

CURRICULUM FOR D.M. COURSE
IN
ENDOCRINOLOGY

MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES
NASHIK

SECTION –I

Goals

The aim of the course is to develop human resources and personnel in the field of Endocrinology who shall

1. provide the health care to the patients needing endocrine care
2. teach and train future undergraduate and postgraduate medical students and junior doctors in Endocrinology in Medical Colleges, Institutions and other Hospitals.
3. acquire a spirit of scientific enquiry and carry out and guide research to improve the practice of the art and science of Endocrinology
4. have management capabilities to make health care more cost-effective.
5. recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy.
6. be aware of the contemporary advances and developments in the field of Endocrinology.

Objectives

At the end of the DM Endocrinology course, students shall be able to:

1. practice the art and science of Endocrinology and seek and provide consultation as required. He will have knowledge, skill and attitude to provide comprehensive endocrine care.
2. conduct research and communicate the findings, results and conclusion to his fraternity.
3. acquire necessary skills of teaching and training his junior colleagues, medical students and paramedical health workers
4. keep abreast with the latest developments by self-learning and /or participating in continuing Medical Education programmes.
5. organise and manage administrative responsibilities for routine day to day work and be able to manage situations calling for emergency interventions in the sphere of endocrine care and also routine problems in their areas.
7. exhibit awareness of the importance of audit and the need for considering cost-effectivity in patient management.
8. deliver preventive and rehabilitative care.
9. play the assigned role in the implementation of National Health Programmes, effectively and responsibly.
10. demonstrate competence in basic concepts of research methodology and epidemiology and be able to critically analyse relevant published research literature.
11. Function as an effective leader of a Health team engaged in health care, research or training.

SECTION II :

COURSE CONTENT

Knowledge:

1. Endocrinology which includes
 - a. Diabetes Mellitus
 - b. Thyroid.
 - c. Neuroendocrinology and Pituitary Disease
 - d. Growth and Maturation
 - e. Adrenal Gland and Adrenal Hormones.
 - f. Reproductive Endocrinology and Sexual Function in both males and females.
 - g. Parathyroid Gland, Calcitropic Hormone and Bone Metabolism.
 - h. Obesity, Anorexia and Nutrition.
 - i. Endocrinology of Pregnancy.
 - j. Endocrine Tumor Syndromes.
 - k. Endocrine changes in critically in Patient.
 - l. Cardiovascular Endocrinology.
 - m. Immunology and Endocrinology
 - n. Clinical epidemiology relevant to endocrinology.
 - o. Endocrine involvement in other medical disorders

And management of the relevant disorders

2. Relevant theoretical aspects of Surgical endocrine procedures
3. Relevant Radiological and nuclear medicine aspects: reading imaging modalities like USG, CT, MRI, nuclear medicine scans, DXA scans etc as applied to endocrine disorders.
4. Basic sciences including anatomy, physiology, laboratory methods and molecular biology as applied to endocrinology.
5. Hormone assay procedures.
6. Record keeping (case).
7. Computer databases for dealing with endocrine disorders.
8. Clinical, laboratory & basic Research including statistical methods.

9. Medical Nutrition Therapy (Student should be able to assess the diet of a patient and give proper advice)
10. Medical audit.
11. Extramural training rotation should be encouraged.

Skills

1. Decision-making, clinical diagnosis, investigations, planning, interpreting and executing endocrine testing and management of Endocrine problems.
2. Dynamic endocrine testing
3. Monitoring treatment of endocrine conditions
4. Intensive care of endocrine emergencies
5. Counseling patients and relatives with endocrine disorders including Diabetes education and training diabetes educator
6. Ability to carry out scientific research, review and present research findings to audience.
7. Ability to teach undergraduate & postgraduate students in the subject.

SECTION – III:

Teaching / Learning Methods And Activities

Throughout the course of training the emphasis shall be on acquiring knowledge, skill and attitudes through first hand experiences as far as possible. The emphasis will be on self learning rather than on didactic lectures. The entire period shall be 'in service' training programme based on the concept of 'learn as you work' principle.

The teaching learning activities would consist of -

1. Participating in OPD and Inpatient management.
2. Presentation of cases to the faculty with discussion.
3. Preparation and presentation of seminars on allotted topics.
4. Journal clubs.
5. Clinicopathological meeting.

However to reinforce the learning the following methods shall be used to acquire knowledge, skills and attitudes.

1. Lectures prepared and presented by students under supervision.
2. Seminars, symposia, panel discussion of suitable topics, moderated by teachers.
3. Journal clubs moderated by teachers.
4. Clinicopathological conferences.
5. Pedagogic training programmes (intramural & extramural)
6. Inter-departmental meetings/discussions of interesting cases.

7. Preparation and presentation of a dissertation.

8. Patient care work in OPD and wards -The students shall be provided facilities to manage cases of higher and greater complexity by allowing them graded responsibility as the course progresses. Each P.G would have an opportunity to present at least 2 P.G. lectures per year and 8-10 journal clubs per year in addition to about 20-25 cases during the clinical meetings.

They shall also be allowed to perform procedures under supervision and /or delegated authority depending on the experience and proficiency gained. The Heads of the Unit and other consultants and guides shall be in-charge of the supervision and delegation of authority and responsibility to work.

9. Attend and participate in conference, workshops, field visits, camps, technical exchange programmes etc., and share knowledge and experience with others.

Dissertation:

A subject for dissertation should be decided. within the first 6 months after joining the course. The emphasis on dissertation work would be on review of literature, maintaining a record of references, preparation of a plan of study, documentation of aims, planning the methodology, collection, documentation and analysis of data, comparison of data

obtained with others in literature, drawing conclusions and writing a summary. The subject of dissertation may be prospective or retrospective. Analysis of less than 25 cases should not be permitted unless it is a rare disease. The dissertation topics should be discussed in a department meeting prior to completion of 6 months and protocol of study is to be approved by the Department faculty. 4 copies of completed dissertation after appropriate certifications by the guide and co-guide should be submitted at the end of the 2½ years (There will therefore be 2 complete years after submission of protocol and the final dissertation, eg- A candidate who has been admitted to the course in August 2006 would submit his dissertation by end of January 2009.) The dissertation shall be evaluated independently by the internal examiners and two external examiners under the following heading:

- 1) Approved
- 2) Not approved

In all cases the approval shall be given before 3 months of the date of appearing for the examination and this will be essential before the candidate is allowed to appear for the written examination.

Publishing data in a peer reviewed journal is desirable and will be credited in the intramural assessment

Leave

Attendance

Since it is a resident in house work as you learn programme, it is desirable that candidates should have 100% attendance to enable this objective to be achieved. However a minimum of at least 80% attendance per year would be required before they are allowed to appear for the examination.

Affective Domain

Development of attitude is a very important part of training. It would be the constant endeavor of the faculty to develop desirable attitudes in the P.G. trainees during the course by personal examples, interaction and group discussion. Constant watch will be maintained during their work in the wards to ensure that this objective is being met. Although there will be no formal evaluation of attitude, some aspects of this domain would be covered during the formative evaluation as per the enclosed proforma for continued internal assessment.

SECTION IV

Organization Of Course Programme:

1. Admission: shall be through a competitive written examination of the objective variety conducted by state entrance board.

2. Eligibility: MD in General Medicine or Pediatrics

3. Number of students: Each year students will be enrolled maintaining a teacher/students ratio of 1:1.

4. Duration of course shall be of 3 years after completion of MD or equivalent degree. A minimum of 80% attendance and achievement of satisfactory standards in both theoretical and clinical endocrinology would be mandatory before being allowed to appear in the University examination.

5. Structured Training Programme

1st Year - Out patient / Inpatient management

- Endocrine testing
- Patient education
- Assisting & managing emergencies
- Starting research activity & Biomedical Statistics
- Computer data entry
- Teaching Undergraduate and diploma students

2nd Year - In addition to patient management

- Patient counseling
- Endocrine testing
- Attending surgeries
- Radiology & pathology training
- Nuclear Medicine
- Laboratory methods
- Computer data entry
- Teaching Undergraduate (MBBS), diploma, Postgraduate (MD Medicine) and 1st year DM students

3rd Year - Out patient / Inpatient management

- Patient counseling
- Finalization & submission of research projects
- Teaching and Guiding Undergraduate (MBBS), diploma, Postgraduate (MD Medicine) and 1st year & 2nd year DM students.

Section V

EVALUATION

Shall consist of formative and summative assessment.

Formative assessment.

The purpose of continuous course assessment is mainly.

- i) To ensure the habits of regularity, punctuality and disciplined working amongst postgraduates.
- ii) To give periodic feedback regarding their performance to enhance their learning in various areas i.e. patient care, research teaching, etc.
- iii) To monitor attainment of clinical and technical skills to ensure adequacy of training.
- iv) To be available to the internal examiner at the time of final examinations to discount the possibility of a single adverse performance influencing the pass or fail situation by using it to give an idea of the continued performance of the candidate during the three years of training to the external examiners, so that candidates who have otherwise been rated as satisfactory in their internal evaluation can be given more chances in the final examinations and overcome the adverse effects of doing badly in any one case. However, internal evaluation marks cannot directly be used for influencing the outcome of the summative assessment in the course of using it to fail a candidate who has otherwise done well in the final examinations or to pass a candidate who has done consistently bad in several cases.

Procedure of formative evaluation.

Formative evaluation will be carried out over the following 6 activities of the P.G. resident. The exact mode of evaluation may be modified by the department. A suggested proforma for internal assessment is enclosed in annexure 1

- 1) Ward work. This will be done by the consultants in the unit concerned at intervals of 6 months.
- 2) Case presentation
- 3) P.G. Lecture
- 4) Journal club
- 5) Internal Assessment Exams
Theory: 100 marks
Practical: 100 marks
- 6) General assessment of affective function attitude by medical & paramedical staff.

Summative Assessment

Summative assessment consists of two parts:

Evaluation of thesis/dissertation prepared by the candidates and

Final examination consisting of 4 papers theory papers and Clinical Evaluation.

Thesis/dissertation

All candidates on admission will be allotted to one of the department faculty who have fulfilled the requirement to be guides for purposes of guiding Dissertation/thesis. The topic for dissertation shall be finalized and discussed in the departmental faculty meeting and allotted to the individual candidates before the completion of 6 months after admission. The purpose of dissertation is to develop in the candidate the ability to perform an independent study keeping the principles and research methodology in mind. The candidate will therefore work on the prospective problem either within the department or in collaboration with other departments. There will be continuous monitoring of the dissertation work by the guides and co-guides and by the other department staff throughout the course. The candidate will present the progress of the dissertation to the faculty at regular intervals. The completed dissertation should be submitted 6 months before final examination. The dissertation shall be evaluated independently by the internal examiners and two external examiners under the following heading:

- 3) Approved
- 4) Not approved

In all cases the approval shall be given 3 months before the date of appearing for the examination and this will be essential before the candidate is allowed to appear for the written examination.

Eligibility for appearing in the DM Examination.

Student should satisfy all the following criteria

- Equal to or more than 80% attendance
- Satisfactory Internal Assessment
- Approval of dissertation

University Examination:

WRITTEN EXAMINATION:

(As per Direction No. 01/2008 dtd. 26/05/2008 & practical scheme is as per revised practical marksheet.)

Though the Evaluation is by marks, the result will be declared only as “pass” and “fail” as there is no provision of giving mark list to the trainee. A candidate is declared “pass” if he acquires more than 50% marks or more in both theory and practical/viva voce individually

Candidates appearing for the second time are not required to submit another dissertation.

Criteria for medal will be based on the following

1. Highest Scoring student
2. The minimum marks attained by the highest scoring student should be 75% for qualifying for medal/merit

Annexure I:

Proforma for Internal Evaluation

Evaluation form for Postgraduates Clinical Work

(To be completed once in 6 months by respective Unit Heads)

Name:

Date:

Points to be considered:

1. Punctuality
2. Regularity of attendance
3. Quality of Clinical Work- OPD, Emergency and routine ward work
4. Maintenance of case records
5. Presentation of cases during rounds
6. Investigations work-up
7. Bedside manners
8. Rapport with patients
9. Undergraduate and post graduate teaching (if applicable)
10. Others:

Score:

Signature:

Guidance for scoring

- 1 Poor
- 2 Average
- 3 Above Average
- 4 Very Good
- 5 Excellent

Proforma for Internal Evaluation

Evaluation form for Postgraduates Postgraduate Seminar

Name :

Date :

Signature :

1. Presentation
2. Completeness of preparation
3. Coherence of presentation
4. Use of audiovisual aids
5. Understanding of subject
6. Ability to answer questions
7. Time scheduling
8. Consulted all relevant literature(including Indian)
9. Overall performance
10. Others :

Score:

Signature:

Guidance for scoring

- 1 Poor
- 2 Average
- 3 Above Average
- 4 Very Good
- 5 Excellent

Proforma for Internal Evaluation

Evaluation form for Postgraduates Clinical Meeting

Name:

Date:

Points to be considered:

1. Completeness of history
2. Whether all relevant points elicited
3. Coherence of presentation
4. Logical order
5. Mentioned all positive and negative points of importance
6. Accuracy of general physical examination
7. Whether all physical signs missed or misinterpreted
8. Diagnosis: whether it follows logically from history and findings.
9. Investigations required –
 - complete list –
 - relevant order and cost effectiveness
 - interpretation of investigations

11. Overall

Ability to react to questioning – Whether answers relevant and complete

Ability to defend diagnosis

Ability to justify differential; diagnosis

Confidence

Others

Score:

Signature:

Guidance for scoring

- 1 Poor
- 2 Average
- 3 Above Average
- 4 Very Good
- 5 Excellent

Proforma for Internal Evaluation

Evaluation form for Postgraduates Continuous Evaluation of Dissertation Work

Name:

Date:

Points to be considered:

1. Interest shown in selecting a topic
2. Appropriate review
3. Discussion with guide and other faculty
4. Quality of protocol
5. Preparation of proforma
6. Regular collection of case material
7. Depth of analysis/discussion
8. Departmental presentation of findings
9. Quality of final output
10. Defence in Viva
11. Others:

Score:

Signature:

Guidance for scoring

- 1 Poor
- 2 Average
- 3 Above Average
- 4 Very Good
- 5 Excellent

Proforma for Internal Evaluation

Evaluation form for Postgraduates Journal Club

Name :

Date :

Points to be considered:

1. Choice of articles
2. Coherence of presentation
3. Whether he/she has understood the purpose of the article
4. How well did he/she can critically evaluate the article
5. Whether cross references have been consulted
6. Whether other relevant publications have been consulted
7. His Overall impression of articles
 If good - reasons:
 If poor - reasons:
8. Audiovisual aids
9. Response to questioning
10. Overall presentation
11. Others:

Score:

Signature:

Guidance for scoring

- 1 Poor
- 2 Average
- 3 Above Average
- 4 Very Good
- 5 Excellent

Log (Performance record book)

Maintenance of performance record Log book is mandatory. Certified and assessed copy should be made available at the time of practical examination for review by examiners

Log Book should contain:

- 1) **Certificate** duely signed by teacher, head of department, head of institute – stating – Dr.....has worked in department from ---- to ---- for a period of 3 years. This performance record book contain authentic record of work done and assessment for last 3 years.
- 2) **Record of training**
Name of the trainee-
Hospital-
Training period-
Name of teacher-
- 3) **Posting in Endocrinology**
 - 1) Clinical endocrinology
 - 2) Laboratory endocrinology
 - 3) Diet
 - 4) OPD consultation
 - 5) Nuclear Medicine
 - 6) Pathology
- 4) **Journal club**

| | | | |
|------|---------|-------------------------------|------------------------------------|
| Date | Article | Name of Journal- Year/Vol- | Assessment by faculty Signature |
|------|---------|-------------------------------|------------------------------------|
- 5) **Seminars/Topic reviews**

| | | |
|------|-----------------|------------------------------------|
| Date | Topic / Subject | Assessment by faculty Signature |
|------|-----------------|------------------------------------|
- 6) **Case presentations:**

| | | |
|------|------|---|
| Date | Case | Teacher's signature Assessment score |
|------|------|---|
- 7) **Death Audit / C P C**

| | | |
|------|----------------|------------------------|
| Date | Case discussed | Assessment & Signature |
|------|----------------|------------------------|
- 8) **Dynamic tests**

| | | | |
|------|-----------------|------|---------------------------|
| Date | Name of patient | Type | Complications Observed |
|------|-----------------|------|---------------------------|
- 9) **Teaching activity**

| | | |
|------|-------|-------|
| Date | Topic | Class |
|------|-------|-------|

- 10) **Inter Collegiate Clinical Meeting:** List of cases presented with date
- 11) **Surgeries attended with Cases summaries.**
- 12) **Participation in Research Activity**
Name of project Duration
- 13) **Conferences / Workshop attended/ papers presented / Publications**

Suggested Reading

Text Books: (latest edition available in the country)

1. William's textbook of Endocrinology
2. Werner and Ingbar's The Thyroid – A fundamental and clinical text.
3. Current therapy of Endocrinology & Metabolism by Badin
4. Clinical Gynecologic Endocrinology & Infertility by Speroff
5. Joslin's Textbook of Diabetes Mellitus
6. Endocrinology by Leslie J. De Groot
7. Metabolic bone disease by Avioli.
8. Text book of Diabetes Mellitus- Pickup William
9. Pediatric Endocrinology: Sperling
10. Manual of Endocrinology and Metabolism- Normal Lavin

Journals for Review:

1. Journal of Clinical endocrinology & Metabolism
2. Endocrine Reviews
3. Diabetes Care
4. Diabetes Review
5. Diabetologia
6. Diabetes
7. Clinical Endocrinology
8. Endocrinology & Metabolism clinics of North America
9. The Year book of Endocrinology
10. Journal of Association of Physicians of India
11. Journal of Indian Council of Medical Research (ICMR)
12. The New England Journal of Medicine
13. The Lancet
14. The American Journal of Medicine

15. Annals of internal medicine
16. Post Graduate Medical Journal
17. Hormone Research
18. Current opinion in Endocrinology and diabetes
19. Indexed Endocrine journals from India if available