatic disease
x. Basics of genetics
xi. Immunology
xii. Environment
xiii. Epigenetics
xiv. Genetics of rheumatoid arthritis
xv. Genetics of spondyloarthropathies
xvi. Genetics of connective tissue diseases (rheumatoid arthritis, SLE, Scleroderma, Sjogren's syndrome, Inflammatory muscle diseases, mixed connective tissue disease)
xvii. Genetics of juvenile rheumatic diseases
xviii. Genetics of osteoarthritis
xix. Genetics of Gout and other crystal arthritis
xx. Genetics of chronic musculoskeletal pain
xxi. Biologic Markers
xxii. Occupational and Recreational Musculoskeletal Disorders
xxiii. Cardio vascular Risk in Rheumatic Disease
xxiv. Cancer Risk in Rheumatic Diseases

15. Rheumatic diseases of childhood:

i. Etiology and Pathogenesis of Juvenile Idiopathic Arthritis
ii. Treatment of Juvenile Idiopathic Arthritis
iii. Pediatric Systemic Lupus Erythematosus, Dermatomyositis, Scleroderma and Vasculitis

16. Medical Orthopaedics and Rehabilitation:

i. Sports Medicine
ii. Entrapment neuropathies

iii. Physiotherapy
iv. Occupational therapy
v. Health outcome assessment
vi. Rehabilitation of patients with rheumatic diseases

17. Other areas in which knowledge is to be acquired:

i. Biostatistics, Research Methodology and Clinical Epidemiology
ii. Ethics
iii. Medico legal aspects relevant to the discipline
iv. Health Policy issues as may be applicable to the discipline

A. Rheumatological Diseases

1. Regional pain syndromes:

i. Spinal pain
ii. Intervertebral disc disorders
iii. Spinal canal or foraminal stenosis & related syndromes
iv. Limb pain syndromes (e.g. rotator cuff disease, epicondylitis & other soft tissue conditions, nonspecific
v. Limb pain, plantar fasciitis, bursitis, algodystrophyetc)
vi. Chest wall pain syndromes
   a. Fibromyalgia and related somatoform disorders
   b. Benign jointly per mobility
   c. specific to childhood – e.g. nocturnal limb pain, Osgood-Schlatter's, Perthe'setc

2. Osteoarthritis and related conditions:

i. Osteoarthritis
ii. DISH
iii. Neuropathic arthritis
iv. Crystal associated arthropathy–urate, CPPD, basic calcium phosphate, oxalate

3. Spondylarthropathy

i. Ankylosing spondylitis
ii. Enteropathicarthropathies
iii. Psoriatic arthritis

iv. Reactive arthritis
v. Whipple's disease

4. Autoimmune rheumatic disease

i. Rheumatoid arthritis
ii. Systemic lupus erythematosus and related overlap syndromes
iii. Systemic sclerosis, Sjogrens syndrome
iv. Inflammatory muscle disease
v. Vasculitides, antiphospholipid syndrome, Behcet's disease

5. Metabolic, endocrine and other disorders

i. Osteoporosis
ii. Rickets and osteomalacia
iii. Bone & joint dysplasia's
iv. Renal bone disease
v. Endocrine disorders affecting bone, joint or muscle (e.g. thyroid, pituitary, parathyroid)
vi. Metabolic disorders affecting joints (e.g. alkaptonuria, haemochromatosis etc.)
vii. Heritable collagen disorders
viii. Haemoglobinopathies
ix. Hemophilia and other disorders of hemostasis
x. Regional disorders– Paget's disease, HPOA, osteonecrosis, Perthe's disease
xi. Osteochondritisdissecans, transient regional osteoporosis

6. Neoplastic disease

i. Primary and secondary neoplastic conditions of connective tissue
ii. Pigmented villonodular synovitis
iii. Paraneoplastic musculoskeletal syndromes

7. Infection and arthritis:

i. Septic bone and joint lesions
ii. Lyme disease
iii. Mycobacterial, fungal & parasitic arthropathies
iv. Viral arthritis
v. AIDS

vi. Post-infectious rheumatologically conditions (e.g. rheumatic fever, post-meningococcal arthritis)

8. Miscellaneous:

i. i. Sarcoidosis, Eosinophilic fasciitis, Familial Mediterranean Fever, Relapsing polychondritis
ii. Hypogammaglobulinaemia& arthritis, Amyloidosis, Sweets syndrome (neutrophilic dermatoses)
iii. Primary immunodeficiency
iv. Auto-inflammatory syndromes
v. IgG4-relateddisease

VI. CLINICAL SKILLS & ATTITUDES

The trainee will earn to:

A. Do a proper History taking & clinical examination: which will include:

History – To be able to elicit and correctly interpret a history of the presenting symptoms of rheumatic disease i.e. pain, stiffness, weakness, loss of function & non-articular manifestations the disability and handicap caused by rheumatic disease the psychosocial problems associated with rheumatic disease other general medical problems.
Examination - To be able to undertake a physical examination as follows and identify.

i. Normal anatomy and function: of 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 and the actions of major muscle/tendons acting on these joints.

ii. Abnormal anatomy and function: The trainee should be able to identify general features of musculoskeletal pathology:

By inspection–swelling, erythema, muscle wasting or deformity
By palpation-tenderness of articular or specific per articular 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 ten don 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, and to identify the general medical complications of rheumatic disease. In particular, the trainee should be able to examine for

1. Shoulder pathology:

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

2. Elbow pathology:

i. Olecranon bursitis
ii. Elbow joint pathology
iii. Radio-ulnar joint pathology
iv. Medial or lateral epicondylitis

3. Hand & wrist pathology:

i. Radiocarpal joint pathology
ii. Inf. radio-ulnar joint pathology
iii. 1st CMC, MCP or IP joint pathology
iv. Hand deformities
v. Muscle wasting
vi. Flexor or extensor tenosynovitis or tendon nodules
vii. Rupture or attenuation of flexor or extensor tendons of fingers or thumb
viii. De Quervain'stenovaginitis
ix. Carpal tunnel syndrome

4. Hip/pelvic pathology:

i. Trochanteric, iliopsoas, gluteal bursitis
ii. Hip joint pathology
iii. Real & apparent leg length inequality
iv. SI joint pathology
v. Muscle wasting, proximal myopathy, Trendelenburg sign

vi. Deformities of the hip, Thomas' test
vii. Pathology of symphysis pubis
viii. Pathology of pelvis-fractures
ix. Hip pain due to pain referred from lumbar region
x. Lesions of tendons and enthuses

5. Knee pathology:

i. Knee joint pathology, including internal derangements
ii. Deformities
iii. Muscle wasting, myopathy
iv. Prepatellar, anserine bursitis
v. Popliteal cyst
vi. Damage to collateral ligaments
vii. Knee pain due to pain referred from hip or lumbar spine
viii. Lesions of tendons and entheses

6. Ankle & foot pathology:

i. Ankle (tibiotalar) pathology
ii. Subtalar/Midtarsal joint pathology
iii. MTP & IP joint pathology
iv. Lesions of the Achilles tendon, enthesis and retrocalcaneal bursa
v. Deformities of the ankle and foot
vi. Foot pain due to pain referred from lumbar spine
vii. Plantar fasciitis
viii. Tenosynovitis of tib post and peroneal tendons
ix. Rupture of tib posterior or Achilles tendon
x. Lesions of bone (e.g. stress fracture)

7. Spinal pathology:

i. Cervical spine pathology
ii. Thoracic spine pathology
iii. Lumbar spine pathology
iv. Spinal nerve root entrapment syndromes

v. Spinal deformities

8. Extra- articular pathology:

i. Raynaud's phenomenon
ii. Vasculitis skin lesions
iii. Rheumatoid nodules
iv. Heberdens& Bouchard's nodes
v. Rash – psoriasis, pustular psoriasis, onycholysis, balanitis, lupus rashes, erythema anodosum
vi. Scleritis, episcleritis, conjunctivitis, iritis
vii. Scerodactyly
viii. Tophi
ix. Other medical complications of rheumatic disease affecting internal organs
x. The normal musculoskeletal system and its' variations eg at
xi. Extremes of age
xii. The clinical signs associated with-
xiii. Inflammation or structural damage of joints &perarticular
xiv. Structures (muscles, tendons, entheses, bursaeand bone)
xv. Non-articular, systemic and other features of rheumatic disease
xvi. General medical complications of rheumatic disease
xvii. Diffuse or regional pain disorders or somatization disorders

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

i. Monoarthritis
ii. Oligoarthritis
iii. Polyarthritis
iv. Axialarthritis
v. Multi system disorders
vi. Muscle weakness
vii. Regionallimb& spinal musculoskeletal pain disorders
viii. Unexplained musculoskeletal pain
ix. Rheumatological emergencies

C. Principle and Interpretation of Laboratory Test – 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–

i. Laboratory investigations
ii. Hematology
iii. Biochemistry
iv. Immunology
v. Histopathology
vi. Bacteriology
vii. Qualitative imaging techniques
viii. Plain radiography
ix. CT
x. MRI
xi. Radio isotope scanning
xii. Quantitative techniques for assessing bone density
xiii. DXA
xiv. Ultrasound
xv. Polarizing light microscopy
xvi. Nail fold capillaroscopy

The Candidate will be required to perform some of these tests himself/herself

D. Learn management & 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 orthopedic/surgical intervention, and the main risks and benefits; the patient's View son 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 rehabilitations.

Education and self-management techniques disability benefits or re-training to reduce the socio economic impact of rheumatic disease on the patient. Multi-disciplinary pain management techniques and pain-relieving procedures such as epidural and regional nerve blocks physical treatments such as manipulative and mobilization techniques.

To communicate these needs effectively with members of the multidisciplinary team (physiotherapist, occupational therapist, nurse specialist, orthoptist, podiatrist or clinical psychologist) with other clinical colleagues with relevant support workers including medical social worker and voluntary agencies

E. Perform procedures –

i. To be able to identify the correct indications for joint injection/aspiration soft tissue injection.
ii. Toaspirateandinjectjointscompetentlyusingtheappropriatetechniques
iii. To recognize the macroscopic appearance of normal and ab normal synovial fluid (no inflammatory, inflammatory, hemorrhagic and septic)
iv. 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).

F. Perform clinical audit and assessing out comes–

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.

G. Learn managing a rheumatology unit–

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 organization, and effective super vision of junior medical staff.

VII. SCHEDULE OF POSTING AND TRAINING PROGRAMME

1. First Year: Rheumatology Department Out-patient/Wards/Laboratory- One Year

2. Second Year

i. Dermatology: 2-3 weeks

ii. Radiology: 2 Weeks (in addition must attend clinic-radiologic meeting)

iii. Ophthalmology:1Week

iv. Physical Medicine & Rehabilitation: 2 weeks

v. Laboratory: 2 weeks

vi. Students who are posted outside should attend Theory classes, Journal club and case presentation daily at the Department of Rheumatology in the afternoon.

vii. Student must attend clinic-pathological meetings in the institution

Rheumatology department OP/Wards/Laboratory:9-10Months
(Musculoskeletal Ultra sonography, Laboratory included in nine months)

3. Third Year

i. Rheumatology Department-OP/Wards/Laboratory One year

ii. Laboratory–2 weeks included in one year

iii. Besides the above, Synovial aspirations, Intra articular injections, interpretation of X-rays, CT Scan, M.R.I, Dual Energy X-Ray Absorptiometry (DXA) and Ultra sound are to be undertaken.

VIII. LOGBOOK

A candidate shall maintain a log book of operations (assisted / performed) during the training period, certified by the concerned post graduate teacher / head of the department/senior consultant.

This log book shall be made available to the board of examiners for their perusal at the time of the final examination.

The logbook should how evidence that the before mentioned subjects were covered (with dates and the name of teacher(s) The candidate will maintain the record of all academic activities under taken by him/her in logbook.

i. Personal profile of the candidate

ii. Educational qualification/Professional data

iii. Record of case histories

iv. Procedures learnt

v. Record of case Demonstration/Presentations

vi. Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the logbook. It should be duly certified by the supervisor as work done by thecandidateandcountersignedbytheadministrativeHeadoftheInstitution.

vii. In the absence of production of logbook, the result will not be declared.

IX. RECOMMENDED TEXT BOOKS AND JOURNALS

Books

i. Oxford Handbook of Rheumatology (Eds Hakim, Clunie and Haq. Published by Oxford University Press)

ii. Oxford Textbook of Rheumatology (Eds Isenberg, Madison, Woo, Klars and F. C. Breedveld. Published by Oxford University Press)

iii. Kuby Immunology

iv. Kelly's Textbook of Rheumatology

v. Rheumatology5thedition (Eds Hochberg et al. Published by Elsevier)

vi. Textbook of Pediatric Rheumatology (Authors Cassidy, Petty)

Journals

i. Annals of the Rheumatic Diseases(ARD) Official Journal of EULAR

ii. Arthritis and Rheumatism – official journal of the American College of Rheumatology(ACR)

iii. Arthritis Research and Therapy

iv. Current Opinion in Rheumatology

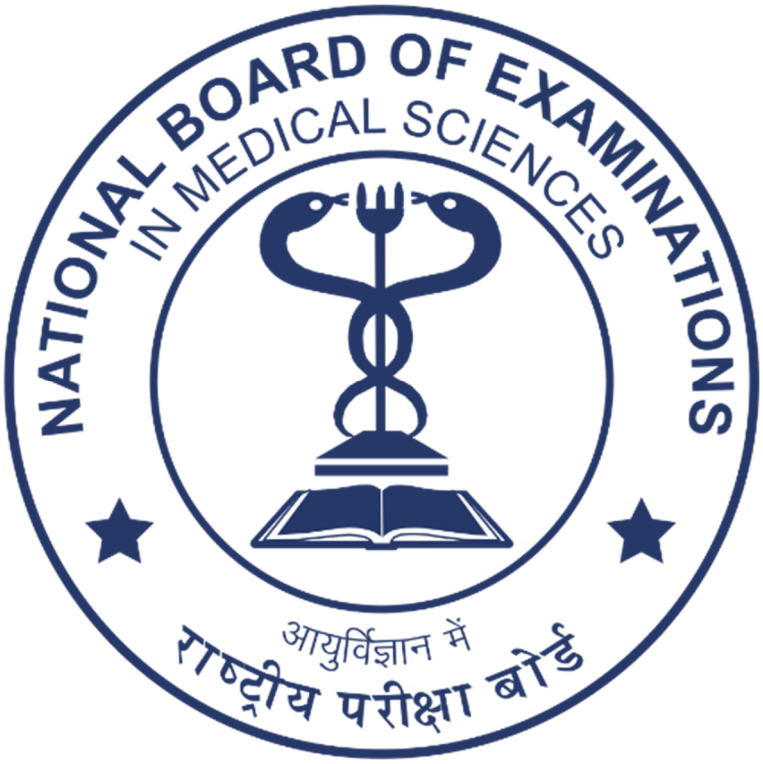
v. Journal of Rheumatology

vi. Nature Reviews Rheumatology

vii. Rheumatology – Oxford journals – Official Publication of British Society of Rheumatology

viii. InternationalJournalofRheumaticDiseases.OfficialPublicationofAPLAR

ix. Indian Journal of Rheumatology



आयुर्विज्ञान में राष्ट्रीय परीक्षा बोर्ड

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