Physical Medicine & Rehabilitation (PMR) — M D

A. The overall "GAINS OF THE COURSE" can be classified as below:

1. Patient Care: Keeping the above in view, it is evident that the patient care services in Physical Medicine and Rehabilitation (PMR) are not adequate at present due to lack of trained specialists in Physical Medicine and Rehabilitation. Therefore, the products of this course would fill this gap in Patient Care.
2. Training and Teaching: Since the Post graduate training in PMR is being given only at a few places in India, MD (PMR) would meet the demand, as advocated by Medical Council of India and other international agencies. The MD (PMR) at AIIMS would also set an example of excellence in teaching as well as provide teachers to other medical colleges running these courses.
3. Research: Once we have the trained specialists well versed with the problems of the handicapped, research avenues would automatically be broadened in the specialty.

B. BROAD OBJECTIVES

1. To develop patterns of teaching in Rehabilitation Medicine in postgraduate medical education in all its branches so as to demonstrate a high standard of medical education to all medical colleges and other allied Institutions in India.
2. To train teachers and specialists in Rehabilitation medicine.

C. SPECIFIC LEARNING OBJECTIVES

The clinical postgraduate training programme is intended at developing in a student a blend of qualities of a clinical specialist, a teacher and a researcher. They are organised in such a manner that a postgraduate should possess the following qualities and knowledge on qualification.

1. Patient Care

The candidates need to be trained in the following:

(i) Basic Sciences: He should possess basic knowledge of (1) the structure, function and development of the human body as related to Rehabilitation Medicine. (2) Knowledge of the factors which may disturb these mechanisms and the resulting disorders of structure, function and psycho social aspects related to Rehabilitation Medicine.

(ii) Clinical Knowledge: He should attain understanding of and develop competence in executing common general laboratory procedures employed in diagnosis and research in rehabilitation medicine. He should be able to practice and handle independently most day to day problems as encountered in Rehabilitation Medicine. He should also be able to recognise the need to seek further help, when required.

(iii) Clinical Rehabilitation Medicine: Given adequate opportunity to work on the basis of graded responsibilities in out-patients, in-patient and operation theatre on a rotational basis in the Department from the day of entry to the completion of the training programme the students should be able to:-

(a) acquire scientific and rational approach to the diagnosis of cases presented.

(b) acquire understanding of and develop inquisitiveness to investigate to establish the cause and effect of the disease.

(c) perform all routine and special investigations and interpret the results of these investigations in the light of clinical presentation.

(d) manage and treat all types of cases in rehabilitation medicine that occur commonly.

(e) demonstrate the knowledge of the pharmacological aspects of drugs used in rehabilitation medicine.

(f) competently handle and execute safely all the routine rehabilitative surgical procedures.

(g) demonstrate understanding of the fabrication and competence in prescription and check out of orthoses and prostheses.

(h) understand the principles, prescription and supervision of physiotherapy, occupational therapy, psycho-socio-vocational counselling.

(iv) Environment and Health: He should understand the effect of environment on health and be familier with the epidemiology of common diseases in the field of rehabilitation medicine. He should be able to integrate the preventive and promotive methods with the curative and rehabilitative measures in the treatment of diseases.

(v) Community Rehabilitation Medicine: He should be able to practice rehabilitation medicine at the door step of community. He should be familier with the common problems occuring in rural areas and deal with them effectively.

Given an opportunity to participate in surveys and camps, the students should be able to:-

(a) organise and conduct surveys in rural, urban and industrial communities and in specified groups of population;

(b) organise and conduct camps for disability prevention and rehabilitation of disabled persons.

(c) guide rehabilitation workers at the peripheral level for rehabilitaiton of disabled.

(vi) Current Developments: He should be familiar with the current developments in Rehabilitation Medicine.

2. Research

The candidate should be able to

(a) recognise a research problem.

(b) state the objectives in terms of what is expected to be achieved in the end.

(c) plan a rational approach with full awareness of the statistical validity.

(d) spell our the methodology and carry out most of the technical procedures required for the study.

(e) accurately and objectively record on systamatic lines the results and observations made.

(f) analyse the data using appropriate statistical approach.

(g) interpret the observations in the light of existing knowledge and highlight in what ways the study has advanced existing knowledge on the subject and what remains to be done.

(h) draw conclusions which should be reached by logical deduction and he should be able to assess evidence both as to its reliability and its relevance.

(i) write a thesis in accordance with the prescribed instructions.

(j) be familiar with the ethical aspects of research.

3. Teaching

He should be able to plan educational programs in Rehabilitation Medicine in association with his senior colleagues and be familiar with the modern methods of teaching and evaluation.

The candidate should be able to :-

(a) To deliver lectures to undergraduates and hold clinical demonstrations for them.

(b) To write and discuss a seminar or a symposium and critically discuss it with his colleagues and juniors.

(c) To methodically summarise internationally published articles according to prescribed instructions and critically evaluate and discuss each selected article.

(d) To present cases at clinical conference, discuss them with his colleagues and guide his juniors in groups in evaluation and discussion of these cases.

D. CANDIDATE SELECTION

This would be made on the basis of the following criteria, modified by AIIMS, from time to time:-

(i) Essential Qualifications: For admission to this course, the candidates must have passed M.B.B.S. examination of a recognised University and should have completed compulsory rotatory internship.

(ii) Competitive Entrance Examination as for MD/MS entrance examination of AIIMS.

E. THE DESIGN AND THE COURSE CONTENT

1. Duration of the course and rationale: Duration would be three years, as is the requisite period for award of MD/MS degree at the AIIMS.

2. Structure of the course: There would be no division of the course into sections/ semesters.

3. Course content: The course content would include the following:-

   (1) Philosophy, history, scope and need of Rehabilitation Medicine.

   (2) Disability process and epidemiology of Disability.

   (3) Evaluation Process:

   – Histroy taking,

   – Clinical evaluation, Muscle Charting, Joint Range of Motion,

   – Goniometry, outcome measures

   – Investigations, Electrodiagnosis

(4) Rehabilitation of patients with spinal cord injury:-
- Anatomy and physiology of the spine and spinal cord
- Mechanism of injury and fractures of spine
- Clinical presentation and acute management
- Rehabilitation of a praplegic.
- Rehabilitation of a quadriplegic
- Management of bladder and bowel
- Management of complications of spinal cord injury

(5) Rehabilitation of patients with amputations:-
- Indications, levels and surgical techniques
- Immediate fitting of prosthesis
- Rehabilitation of upper and lower limb amputees

(6) Rehabilitation of patients with neurologic disorders, e.g. neuropathies, Bell's Palsy, LGB syndrome.

(7) Rehabilitation of patients with diseases of muscles: e.g. Muscular dystrophy
- Introduction, types, inheritance
- Presentation, diagnosis
- Management and Rehabilitation

(8) Rehabilitation of patients with neurogenic bladder, incontinence, and principles of urodynamic studies.

(9) Rehabilitation of patients with diseases of metabolic disorders:
- Osteoporosis, Osteomalacia, rickets
- Diabetes Mellitus
- Gout, Inborn errors of Metabolism

(10) Rehabilitation of patients with diseases of back pain
- Introduction, causes, presentation
- Rehabilitation and conservative management.

(11) Rehabilitation of patients with diseases of neck pain.

(12) Rehabilitation of patients with Cerebral Palsy

(13) Rehabilitation with patients with diseases of pulmonary diseases:-
- Introduction, diagnosis, investigations
- Rehabilitation of C.O.P.D. and other pulmonary conditions

(14) Rehabilitation of patients with cardiovascular diseases
- Anatomy and physiology of heart, coronary artery disease, Myocardial infarction, Hypertension, Arrythmia.
- Principles of cardiac rehabilitation
- Rehabilitation of post M.I. patient and post coronary artery bypass surgery patient

(15) Rehabilitation of patients with Stroke

- Introduction causes, presentation, investigation
- Initial management and prevention of complicatgions
- Rehabilitation of a hemiplegic patient

(16) Rehabilitation of patients with head injury.
- Introduction, causes, mechanism presentation
- Rehabilitation of a head injured patient

(17) Rehabilitation of patients with poliomyelitis
- Introduction, pathogenesis
- Clinical presentation, acute management
- Rehabilitation of polio patient
- Prevention of polio

(18) Rehabilitation of patients with Orthopaedic problems
- Plaster applications
- Management of Volkmann's Ischaemic Contracture
- Hand Rehabilitation
- Fractures and complications.
- Spinal deformities
- Congenital deformities
- C.T.E.V.
- Common foot disorders
- Osteoarthritis
- Post-surgical patient
- Hip and knee contractures
- Correction of Equinus deformity
- Principles of tendon transfers of foot and ankle
- of knee and hip.
- Foot stabilization operations -
- basic principles
- various techniques

(19) Rehabilitation of patients with Haemophilia

(20) Rehabilitation of patients with Arthritis

(21) Rehabilitation of patients with Leprosy

(22) Rehabilitation of patients with burns

(23) Rehabilitation of patients with Ankylosing Spondylitis

(24) Rehabilitation of patients with Spina bifida and Meningomyelocele

(25) Rehabilitation of patients with peripheral Nerve Inj.

(26) Rehabilitation of patients with chronic pain

(27) Rehabilitation of patients with sports injuries
(28) Geriatric Rehabilitation :
- Introduction, Senescence, problems of ageing
- Rehabilitation of a geriatric patient

(29) Rehabilitation of patients with cancer related disability
- Introduction, relative incidience, cancer pain
- Colostomy, mastectomy, Laryngectomy management

(30) Principles of rehabilitation medicines as applied to Obstetrics and Gyanecology.
(31) Rehabilitation of patients with Vestibular system preoblems
(32) Principles of disability evaluation
- Basic Principles
- Various methods

(33) Computers in Rehabilitation Medicine
(34) Organisation and administration of Rehabilitation Medicine Services.
(35) Principles of Physical Modalities
(36) Rationale of Physical Therapy
(37) Rationale of Occupational Therapy
(38) Rationale of A.D.L. (Activities of Daily Living)
(39) Rationale in the use of Wheel Chair
(40) Human Walking. Gait analysis and training
(41) Orthotics:-
- Introduction, definitions, indications
- Biomechanics, Prescription Writing, Check out
- Different types of orthoses for lower,upper limbs and spine
- Recent advances in Orthotics

(42) Prosthetics:-
- Introduction, definitions, indications
- Biomechanics, prescription writing
- Assessment of patient, check out of prosthesis
- Upper and lower limb prostheses
- Recent advances in prosthetics

(43) Principles of rehabilitation of visually handicapped.
(44) Principles of rehabilitation of mentally retarded.
(45) Principles of management of hearing and speech impaired.
(46) Principles of management of psychological problems.
(47) Principles of management of social problems.
(48) Principles of management of vocational problems.
(49) Recent Advances
(50) Law in relations to disability.

(51) Joint and Soft tissue injection techniques.

(52) Medical Emergencies in Rehabilitation Medicine.

(53) Sexuality in Disabled.

F. MODES OF STUDENT LEARNING

The training programmes would be divided into theoretical, clinical and practical in all aspects of the delivery of the rehabilitative care, including methodology of research and teaching.

(i) **Theoretical:** The theoretical knowledge would be imparted to the candidates through discussions, symposia and seminars. The students are exposed to recent advances through discussions in journal clubs. These are considered necessary in view of an inadequate exposure to rehabilitation medicine in the undergraduate curriculum. Knowledge in applied basic and para- clinical and clinical subjects would be imparted during clinical case discussion in the OPD, speciality clinics and bedside.

(ii) **Symposia:** Residents would be required to present topics to the combined class of teachers and students. A free discussion would be encouraged in these symposia. The topics of the symposia would be given to the residents with the dates for presentation. The topics would be as follows:-

1. Human walking
2. Spinal Orthoses
3. P.T.B. Prosthesis
4. Pressure Sores
5. Spasticity
6. Squatting A.K. Prosthesis
7. Bell's Palsy
8. Disc Prolapse
9. Cervical Spondylosis
10. Muscular Dystrophy
11. Neuro developmental Techniques
12. Cardiac Rehabilitation
13. Upper extremity in stroke
14. Post head injury Rehabilitation
15. Post polio paralysis and syndrome
16. Scoliosis
17. Osteo Arthritis of Knee joint
18. Arthroplasty rehabilitation
19. Extent of Disability problem in India
20. Leprosy Rehabilitation

(iii) **Clinical:** The Residents would be attached to a faculty member to be able to pick up methods of history taking and examination in rehabilitation practice. During this period the resident would also be oriented to the common problems that come to the Department after 6 months, the resident would be allotted new and old cases, he would work up these cases including prescription writing. The residents would be supervised by Senior Residents and faculty members.

(iv) **Bedside:** The residents would work up cases, learn management of cases by discussion with the senior resedents and faculty of the department.

(v) **Surgery:** The resident would be provided with an opportunity to learn, assist and perform operations including post-operative care with the assistance of the Senior Residents and/or under the direct supervision of a faculty member.

(vi) **Journal Clubs:** This would be a weekly exercise. Following journals have been chosen for discussions:-

(a) Indian Journal of Physical Medicine and Rehabilitation.
(b) Archives of Rehabilitation Medicine
(c) Scandinavian Journal of Rehabilitation Medicine.
(d) Spinal Cord
(e) Prosthetics Orthotics International
(f) Indian Journal of Orthopaedics
(g) Stroke
(h) Arthritis and Rheumatism
(i) Indian Pediatrics
(j) Neurology India
(k) Indian Journal of Disability and Rehabilitation
(l) Sports training, Medicine and Rehabilitation
(n) Journal of Rehabilitation Research and Development
(o) National Medical journal of India.

The candidate would summarise and discuss the article critically. The contributions made by the article in furtherance of the scientific knowledge are highlighted.

(vii) **Research:** The student would carry out the research project and write a thesis following the prevailing rules of the Institute. He would also be given exposure to partake in the research prijects going on to learn their planning, methodology and execution to learn various aspects of research.

G. ASSESSMENT SYSTEMS

The components of assessment would be:-

1. Evaluation of thesis.
2. Written papers, which would consist of 4 Theory Papers

List of Papers

Paper I: Basic Sciences as applied to Rehabilitation Medicine.

Paper II: Rehabilitation Medicine II.

Paper III: Rehabilitation Medicine III.

Paper IV: Applied aspects of Rehabilitation Medicine.

3. Clinical Practical Examination.
4. Viva voce.

These would be done as per the standard criteria, modified from time to time for MD/MS evaluation/ examination at the AIIMS.