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<td>Psychiatry</td>
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</table>
Generic skills

- History taking
- Clinical examination
- Diagnosis and clinical reasoning
- Therapeutics and safe prescribing
- Communication skills
- Medical ethics
- Information management
- Evidence and guidelines
- Infection control
- Audit
MISSION AND RATIONALE FOR CURRICULUM DEVELOPMENT

The mission of the Egyptian fellowship scientific council for general internal medicine is to equip the Egyptian internists with all necessary competencies to practice as specialists of general internal medicine. This will be achieved through provision of an up-to-date and feasible curriculum benchmarked against international standards of best practice.

Internists form a good volume of the main foundation in the health care profession and most of the community health problems are related to internal medicine. Further, the main bulk of all medical knowledge lies within the curriculum of internal medicine and most recent sub-specialties had emerged from internal medicine.

Internists are the experts in management of patients in a holistic way. They are the backbone in most of the medical consultations as they have the ability to assess and diagnose complex medical problems, particularly those involving multiple systems, and determine their relative priority.

Accordingly, fulfilled up-to-date curriculum for internal medicine specialty is of utmost importance.

The first version of this curriculum was developed in 2005. This new version (2012) reflects the recent advances in the practice of Internal Medicine and complies with the international standards. The Internal Medicine scientific board is committed to review and update this curriculum every three years to catch up with recent advances and rapid changes in scientific evidence of medicine. This revision will also consider quantitative and qualitative evaluation of the training program and assessment system.

AIMS OF THE INTERNAL MEDICINE CURRICULUM

Graduates who complete the Internal Medicine training successfully will be able to independently and safely manage common and important conditions in Internal Medicine.

Competencies of graduates of this program include:

1. Comprehensive knowledge to understand the epidemiology, etiology, pathophysiology, clinical picture and management approaches for common and important diseases encountered by internists in Egypt and Arab region.
2. Clinical decision making skills regarding data gathering, interpretation of patient data, differential diagnosis, management plan and follow up.
3. Risk stratification of their patients, assessment of prognosis and disease complications.
4. Effectively utilize interpersonal communication skills to exchange information with patients and their families as well as to work effectively among a team of health providers.
5. Apply disease prevention and health promotion tools in order to decrease disease burden and improve quality of life.
6. Awareness of own limitations and appropriately refer patients to specialized care.
7. Commitment of life-long development of own medical knowledge and skills.
8. Professional conduct of medical practice and adherence to code of medical ethics.

**ENTRY REQUIREMENTS**

Entry to the internal medicine training program has the following requirements for trainees who are affiliated to MOHP:

1. Graduation from a medical school and successful completion of the pre-registration house officers’ year.
2. Enrollment in the Ministry of health and population residency program as an internal medicine resident.
3. Trainees, who finished their master degree in internal medicine will join the program from its third year and are exempted from the first part exam. It is to be noted that this rule only applies for those who got their master within the last five years. If more than five years passed, they must resite for the first part exam.
4. Trainees who finished their internal medicine diploma might join the program from its second year. However, they must site for the first part exam.
5. Trainees should pass successfully through the first part Fellowship Exam before being promoted to the third year of training.

**STRUCTURE AND REGULATION OF INTERNAL MEDICINE TRAINING PROGRAM**

The Egyptian Fellowship Board requires four years of supervised training program that must be conducted in accredited hospitals before sitting for the final examination. A list of accredited hospitals will be announced yearly by the Board.

**FIRST AND SECOND YEARS OF TRAINING**

The trainee should spend the first two years of training in general internal medicine practice (including medical emergency) and internal medicine ICU.

a. Twenty months in general internal medicine practice according to the weekly schedule as follows:

<table>
<thead>
<tr>
<th>OUT-PATIENT</th>
<th>1-2 days/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARD</td>
<td>Daily</td>
</tr>
<tr>
<td>EMERGENCY ROOM</td>
<td>1 shift/week</td>
</tr>
<tr>
<td>SCIENTIFIC ACTIVITIES*</td>
<td>One day/week</td>
</tr>
<tr>
<td>NIGHT SHIFTS</td>
<td>(1-2/week)</td>
</tr>
</tbody>
</table>

*supervised clinical rounds, journal clubs, conference, lectures, Morbidity and mortality conference

b. Four months in ICU rotation after spending at least six months of training in internal medicine activities.
THIRD AND FOURTH YEARS OF TRAINING

During the third and fourth years of training, trainees must be trained in various internal medicine subspecialties mentioned in the curriculum. The training centers for this part of training should have internal medicine subspecialty clinics that ensure full coverage of common cases and procedures mentioned in the curriculum. Otherwise trainees will be attached to accredited specialized training centers.

Trainees will have rotations as follows:

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology</td>
<td>Two months</td>
</tr>
<tr>
<td>Nephrology</td>
<td>Two months</td>
</tr>
<tr>
<td>Fever Hospital</td>
<td>One month</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>Two months</td>
</tr>
<tr>
<td>Chest</td>
<td>Two months</td>
</tr>
<tr>
<td>Other subspecialties according to available training location (Neurology, psychiatry, Rheumatology, hematology, endocrine, dermatology, ICU)</td>
<td>Three months (one month per each subspecialty)</td>
</tr>
<tr>
<td>General internal medicine practice so as trainees would have chances to apply what they have learnt and be capable of supporting their junior colleagues</td>
<td>Twelve Months</td>
</tr>
</tbody>
</table>

IMPORTANT NOTICE

Trainees must pass successfully all the foundation courses before being promoted to the second part. (See foundation courses)

TRAINEES’ DUTIES

1. They should be actively involved in patient care including sharing in making decisions about diagnosis and management under supervision of the consultants.
2. They must attend 75% of Lectures and other weekly scientific activities including clinical rounds, tutorials and journal clubs.
3. Their performance will be monitored and evaluated by trainers and supervisors. Trainers are expected to report their trainees’ performance on monthly basis to the Egyptian Fellowship Board. Academic Supervisors are to report the performance of the trainees on quarterly basis.
4. All trainees will work as residents in the training specialty and they must fulfill all residents' jobs defined by supervisors and trainers.
SPECIFIC REQUIREMENTS AND OBLIGATIONS

Obligations of trainees towards the Admitted Patients
A. The trainees will be responsible for supervised admission of patients from the outpatient or emergency.
B. They will share in the completion of the following documents under supervision.
    Complete history and physical examination form.
    Investigation requests, (laboratory, radiology, pathology, endoscopy, etc.)
    Reporting results of the investigations and consultations with other colleagues.
    Daily progress notes.
    The plan of management including medication sheets
    Discharge summaries.
    Sick leaves and medical reports.
C. Trainees should inform senior staff of any high-risk patient admission.

Obligations of trainees towards patients in outpatient Clinics
 The trainees should attend the internal medicine outpatient clinics as well as clinics related to the rotation in different subspecialties as arranged by the trainers.
 They should participate in different patients' interviews and share in management under supervision.

Mandatory Clinical and Academic Activities
A. The trainees shall be required to attend and participate in the mandatory academic and clinical activities of the department. Such activities within any training rotation/period include:
    Daily morning patients' rounds and meetings.
    Clinical round presentation, at least once weekly, to cover various topics, problems.
    Journal club meeting.
    Interdepartmental Meetings/ morbidity & mortality meetings.
    Grand staff round
B. Areas of the curriculum that are not covered in various educational activities throughout the program will be fulfilled by the trainees through self-directed learning.
C. The trainees as well as their trainers are responsible for developing the learning agreement (appendix 6) at the start, middle and the end of each rotation. This agreement will emphasize a learner- center approach and guarantee commitment of the trainer and trainee towards the agreed on objectives. It will also organize the process of learning and assessment of procedural skills.
D. By the end of each rotation trainees are required to conduct the rotation post assessment form (appendix 3) and deliver it to the specialty coordinator.

Job description of trainers
1. Provide training and teaching for the trainees according to the provided curriculum and intended learning outcomes
2. Supervise various activities of the trainees
3. Structure the rotation plan of the trainees in the different medical specialties and to develop the learning agreement for each trainee during that rotation
4. Insure fulfillment of the logbook activities according to year of training and the required level of competence and signing them
5. Evaluate the performance of each trainee after each rotation (or at least every three months) using the Trainer Appraisal Report (TAR) as a workplace based assessment tool, with feedback to the trainee, and filling out the form which is submitted to the Egyptian Board Headquarters (appendix 2)
6. Develop and submit a monthly report about the various scientific activities and overall performance of trainees in the Trainer monthly report form (appendix 4)
7. With the trainees develop learning agreements (appendix 6) and conduct follow-up on the preset dates
8. Attend meetings with the educational supervisor to discuss learning progress and problems

**JOB DESCRIPTION OF THE EDUCATIONAL SUPERVISORS**

1. Check and evaluate the progress of the training program
2. Evaluate the trainers monthly reports and propose remedial actions for any deficiencies
3. Meeting with the trainers regularly to discuss learning progress and problems
4. Ensure that all training activities are running according the curriculum
5. Suggest possible TOT contents
6. Arrange for educational condensed clinical and theoretical courses for trainees
7. Assess the logbook activities of each trainee and provide needed remarks for both trainer and trainees
8. Ensure the adherence to the rotation plan of the trainees in the different medical specialties
9. Report to the scientific committee the performance of both trainers and trainees every three months (supervisor quarterly report) Appendix 5
10. Decide the trainees illegibility to sit for the exam based on ARP
11. Coordinate with hospital authorities the administrative affairs of the trainees

**THE LOG BOOK**

- The trainees must keep and update a logbook where they record all activities and skills performed and learned during the training program.
- The activities should be dated and categorized to whether been performed by the trainee him/herself or as an assistant or participant.
- Each activity registered in the logbook should be counter signed by the trainer and finally the supervisor. The trainer and supervisor shall sign the completed logbook.
- Log book will contain evidence of attending foundation courses and various scientific activities.
- The Log Book also contains checklist of the different essential procedural skills to be covered during the training rotations. Direct Observation of Procedural Skills (DOPS) will be used to assess trainees in their workplaces.
- Candidates will receive a log book for each part
PROCEDURAL SKILLS

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Observation</th>
<th>Under supervision</th>
<th>Independent/competent Performance</th>
<th>Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aseptic techniques, hand hygiene</td>
<td></td>
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<td>√</td>
<td></td>
</tr>
<tr>
<td>Tapping for ascites</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>√</td>
</tr>
<tr>
<td>Lumbar puncture</td>
<td>5</td>
<td></td>
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<tr>
<td>ABG</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>√</td>
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<tr>
<td>ECG</td>
<td></td>
<td></td>
<td>√</td>
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<tr>
<td>Endoscopy</td>
<td>10</td>
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<tr>
<td>Ultrasonography</td>
<td>20</td>
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<tr>
<td>Echocardiography</td>
<td>10</td>
<td></td>
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<tr>
<td>Urinary Catheter</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>√</td>
</tr>
<tr>
<td>Pleural effusion tapping</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>√</td>
</tr>
<tr>
<td>Tracheostomy</td>
<td>2</td>
<td>2</td>
<td></td>
<td>ER</td>
</tr>
<tr>
<td>Defibrillator</td>
<td>4</td>
<td>2</td>
<td></td>
<td>ICU</td>
</tr>
<tr>
<td>Fundus examination</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central venous line</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>√</td>
</tr>
<tr>
<td>Fixation of Naso-Gastric tube</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>√</td>
</tr>
<tr>
<td>Endotracheal tube</td>
<td>10</td>
<td>5</td>
<td></td>
<td>ICU</td>
</tr>
</tbody>
</table>

FOUNDATION COURSES

Trainees are committed to attend all essential foundation courses as a perquisite to set for the second part exam.

Trainees in the third and fourth years are to select one elective course to attend

<table>
<thead>
<tr>
<th>Essential courses</th>
<th>Elective courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication skills (based on generics)</td>
<td>1. Ultrasound</td>
</tr>
<tr>
<td>2. Radiology &amp; radiographic interpretation</td>
<td>2. GIT endoscopy</td>
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<tr>
<td>3. Advanced life support</td>
<td>3. Principles of Echocardiography</td>
</tr>
<tr>
<td>4. Safe prescribing</td>
<td></td>
</tr>
<tr>
<td>5. Ethics</td>
<td></td>
</tr>
<tr>
<td>6. Evidence Based Medicine &amp; information management</td>
<td></td>
</tr>
<tr>
<td>7. Infection control orientation</td>
<td></td>
</tr>
<tr>
<td>8. Audit</td>
<td></td>
</tr>
<tr>
<td>9. ECG</td>
<td></td>
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</tbody>
</table>
GENERAL RULES AND REGULATIONS

1. Holidays and on call duties
   According to Ministry of Health and Population regulations.

2. Evaluation Procedures
   a) Performance of the trainee shall be evaluated on regular and continuous basis. The evaluation process should involve all aspects of the training program including theoretical, clinical and investigative procedures skills as well as the attendance and participation. Each trainee will attend for discussion of log book at Annual review process (ARP). This review will be done through the supervisor accompanied by a member of the scientific board. The trainee should not be allowed to proceed in the training program and move to the next year unless he/she attains a satisfactory level of performance (Appendix 1)
   b) The trainers who are required to write appraisal reports (TAR) of the performance of each trainee. Trainers are to report the performance of each candidate after each rotation (Appendix 2).
   c) The supervisors provide a report about the progress of the trainees on quarterly basis
   d) The trainee shall not be allowed to proceed to the third year of training before successfully passing the first part exam.

   The hospital manager's role is to cooperate with the supervisor and trainers in supervising attendance, registration, records, infection control and ensuring proper conduct of training system according to standards.

3. Interruption of Training
   It is not allowed to interrupt the training program except in major unavoidable circumstances. Such circumstances should be convincing and approved by the Secretary General. The Interruption once approved should not be for more than one year. Any interruption for more than one month should be compensated with a similar period at the end of the training.
   Each candidate is allowed a pre-approved 1 month annual leave. (For more detailed information refer to the Egyptian Fellowship Boards regulations)
   Interruption of the training program for more than one year shall result in dismissal from the program and cancellation of the preceding training period.
TEACHING AND LEARNING METHODS

The following methods of teaching & learning will be used in the fellowship of internal medicine:

- **Apprenticeship learning (experiential learning):**
  a) Observation
  b) Assisting
  c) Participation
  d) Supervised Performance
  e) Independent Performance

- **Formal Teaching:**
  a) Lectures
  b) Seminars and tutorials
  c) Clinical ward rounds
  d) Crash courses
  e) Workshops

- **Self-study:**
  a) Library
  b) Textbooks
  c) Journals
  d) Internet

- **Meetings and Conferences**

METHODS OF ASSESSMENT

REGULATIONS

The general rules & regulations of assessment approved by the Egyptian fellowship board & published at the training handbook & the board web site applies for the internal medicine specialty. In addition to the successful completion of the training program, all candidates must successfully pass three exams in order to get the fellowship certificate.

SUMMATIVE ASSESSMENT

First part Exam

The first part exam is a written exam. Trainees are allowed to sit for the first part exam after at least six months of training. Each candidate has three chances to pass the exam & one more additional chance may be granted in some special circumstances approved by the secretary general of the higher committee of medical specialties.

Trainees should pass the following courses in order to be eligible for the first part exam:

- Local TOEFL with a score of at least 500
- Computer courses in word processing, PowerPoint & internet
The structure of the 1st part exam
The first part exam aims to test the knowledge of candidates in basic sciences related to internal Medicine as well as their knowledge and skills in core medical conditions. The curriculum for the first part exam is available as a separate document.

The structure of the first part exam:
- **Paper I (2 hours):** MCQs with a single best answer format and extended matching questions
- **Paper II (2 hours):** Short notes questions (5 items) and clinical scenarios (5 items)
- 10 OSCE stations covering clinical skills according to the weights determined in the blueprint

Second part exam
The second part exam is a written exam. Trainees are allowed to sit for the second part exam after passing successfully the first part & after completion of the 42 months of training period. Each candidate has three chances to pass the exam & one more additional chance may be granted in special approved circumstances.

Holders of The master degree of internal medicine are exempted from the first part exam, if no more than five years have passed since they got their master degree.

The structure of the 2nd part exam
The second part exam aims to test trainees' knowledge & skills in general internal medicine. In this exam, all areas of the curriculum will be covered.

The structure of the second part exam which consists of 4 papers:
- **Two MCQ papers** each is two hours (80 single best answer and 20 EMQ items).
- **Short notes questions paper** two hours duration (10 items)
- **Clinical scenario paper** two hours duration (5 items)

Clinical Exam (third part)
The third part exam is a clinical & oral exam. Candidates who pass successfully the second part are allowed to sit for the third part. Completion of all requirements of the logbook is a prerequisite for entry.

Again, each candidate has three chances to pass the clinical exam & an additional fourth chance may be granted in special approved circumstances.

The structure of the 3rd part exam
**Part III exam is a clinical & oral exam. It's composed of the following components:**
- **A. OSCE:** 10 stations covering various topics according to the blueprint distribution each station is 10 minutes (7 minutes to perform the task and 3 minutes for questions from the assessor)
- **B. OSPE:** 20 stations (using data show) including ECG/ X-ray / CT Scans/ laboratory data results / photographs.
- **C. Long case** (one long case) the candidate is observed in silence (40 minutes) for the first part of the examination by two examiners where he/she is taking the history from the
patient & performing a physical examination & then the examiners ask him to discuss the approach and management of the case (20 minutes). Marks are given according to a predetermined weighting of the components of the exam.

D. **Oral:** The oral exam, which tests the candidates’ ability to manage patients & explores his/her knowledge of making an accurate diagnosis & whether he/she understands the essentials of therapeutics. It also assesses his attitudes & interpersonal communication skills. It is based on a set of topics with opening & supplementary questions.

- Each candidate will be assessed in two topics (10 minutes/each)
- The questions cards are prepared in advance together with the expected ideal answer and allocated marks. This allows a good objective basis for marking.

**WORK PLACE BASED ASSESSMENT**

Tools for formative assessment are necessary for a successful training process. For the current stage of internal medicine program development, the board agreed to use three WPBA tools:

1. **Trainer Appraisal Report (TAR):** trainers will report their feedback to candidates per rotation. This will enhance trainee-center approach and will give candidates to take a structured feedback on their performance (Appendix 2)
2. **Direct Observation of Procedural Skills (DOPS):** where trainers are to use checklists to ensure that the candidates are performing the different skills required in a rotation at the proper competency level
3. **Annual review process which is explained in details in the next page**

**ANNUAL REVIEW PROCESS (ARP)**

- Minimum 3 persons should attend this review process including (2 council member + educational supervisor) should attend this meeting.
- Trainees will be notified one month ahead of the meeting date.
- Logbooks, trainee assessment forms and training post assessment forms should be submitted by the specialty coordinator at least 3 weeks before the date of the meeting.
- The specialty coordinator will forward the above documents to the review board members at least 2 weeks before meeting date.
- The following items will be assessed in the meeting:
  - Verification of signatures
  - Attendance of activities
  - Trainees' performance during previous placement
  - The level of competence achieved by the trainee

Based on the above evidence and following discussion with trainees one of the following outcomes will be decided:

- **ARP1:** Satisfactory to progress to the following stage
- **ARP2:** Can proceed but with targeted training (closer than usual monitoring and supervision, to address particular needs and provide feedback). The recommended improvements will be reassessed in meeting within six months.
- **ARP3:** An official warning of discontinuation of the training program will be issued if the previous recommendations have not been rectified, subject to review in a following meeting within six months.
- **ARP4:** Unsatisfactory and should be dismissed from the training program. This outcome could be decided on from the start or following unsatisfactory assessment after HARP 3.
- **ARP5:** Satisfactory completion for training program, illegible to sit for the exam.
CORE MEDICAL CONDITIONS THAT MUST BE COVERED DURING THE TRAINING

1. Acute abdominal pain (medical causes)
2. Acute infections and sepsis (septic shock)
3. Bacterial infections (TB, meningitis, enteric fever, brucellosis, cholera)
4. Bilharziasis (schistosomiasis)
5. Protozoal infections (Amebiasis, Giardiasis)
6. HIV/AIDS
7. Anemia
8. Hemeostasis and bleeding disorders
9. Respiratory tract infections
10. Asthma
11. COPD
12. Respiratory emergencies (Hemoptysis, acute severe asthma, P embolism, respiratory Failure)
13. Ischemic heart disease
14. Valvular heart disease
15. Systemic hypertension
16. Heart Failure
17. Infective endocarditis
18. Cardiac Emergencies (arrest, shock, chest pain, syncope)
19. Cerebrovascular Disease
20. Headache and facial pain
21. Dizziness
22. Peripheral Neuropathy
23. Neurological emergencies (coma, Status Epilepticus, stroke)
24. Cirrhosis
25. Peptic ulcer
26. GERD
27. GIT bleeding
28. Hepatic encephalopathy
29. Hepatitis
30. Infective diarrhea
31. Jaundice
32. Irritable Bowel Syndrome
33. Cushing
34. DM
35. Hyper/hypo-thyroid
36. Endocrinal Emergencies (DKA and hypoglycemia)
37. Acute renal failure
38. Chronic renal failure
39. Renal emergencies (indications of dialysis and gross hematuria)
40. Obesity
41. Osteoporosis
42. Gout
43. Rheumatoid Arthritis
44. Rheumatologic emergencies (life threatening SLE, septic arthritis, acute gouty arthritis)
45. SLE
46. DVT
47. Back Pain
48. Urine abnormalities
49. UTI
50. Water, electrolyte and acid-base balance
51. Psychosomatic disorders
52. Mood disorders (anxiety and depression)
SPECIALTY SECTION ILOS

1. BASIC SCIENCES

1.1. Clinical Applied anatomy, Tissue structure and embryology
K.1.1.1. Applied anatomy, ultrastructure and embryology of the cardiovascular system:
K.1.1.1.1. Recall applied anatomy and ultrastructure of the heart, coronary circulation, major and peripheral vessels.
K.1.1.1.2. Outline the embryologic development of the cardiac septae and aortic arches.
K.1.1.2. Recall applied anatomy of respiratory system (airways, lungs, and mediastinum and chest wall).
K.1.1.3. Recall applied anatomy and ultrastructure of esophagus, stomach, small bowel, colon, rectum and exocrine pancreas.
K.1.1.4. Describe applied anatomy and ultrastructure of the liver, biliary system, gall bladder and portal circulation.
K.1.1.5. Describe applied anatomy, ultrastructure and blood supply of the central, peripheral and autonomic nervous systems.
K.1.1.6. Outline applied anatomy and ultrastructure of the kidneys and genito-urinary tract.
K.1.1.7. Outline the applied anatomy and ultrastructure of the spleen and lymphatic system.
K.1.1.8. Recall applied anatomy and ultrastructure of synovial joints.
K.1.1.9. Applied anatomy, ultrastructure and embryology of the endocrine system:
K.1.1.9.1. Recall applied anatomy and ultrastructure of hypothalamus, pituitary, thyroid, adrenals, gonads, parathyroid and endocrine pancreas.
K.1.1.9.2. Outline the embryologic development of the hypothalamus & pituitary gland.

1.2. Clinical Physiology
K.1.2.1. Physiology of cardiovascular system:
K.1.2.1.1. Recall the physiologic principles of cardiac cycle.
K.1.2.1.2. Describe physiologic principles of cardiac performance and maintenance of blood pressure.
K.1.2.1.3. Describe cardiac electrophysiology and cardiac conductive system.
K.1.2.2. Physiology of Respiratory system:
K.1.2.2.1. Recall physiology of ventilation, perfusion, gas exchange and ventilation-perfusion matching.
K.1.2.2.2. Describe principles of lung function tests.
K.1.2.3. Outline the physiology of alimentary tract: swallowing, motility, secretion, digestion, absorption and defecation.
K.1.2.4. Outline the functions of the liver, biliary system and gall bladder.
K.1.2.5. Physiology of the Neurologic system:
K.1.2.5.1. Recall physiology of nerve conduction and neurotransmitters.
K.1.2.5.2. Recall physiology of major tracts and pathways.
K.1.2.5.3. Recall physiology of balance, coordination and movement.
K.1.2.5.4. Describe the pathophysiology of pain.
K.1.2.5.5. Recall the mechanisms of speech.
K.1.2.5.6. Recognize brain death.
K.1.2.6. Physiology of the Kidneys, electrolytes and acid-base:
K.1.2.6.1. Describe the principles of kidney functions (glomerular, tubular functions and of urine formation).
K.1.2.6.2. Outline homeostasis of fluid, electrolytes and acid-base balance (including respiratory part).
K.1.2.7. Physiology of the haematologic system:
K.1.2.7.1. Describe haemopoiesis.
K.1.2.7.2. Outline haemostasis.
K.1.2.8. Physiology of the endocrine system:
K.1.2.8.1. Describe the general classification of hormones, hormone receptors, cross-talk among various hormones, hormones synthesis, transport, degradation and hormone resistance.
K.1.2.8.2. Describe the integrative function of several different hormones in growth and differentiation, homeostasis and reproduction.
K.1.2.9. Physiology of ageing: Recall the effects of ageing on the major organ systems.

1.3. Clinical Biochemistry
K.1.3.1. Outline carbohydrate metabolism.
K.1.3.2. Outline lipid metabolism.
K.1.3.3. Outline protein metabolism.
K.1.3.4. Outline bile metabolism.

1.4. Applied Pathology
K.1.4.1. Describe pathogenesis and pathology of atherosclerosis.
K.1.4.2. Outline inflammation and inflammatory response.

1.5 Clinical Pharmacology
K.1.5.1. Identify Principles of pharmacokinetics: absorption, distribution, metabolism and excretion of drugs.
K.1.5.2. Identify Pharmacological principles of drug interaction.
K.1.5.3. Outline the effects of drugs on pregnancy and lactation.
K.1.5.4. Elicit the effect of age, renal and liver impairment on drug prescription.

1.6 Applied Allergy/ Immunology
K1.6.1. Recall mechanisms of allergic sensitization: primary and secondary prophylaxis.
K.1.6.2. Describe natural history of hypersensitivity reactions (types I – IV).
K.1.6.3. Identify innate and adaptive immune responses.
K.1.6.4. Describe the complement system: structure and function.
K.1.6.5. Describe immunodeficiency (congenital or acquired): phagocyte defect, complement deficiency, antibody deficiencies, T- and B- cell deficiencies.
K.1.6.6. Describe the mechanism of action of anti-allergic drugs & immunosuppressive therapy.

1.7 Genetics and Molecular Biology
K.1.7.1. Recall structure and function of human cells, chromosome, DNA, RNA and cellular proteins.
K.1.7.2. Describe principles of inheritance: Mendelian, sex-linked and mitochondrial.
K.1.7.3. Discuss Apoptosis.
K.1.7.4. Describe the applications of molecular genetics: gene therapy.
K.1.7.5. Describe principles of genetic testing including metabolic assays, clinical examination and analysis of nucleic acid (e.g. PCR).
2. CARDIOVASCULAR

1.1. Anatomy, ultra structure and embryology of the cardiovascular system:
K1.1.1.1. Recall anatomy and ultra structure of the heart, coronary circulation, major and peripheral vessels
K1.1.1.2. Outline the embryologic development of the cardiac septae and aortic arches.

1.2. Physiology of cardiovascular system:
K1.2.1.1. Recall the physiologic principles of cardiac cycle.
K1.2.1.2. Describe physiologic principles of cardiac performance & maintenance of BP.
K1.2.1.3. Describe cardiac electrophysiology and cardiac conductive system.

2.1. Investigations and therapeutic procedures:
K2.1.1. List indications for plain x-ray chest, ECG, echocardiography, Doppler echocardiography, nuclear imaging and cardiac catheterization.
CS2.1.1. Interpret plain x-ray chest, ECG, echocardiography, Doppler echocardiography, nuclear imaging and cardiac catheterization.

2.2. Congenital heart disease:
K2.2.1. Recognize classification and various clinical presentations of common congenital heart disease
CS2.2.1. Conduct clinical examination for a case of congenital heart.
CS2.2.2. Plan for management of a case of congenital heart including referral to surgery

2.3. Valvular heart disease:
K2.3.1. Recognize aetiology and pathophysiology of valvular diseases.
K2.3.2. Describe clinical presentations of valvular heart disease
CS2.3.1. Conduct clinical examination for a case suspected to have infective endocarditis.
CS2.3.2. Request and interpret appropriate investigations for a case with valvular lesions.
CS2.3.3. Plan comprehensive management for a case with valvular lesions including referral to surgery.

2.4. Infective endocarditis:
K2.4.1. Recognize predisposing factors and aetiology of infective endocarditis
K2.4.2. Describe clinical presentations of infective endocarditis
CS2.4.1. Conduct clinical examination for a case suspected to have infective endocarditis.
CS2.4.2. Request and interpret appropriate investigations for a case with infective endocarditis.
CS2.4.3. Plan comprehensive management for case with infective endocarditis including referral to surgery.

2.5. Ischemic heart disease:
K1.4.1. Describe pathogenesis and pathology of atherosclerosis
K2.5.1. Recognize aetiology, risk factors and clinical presentations of ischemic heart disease
CS2.5.1. Conduct clinical examination for a case with ischemic heart disease.
CS2.5.2. Order and interpret relevant investigations for case with ischemic heart disease
CS2.5.3. Construct a comprehensive management plan (life style, pharmacological and invasive interventions) for a case with ischemic heart disease

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2.6. Systemic hypertension:
K.2.6.1. Define normal blood pressure and grading of hypertension
K.2.6.2. Define the aetiology and describe the pathophysiology of essential hypertension
K.2.6.4. Recognize clinical presentations and complications of hypertension
CS.2.6.1. Conduct clinical examination of a case with hypertension.
CS.2.6.2. Order and interpret relevant investigations for a case of hypertension (including secondary hypertension)
CS.2.6.3. Plan comprehensive management; both non pharmacological and pharmacological of a case with hypertension (including secondary hypertension)
CS.2.6.4. Practice counseling for life style changes to a case with hypertension.
CS.2.6.5. Organize a follow up plan for a case with hypertension

2.7. Cardiac arrhythmias:
K.2.7.1. Order and interpret ECG and other relevant investigations for a case with cardiac arrhythmia
CS.2.7.2. Plan comprehensive management, both non pharmacological and pharmacological, for a case with cardiac arrhythmia

2.8. Myocardial and pericardial disease:
K.2.8.1. Recognize clinical presentations of common myocardial (i.e. cardiomyopathy and myocarditis) and pericardial diseases
CS.2.8.1. Conduct clinical examination of case with myocardial/pericardial disease.
CS.2.8.2. List management plan for a case with myocardial/pericardial disease

2.9. Heart failure:
K.2.9.1. Define the aetiology and describe the pathophysiology of heart failure
K.2.9.2. List clinical presentations and complications of heart failure
CS.2.9.1. Conduct clinical examination of case with heart failure.
CS.2.9.2. Order and interpret relevant investigations of case with heart failure
CS.2.9.3. Plan comprehensive management (non pharmacological and pharmacological) of a case with heart failure.
CS.2.9.4. Organize follow up of case with heart failure.

2.10. Cor-pulmonale:
K.2.10.1. Define cor-pulmonale and Describe aetiology and clinical presentations of cor-pulmonale
CS.2.10.1. Conduct clinical examination of a case with cor-pulmonale.
CS.2.10.2. Order and interpret relevant investigations of a case with cor-pulmonale.
CS.2.10.3. Plan comprehensive management of a case with cor-pulmonale.

2.11. Peripheral arterial and venous vascular disease:
K.2.11.1. Recognize clinical presentations of:
- Common peripheral arterial diseases
- Common venous vascular diseases
CS.2.11.1. Conduct clinical examination of a case of:
- Common peripheral arterial diseases
- Common venous vascular diseases

CS.2.11.2. Plan for management of:
- Common peripheral arterial diseases
- Common venous vascular diseases

2.12. Cardiac emergencies:
2.12.1. Cardiac arrest:
CS.2.12.1.1. Perform effective basic Life support (BLS) in adults
CS.2.12.1.2. Apply competently peripheral venous lines.
CS.2.12.1.3. Apply central venous lines under supervision.

2.12.2. Shock:
K.2.12.2.1. Define shock and outline its pathophysiology.
K.2.12.2.2. List the differential diagnosis and clinical presentations of different types of shock (distributive, hypovolaemic, cardiogenic and obstructive).
K.2.12.2.3. Outline the principles of hemodynamic monitoring.
CS.2.12.2.1. Use fluids appropriately in shocked patients.
CS.2.12.2.2. Stabilize and treat shocked patients including timely referral

2.12.3. Chest Pain:
K.2.12.3.1. List common causes of chest pain and their clinical presentations.
K.2.12.3.2. Recognize causes of life threatening chest pain.
CS.2.12.3.1. Interpret correctly the results of clinical data, ECG and cardiac enzymes to reach proper diagnosis.
CS.2.12.3.2. Initiate emergency treatment for patients presenting with acute chest pain.
CS.2.12.3.3. Recognize the indications for thrombolysis and immediately refer to CCU.

2.12.4. Other cardiac emergencies
K.2.12.4.1. Define syncope, list its common causes and clinical presentations.
K.2.12.4.2. List common and life threatening arrhythmias that present to the emergency room (ER).
K.2.12.4.3. Recognize the principles of management of arrhythmias and mention the indications for pacing.
K.2.12.4.4. Recognize clinical presentations of pulmonary oedema.
CS.2.12.4.1. Investigate and treat patients with syncope.
CS.2.12.4.2. Diagnose and treat Arrhythmias according to guidelines.
CS.2.12.4.3. Recognize patients presenting with hypertensive emergencies to the ER and initiate treatment.
CS.2.12.4.4. Investigate and treat patients with pulmonary oedema.

3. RESPIRATORY SYSTEM

3.1. General principles of respiratory disease:
K.1.1.2. Recall anatomy of respiratory system (airways, lungs, mediastinum and chest wall).
K.1.2.2. Physiology of Respiratory system
K.1.2.2.1. Recall physiology of ventilation, perfusion, gas exchange and ventilation-perfusion matching.
K.1.2.2.2. Describe principles of respiratory function tests.
K.3.1.1. Recognize the main clinical features of respiratory disease.
K.3.1.2. Outline the diagnostic value of commonly used respiratory function tests, imaging, endoscopy and biopsy.

3.2. Bronchial asthma:
K.3.2.1. Define asthma and recognize the aetiology and pathophysiology of asthma.
K.3.2.2. Discuss clinical manifestations, classification, complications and principles of management
CS.3.1.1. Conduct clinical examination for a case of asthma
CS.3.1.2. Order and interpret relevant investigations for a case of asthma
CS.3.1.3. Plan comprehensive management for a case with bronchial asthma (including criteria of admission to hospital care, ICU or safe discharge).

3.3. Chronic obstructive pulmonary disease (COPD):
K.3.3.1. Define COPD and recognize its aetiology and pathophysiology.
K.3.3.2. Discuss clinical manifestations, classification, complications and principles of management of COPD
CS.3.3.1. Conduct clinical examination for a case of COPD
CS.3.3.2. Order and interpret relevant investigations for a case of COPD
CS.3.3.3. Plan comprehensive management for a case with COPD.

3.4. Respiratory tract infections.
K.3.4.1. Discuss the aetiology and epidemiology of:
  - Acute upper respiratory tract infections
  - Pneumonia
K.3.4.2. Discuss clinical presentations, diagnosis, differential diagnosis and treatment of:
  - Acute upper respiratory tract infections
  - Pneumonia
CS.3.4.1. Conduct clinical examination of a case with respiratory tract infection
CS.3.4.2. Order and interpret relevant investigations for a case of respiratory tract infection
CS.3.4.3. Plan a comprehensive management for case with respiratory tract infection (including criteria of admission to hospital care, ICU or safe discharge).

3.5. Obstructive sleep apnea.
K.3.5.1. Recognize causes, clinical presentations, diagnosis and treatment of obstructive sleep apnoea.
CS.3.5.1. Conduct clinical examination and management of case with obstructive sleep apnoea.

3.6. Suppurative lung disease
K.3.6.1. Discuss the aetiology and epidemiology of: 
  - Bronchiectasis
  - Lung abscess
  - Others e.g. cystic fibrosis
K.3.6.2. Discuss clinical presentations, diagnosis, differential diagnosis and treatment of: 
  - Bronchiectasis
  - Lung abscess
  - Others e.g. cystic fibrosis
CS.3.6.1. Conduct clinical examination of cases with suppurative lung disease
CS.3.6.2. Order and interpret relevant investigations for cases of suppurative lung disease
CS.3.6.3. Plan a comprehensive management for cases of suppurative lung disease
   (including criteria of admission to hospital care or referral to surgery)

3.7. Pleural disease and effusion.
K.3.7.1. Recognize causes, clinical presentations, diagnosis, differential diagnosis and treatment of:
   - Pleurisy
   - Pleural effusion
CS.3.7.1. Conduct clinical examination, interpret relevant investigations & manage a case with:
   - Pleurisy
   - Pleural effusion

3.8. Interstitial lung disease.
CS.3.8.1. Conduct clinical examination, interpret relevant investigations and manage a case with interstitial lung disease.

3.9. Mediastinal syndrome.
K.3.9.1. List causes and recognize clinical presentations, diagnosis, differential diagnosis and treatment of mediastinal syndrome
CS.3.9.1. Conduct clinical examination, interpret relevant investigations and manage a case with mediastinal syndrome

3.10. Tumors of the lung and pleura.
K.3.10.1. Recognize causes, predisposing factors, clinical presentations, diagnosis, differential diagnosis and treatment of:
   - Bronchogenic carcinoma
   - Mesothelioma
CS.3.10.1. Conduct clinical examination, interpret relevant investigations and manage a case with (including referral to other specialities) a case with:
   - Bronchogenic carcinoma
   - Mesothelioma

3.11. Pulmonary hypertension:
K.3.11.1. Discuss the aetiology, pathophysiology and classification of pulmonary hypertension
CS.3.11.1. Conduct clinical examination, interpret relevant investigations and manage a case with pulmonary hypertension.

3.12. Respiratory emergencies:
K.3.12.1. Recognize causes, predisposing factors, clinical presentations, diagnosis, differential diagnosis and treatment of:
   - Haemoptysis
   - Acute severe asthma
   - Pneumothorax
   - Pulmonary embolism and DVT
   - Adult respiratory distress syndrome (ARDS)
   - Respiratory failure
K.3.12.2. List the indications for mechanical ventilation

CS.3.12.1. Conduct clinical examination, interpret relevant investigations and manage (including referral to other specialities) cases of:
- Haemoptysis
- Acute severe asthma
- Pneumothorax
- Pulmonary embolism and DVT
- Adult respiratory distress syndrome (ARDS)
- Respiratory failure

CS.3.12.2. Have high index of suspicion and Initiate investigations in suspected respiratory emergency cases

## 4. GASTROENTEROLOGY

### 4.1. General principles of gastrointestinal disease

K.1.1.3. Recall applied anatomy and ultrastructure of oesophagus, stomach, small bowel, colon, rectum and exocrine pancreas.

K1.2.3. Outline the physiology of alimentary tract: swallowing, motility, secretion, digestion, absorption and defecation.

K.4.1.1. Recognize the main clinical features of gastrointestinal disease.

K.4.1.2. Outline the diagnostic value of commonly used gastrointestinal function tests, imaging and endoscopic procedures

### 4.2. Oesophagus

K.4.2.1. Discuss aetiology and pathogenesis of:
- Gastroesophageal reflux disease
- Motility disorders of esophagus
- Cancer esophagus

CS.4.2.1. Recognize clinical manifestations, diagnosis, differential diagnosis and management of:
- Gastroesophageal reflux disease
- Motility disorders of oesophagus
- Cancer oesophagus

CS.4.2.2. Construct an approach to a patient with heart burn/ dysphagia

### 4.3. Stomach

K.4.3.1. Discuss aetiology and pathogenesis of:
- Gastritis
- Peptic ulcer (including Zollinger-Ellison syndrome).
- Abnormalities of gastric emptying
- Cancer stomach

CS.4.3.1. Recognize clinical manifestations, diagnosis and management of:
- Gastritis
- Peptic ulcer (including Zollinger-Ellison syndrome).
- Abnormalities of gastric emptying
- Cancer stomach

CS.4.3.2. Construct an approach to a patient with dyspepsia
4.4. Small intestine
K.4.4.1. Discuss aetiology and pathogenesis of malabsorption syndrome

4.5. Colon
K.4.5.1. Define and recognize classification and pathophysiology of:
- Acute and chronic diarrhoea
- Constipation
K.4.5.2. Discuss aetiology and pathogenesis of:
- Inflammatory bowel disease
- Diverticulitis
- Irritable bowel syndrome
- Colonic polyps
- Cancer colon
CS.4.5.1. Construct an approach to a patient with:
- Acute and chronic diarrhoea
- Constipation
CS.4.5.2. Recognize clinical manifestations, diagnosis and management of:
- Inflammatory bowel disease
- Diverticulitis
- Irritable bowel syndrome
- Colonic polyps
- Cancer colon

4.6. Pancreas
K.4.6.1. Discuss aetiology, predisposing factors and pathogenesis of:
- Acute and chronic pancreatitis.
- Cancer pancreas
CS.4.6.1. Recognize clinical manifestations, diagnosis and management of:
- Acute and chronic pancreatitis.
- Cancer pancreas

4.7. Gastroenterology emergencies
K.4.7.1. List causes of:
- Gastrointestinal bleeding
- Acute abdominal pain (stress on medical causes)
CS.4.7.1. Construct approach to a patient with:
- Gastrointestinal bleeding
- Acute abdominal pain (stress on medical causes)

5. LIVER, BILIARY SYSTEM AND GALL BLADDER

5.1. General principles of liver disease
K.1.1.4. Describe applied anatomy and ultrastructure of the liver, biliary system, gall bladder and portal circulation.
K.1.2.4. Outline the functions of the liver, biliary system and gall bladder.
K.1.3.4. Outline bile metabolism.
K.5.1.1. Recognize the main clinical features of liver disease.
K.5.1.2. Outline the diagnostic value of commonly used liver function tests, imaging, endoscopy and liver biopsy

5.2. Hepatitis
K.5.2.1. Define acute and chronic hepatitis
K.5.2.2. Recognize epidemiology, aetiology, predisposing factors, clinical presentations, diagnosis and differential diagnosis of acute/chronic hepatitis.
CS.5.2.1. Conduct clinical examination for a case with acute/chronic hepatitis.
CS.5.2.2. Order and interpret relevant investigations for a case with acute/chronic hepatitis
CS.5.2.3. Construct a comprehensive management plan for a case with acute/chronic hepatitis
CS.5.2.4. Construct an approach to diagnose a patient with elevated liver enzymes or positive viral markers.

5.3. Cirrhosis
K.5.3.1. Define cirrhosis and its prevalence.
K.5.3.2. Recognize aetiology, predisposing factors, clinical presentations, diagnosis and differential diagnosis of cirrhosis (including portal hypertension, ascites and hepatocellular failure).
CS.5.3.1. Conduct clinical examination for a case with cirrhosis
CS.5.3.2. Order and interpret relevant investigations for a case of cirrhosis
CS.5.3.3. Plan a comprehensive management for a case with cirrhosis and its complications.

5.4. Hepatic focal lesions
K.5.4.1. List types and predisposing factors of hepatic focal lesions (including neoplasms)
CS.5.4.1. Construct an approach to a patient with hepatic focal lesions (including neoplasms)

5.6. Liver damage induced by drugs, chemicals and other agents
K.5.6.1. Elicit the effect of age, renal and liver impairment on drug prescription.
K.5.6.1. Recognize different aspects of drug-induced liver injury.

5.7. Liver infections
K.5.7.1. List types and aetiology of liver abscess (amoebic, pyogenic and others)
CS.5.7.1. Recognize clinical presentations, investigations and treatment of liver abscess

5.8. Liver in pregnancy
K.5.8.1. Elicit types of liver diseases associated with pregnancy
CS.5.8.1. Recognize clinical presentations, investigations and treatment of liver diseases during pregnancy

5.9. Surgery in patient with liver diseases
CS.5.9.1. Outline perioperative management of a patient with liver disease

5.10. Liver transplantation
K.5.10.1. Outline indications, contraindications, complications and prognosis of liver transplantation
5.11. Disorders of the biliary tract and gall bladder
K.1.2.4. Outline the functions of the liver, biliary system and gall bladder.
K.1.3.4. Outline bile metabolism.
K.5.11.1. Describe pathophysiology of gallstone formation
CS.5.11.1. Recognize clinical presentations, complications, investigations and treatment of gall bladder disease.

5.12. Jaundice
K.5.12.1. Define jaundice and outline its classification
CS.5.12.1. Construct an approach to a patient with jaundice

5.13. Liver emergencies
K.5.13.1. Recognize types, pathogenesis and precipitating factors of:
- Hepatic encephalopathy
- Fulminant hepatitis.
CS.13.3.1. Recognize the clinical features, differential diagnosis and treatment of:
Hepatic encephalopathy Fulminant hepatitis

6. NEUROLOGY

6.1. Cerebrovascular Disease
K.1.1.5. Describe applied anatomy, ultrastructure and Blood Supply of the central, peripheral and autonomic nervous systems.
K.6.1.1. Recognize aetiology, risk factors and clinical presentations of cerebrovascular diseases:
- Cerebrovascular occlusion.
- TIA
- Lacunar infarct
- Cerebral haemorrhage.
- Subarachnoid haemorrhage (SAH) and subdural haematoma.
CS.6.1.1. Conduct clinical examination for a case with cerebrovascular disease
CS.6.1.2. Order and interpret relevant investigations for case with cerebrovascular disease
CS.6.1.3. Construct a comprehensive management plan for a case with cerebrovascular disease

6.2. Convulsive disorders (including epilepsy)
CS.6.2.1. Conduct clinical examination for a case with convulsive disorder.
CS.6.2.2. Order and interpret relevant investigations for case with convulsive disorders.
CS.6.2.3. Construct a comprehensive management plan for a case with convulsive disorders.

6.3. Headache and facial Pain
K.6.3.1. Recognize pain sensitive areas and pain pathways of the head and neck.
K.6.3.2. Outline common causes and differential diagnosis of headache and facial pain
CS.6.3.1. Conduct clinical examination for a case with headache or facial pain.
CS.6.3.2. Order and interpret relevant investigations for case with headache or facial pain
CS.6.3.3. Construct a comprehensive management plan for a case with headache or facial pain
6.4. Back Pain
K.6.4.1. Outline common causes and differential diagnosis of back pain
CS.6.4.1. Conduct clinical examination for a case with back pain
CS.6.4.2. Order and interpret relevant investigations for case with back pain
CS.6.4.3. Construct a management plan for a case with back pain

6.5. Disorders of Cranial Nerves
K.6.5.1. Outline applied anatomy of the cranial nerves.
CS.6.5.1. Conduct clinical examination for all cranial nerves.
CS.6.5.2. Evaluate, localize and manage patients with facial nerve affection.

6.6. Movement Disorders
K.6.6.1. List causes and differential diagnosis of various movement disorders:
- Parkinsonism
- Chorea
- Other causes of tremors
CS.6.6.1. Conduct clinical examination for a case with movement disorder.
CS.6.6.2. Plan management for a case with movement disorder.

6.7. Motor and Sensory Abnormalities
K.6.7.1. Outline applied anatomy of the spine, spinal cord and its roots
K.6.7.2. Recognize the aetiology and clinical presentations of spondylosis (cervical & lumbar).
K.6.7.3. Recognize the aetiology and clinical presentations of motor neurone disease.
K.6.7.4. Recognize the aetiology and clinical presentations of spinal cord diseases.
K.6.7.5. Recognize the aetiology and clinical presentations of muscle diseases (myopathy, myasthenia and myotonia).
K.6.7.6. Recognize the aetiology and clinical presentations of peripheral neuropathy.
CS.6.7.1. Conduct clinical examination for a case with motor/ sensory disorder.
CS.6.7.2. Order and interpret relevant investigations for case with motor/ sensory disorder
CS.6.7.3. Plan management for a case with motor/ sensory disorder.

6.8. Multiple Sclerosis (MS)
K.6.8.1. Recognize aetiology, pathophysiology, clinical presentations and differential diagnosis of MS.
CS.6.8.1. Conduct clinical examination for a case with MS.
CS.6.8.2. Order and interpret relevant investigations for case with MS.
CS.6.8.3. Construct a comprehensive management plan for a case with MS (including prophylaxis).

6.9. Dementia
K.6.9.1. Recognize causes and clinical presentations of dementia.
CS.6.9.1. Conduct clinical examination and plan management for a case of dementia.

6.10. Neurologic emergencies:
K.6.10.1. Recognize the key features of these neurologic emergencies:
- Coma
- Status epilepticus
- Acute spinal cord dysfunction.
- Neuromuscular Disorders in Clinical Practice (including Guillane Barre)
- Ischemic and Hemorrhagic Stroke
- CNS Infections

CS.6.10.1. Perform physical examination of the comatose patient.
CS.6.10.2. Plan initial management of these neurologic emergencies:
- Coma
- Status epilepticus
- Acute spinal cord dysfunction.
- Neuromuscular Disorders in Clinical Practice (including Guillane Barre)
- Ischemic and Hemorrhagic Stroke
- CNS Infections

7. NEPHROLOGY

1. Basic science:
K.1.1.7. Outline anatomy and ultrastructure of the kidneys and genito-urinary tract.
K.1.2.7. Physiology of the Kidneys, electrolytes and acid-base:
K.1.2.7.1. Describe the principles of kidney functions (glomerular, tubular functions and of urine formation).
K.1.2.7.2. Outline homeostasis of fluid, electrolytes and acid-base balance (including respiratory part).
K.1.5.6. Elicit the effect of age, RENAL and liver impairment on drug prescription.

7.1. Glomerular disease:
K.7.1.1. List causes and define types of glomerulonephritis (GN)
K.7.1.2. Recognize various clinical presentations of GN
CS.7.1.1. Conduct clinical examination for a case with GN
CS.7.1.2. Order and interpret relevant investigations for case with GN
CS.7.1.3. Plan comprehensive management for case with GN

7.2. Acute nephritic syndrome:
K.7.2.1. Recognize causes and various clinical presentations of nephritic syndrome
CS.7.2.1. Order and interpret relevant investigations for case with nephritic syndrome
CS.7.2.2. Plan comprehensive management for case with nephritic syndrome

7.3. Nephrotic syndrome:
K.7.3.1. List causes and recognize various clinical presentations and differential diagnosis of nephrotic syndrome.
CS.7.3.1. Conduct clinical examination for case with nephrotic syndrome
CS.7.3.2. Order and interpret relevant investigations for case with nephrotic syndrome
CS.7.3.3. Plan comprehensive management for case with nephrotic syndrome and its complications.

7.4. Urinary tract infection (UTI):
K.7.4.1. List predisposing factors and different causative organisms for UTI
K.7.4.2. Recognize various clinical presentations (upper, lower, uncomplicated and complicate) of UTI
CS.7.4.1. Conduct clinical examination for a case with UTI
CS.7.4.2. Order and interpret relevant investigations for case with UTI
CS.7.4.3. Plan management for a case with UTI (including prophylaxis) and its complications
7.5. Renal stones
K.7.5.1. List predisposing factors for different types of renal stones.
K.7.5.2. Recognize various clinical presentations of renal stones.
CS.7.5.1. Conduct clinical examination for a case with renal stone
CS.7.5.2. Order and interpret relevant investigations for a case with renal stone
CS.7.5.3. Plan comprehensive management for case with renal stones including prevention of recurrence

7.6. Acute renal failure
K.7.6.1. Define acute renal failure
K.7.6.2. List causes and predisposing factors for acute renal failure
K.7.6.3. Recognize clinical presentations of acute renal failure
CS.7.6.1. Conduct clinical examination for a case with acute renal failure
CS.7.6.2. Order and interpret relevant investigations for case with acute renal failure
CS.7.6.3. Plan comprehensive management for case with acute renal failure

7.7. Chronic renal failure
K.7.7.1. Define chronic renal failure
K.7.7.2. List causes of chronic renal failure
K.7.7.3. Recognize clinical presentations of chronic renal failure
K.7.7.4. Describe renal replacement therapy
CS.7.7.1. Conduct clinical examination for a case with chronic renal failure
CS.7.7.2. Order and interpret relevant investigations for case with chronic renal failure
CS.7.7.3. Plan management for a case with chronic renal failure
CS.7.7.4. List complications of chronic renal failure

7.8. Renal emergencies:
K.7.8.1. Identify indications for dialysis and liaise with nephrologists.
K.7.8.2. List the most important causes for emergency presentations to patients on dialysis or renal transplant recipient.
K.7.8.3. List cause and differential diagnosis of gross haematuria.
CS.7.8.1. Plan comprehensive management for case that needs dialysis
CS.7.8.2. Diagnose and plan for management of a case of haematuria.

7.9. Kidney in systemic diseases:
K.7.9.1. Outline the effect of systemic diseases on the kidney

7.10. Urine abnormalities:
K.7.10.1. List causes and differential diagnosis of:
- Haematuria.
- Proteinuria.
- Crystalluria.
- Pyuria.
- Urinary casts.
CS.7.10.1. Order and interpret different investigative modalities regarding:
- Haematuria.
- Proteinuria.
- Crystalluria.
- Pyuria.
- Urinary casts.
7.11. Water, electrolytes and acid base balance:
K.7.11.1. List disorders of sodium concentration
K.7.11.2. List disorders of potassium concentration
K.7.11.3. Describe disorders of acid base disorders; respiratory & metabolic acidosis & alkalosis

8. HAEMATOLOGY

8.1. Anaemia
K.1.2.7.1. Describe hemopoisis
K.8.1.1. Discuss classification, aetiology and pathogenesis of anaemias (including haemoglobinopathies).
CS.8.1.1. Recognize clinical presentations, diagnosis, differential diagnosis and management of anaemias.
CS.8.1.2. Construct an approach to a patient with anaemia/ pancytopenia.

8.2. Leukocyte disorders
K.8.2.1. List causes of neutropenia and different types of leukocytosis.

8.3. Haemostasis and bleeding disorders
K.1.2.7.2. Outline haemostasis.
K.8.3.1. Recognize types and causes of purpura and coagulation disorders.
CS.8.3.1. Recognize clinical presentations, diagnosis, differential diagnosis and management of purpura and coagulation disorders.
CS.8.3.2. Construct an approach to a patient with:
   - Bleeding disorders
   - Thrombophilia
CS.8.3.3. Discuss the use of antithrombotic therapy in clinical practice.

8.4. Transfusion therapy
K.8.4.1. Recognize blood compatibility testing
K.8.4.2. List blood component therapy
K.8.4.3. Recognize indications and hazards of blood transfusion and blood substitutes.

8.5. Haematologic malignancies
K.8.5.1. Discuss classification and aetiology of hematologic malignancies (Myeloproliferative disorders, leukemia, lymphomas and plasma cell disorders).
CS.8.5.1. Recognize clinical presentations, diagnosis, differential diagnosis and management of hematologic malignancies.
CS.8.5.2. Conduct an approach to a case of:
   - Lymphadenopathy
   - Splenomegaly

9. DISORDERS OF THE IMMUNE SYSTEM, CONNECTIVE TISSUE & JOINTS.

9.1. Introduction:
K.9.1.1. Define immune system and major histocompatibility gene complex.

9.2. Primary immune deficiency diseases:
CS.9.2.1. Recognize common clinical presentations and treatment of cellular and humoral immunodeficiencies.
9.3. Systemic lupus erythematosus (SLE):
K.9.3.1. Define SLE, its prevalence, aetiology and pathogenesis.
K.9.3.2. Recognize clinical presentations of and criteria of diagnosis of SLE.
CS.9.3.1. Conduct clinical examination of case suspected to have SLE.
CS.9.3.2. Identify and request appropriate investigations for a case SLE
CS.9.3.3. Plan comprehensive management for a case with SLE

9.4. Rheumatoid arthritis (RA):
K.9.4.1. Identify epidemiology and genetic basis of RA.
K.9.4.2. Recall aetiology, pathogenesis and pathology of RA.
K.9.4.3. Outline clinical presentations of RA (articular and extra-articular) and criteria for diagnosis.
CS.9.4.1. Conduct clinical examination of case suspected to have RA.
CS.9.4.2. Identify and request appropriate investigations for a case RA.
CS.9.4.3. Plan comprehensive management for case with RA.

9.5. Vasculitides:
K.9.5.1. Discuss classification, aetiology and pathogenesis of different types of vasculitides.
CS.9.5.1. Recognize clinical manifestations, diagnosis, differential diagnosis and management of vasculitides.

9.6. Rheumatic fever (RF):
K.9.6.1. Identify epidemiology of rheumatic fever.
K.9.6.2. Recall aetiology, pathogenesis and pathology of RF.
K.9.6.3. Outline clinical presentations and criteria for diagnosis of RF.
CS.9.6.1. Conduct clinical examination of case suspected to have RF.
CS.9.6.2. Request appropriate investigations for a case RF.
CS.9.6.3. Plan comprehensive management for case with RF.

9.7. Scleroderma:
K.9.7.1. Discuss aetiology and pathogenesis of scleroderma.
CS.9.7.1. Recognize clinical manifestations, diagnosis, differential diagnosis and management of scleroderma.

9.8. Mixed connective tissue disorders (MCTD):
K.9.8.1. Discuss aetiology and pathogenesis of MCTD.
CS.9.8.1. Recognize clinical manifestations, diagnosis, differential diagnosis and management of MCTD.

9.9. Sjogren's syndrome:
K.9.9.1. Discuss aetiology and pathogenesis of Sjogren's syndrome.

9.10. Spondylo-arthritis:
K.9.10.1. Discuss aetiology and pathogenesis of Spondylo-arthritis:
- Ankylosing spondylitis (AS).
- Reactive arthritis
- Others: psoriasis and juvenile onset spondyloarthritis.
CS.9.10.1. Recognize clinical manifestations, diagnosis, differential diagnosis and management of Spondylo-arthritis:
- Ankylosing spondylitis (AS).
- Reactive arthritis
- Others: psoriasis and juvenile onset spondyloarthritis.

9.11. Osteoarthritis (OA):
K.9.11.1. Discuss aetiology and pathogenesis of OA.
CS.9.11.1. Recognize clinical manifestations, diagnosis, differential diagnosis and management of OA.

9.12. Gout:
K.9.12.1. Discuss aetiology and pathogenesis of gout.

9.13. Rheumatologic emergencies:
CS.9.13.1. Recognize clinical presentations and management of:
- Life-threatening SLE.
- Acute gouty arthritis.
- Septic arthritis.

10. INFECTIOUS DISEASES

10.1. Basic principles of infection and infectious diseases
K.10.1.1. Recall sources of infection, routes of transmission, and risk factors for the development of an infectious disease.
K.10.1.2. Outline the basic principles of prevention and control.

10.2. Approach to a patient with suspected infection
CS.10.2.1. Construct a clinical approach for a case with suspected infection

10.3. Fever of unknown origin (FUO)
K.10.3.1. Define FUO and Recognize its various causes.
CS.10.3.1. Conduct clinical examination for a case with FUO.
CS.10.3.2. Request and interpret appropriate investigations for a case with FUO.
CS.10.3.3. Plan comprehensive management for case with FUO.

10.4. Antimicrobial chemotherapy
K.10.4.1. Outline spectrum of cover of common anti-microbials, recognizing complications of inappropriate use
K.10.4.2. Recognize the pharmacokinetics and pharmacodynamics of antimicrobial agents
K.10.4.3. Recognize antibiotic chemoprophylaxis: when, what and how?
K.10.4.4. Recall major antimicrobial drugs in use: penicillins, cephalosporins, tetracyclines, aminoglycosides, macrolides, sulphonamides, quinolones, metronidazole, anti-tuberculous drugs, anti-fungal, anti-malarial, anti-helminthic and anti-viral drugs.

10.5 Viral infections
K.10.5.1. Recognize different classes of viral infections.
K.10.5.2. Identify clinical features, diagnosis and treatment of some common viral infections: influenza, herpes zoster (HZV), cytomegalovirus (CMV), Ebstein-Barr virus (EBV), poliovirus and viral encephalitis.

10.6. Bacterial infections

10.6.1. Rheumatic fever (RF):
K.10.6.1.1. Discuss the aetiology, the epidemiology and pathophysiology of RF.
CS.10.6.1.1. Recognize various clinical presentations (including criteria for diagnosis) of RF.
CS.10.6.2.1. Conduct clinical examination for a case with RF.
CS.10.6.2.2. Order and interpret appropriate investigations for a case with RF.
CS.10.6.2.3. Plan comprehensive management for a case with RF includes:
  - Initial and ongoing medical treatment.
  - Counseling and life style change, including chemoprophylaxis.
  - Referral for surgical or other specialty care if indicated.
  - Follow up options and settings.

10.6.2. Tuberculosis (TB):
K.10.6.2.1. Discuss the aetiology, epidemiology and pathology of TB.
K.10.6.2.2. Recognize clinical presentations and complications of TB.
CS.10.6.2.1. Conduct clinical examination for a case with TB.
CS.10.6.2.2. Order and interpret appropriate investigations for a case with TB.
CS.10.6.2.3. Plan comprehensive management for a case with tuberculosis, including:
  - Medical treatment
  - Counseling and life style change.
  - Follow up options and settings.
  - Referral for surgical or other specialty care if indicated

10.6.3. Meningitis:
K.10.6.3.1. Discuss the aetiology, epidemiology and pathology of meningitis.
K.10.6.3.2. Recognize clinical presentations and complications of meningitis.
CS.10.6.3.1. Conduct clinical examination for a case with meningitis.
CS.10.6.3.2. Order and interpret appropriate investigations for a case with meningitis (with special concern about precautions, indications and interpretation of lumbar puncture).
CS.10.6.3.4. Apply a comprehensive management plan that includes:
  - Initial and ongoing medical treatment.
  - Counseling and life style change, including chemoprophylaxis.
  - Follow up options and settings.

10.7 Other common bacterial infections
K.10.7.1. Outline clinical features, diagnosis and treatment of some common bacterial infections including:
  - Leptospirosis
  - Brucellosis
  - Lyme disease
  - Cholera
  - Enteric fever.
10.8 Fungal infections
K.10.8.2. Outline clinical features, diagnosis and treatment of aspergillosis.

10.9 Protozoal infections
K.10.9.1. Outline epidemiology, different types, life cycle, pathogenesis, clinical features, diagnosis, management of Malaria. Recognize means of malaria prophylaxis for adult travelers.
K.10.9.2. Recognize epidemiology, pathogenesis, different clinical presentations, diagnosis and management of amoebiasis.
K.10.9.3. Recall epidemiology, clinical features, diagnosis and treatment of giardiasis.

10.10 Helminthic infections
K.10.10.1. Outline epidemiology, different types, life cycle, pathogenesis, clinical features, diagnosis, management and prevention of Bilharziasis.
K.10.10.2. Recognize epidemiology, pathogenesis, different clinical presentations, diagnosis and management of filariasis.
K.10.10.3. Recall epidemiology, clinical features, diagnosis and treatment of some common parasites:
- Ascariasis (roundworm infection)
- Enterobius vermicularis (threadworm infection)
- Trichurus trichura (whipworm infection)
- Hookworm infections (Ancylostoma duodenale and Necatotr americanus)
- Strogyloides stercoralis.
- Echinococcus infection (hydatid disease)

10.11. HIV and AIDS
K.10.11.1. Describe the epidemiology, pathogenesis, diagnosis and natural history of human immunodeficiency virus (HIV).
K.10.11.2. Outline different clinical features of HIV and acquired immunodeficiency syndrome AIDS.
K.10.11.3. Recognize management plans of HIV-infected patients including antiretroviral drugs (ARVs) and highly active antiretroviral therapy (HAART).
K.10.11.4. Recall different means of prevention and control of HIV transmission.

10.12. Acute infections and sepsis
K.10.12.4. Recall the causes & manifestations of infections in immuno-compromised hosts.
CS.10.12.1. Stabilize, initiate treatment and refer patients presenting with acute infections when appropriate.
CS.10.12.2. In case of needle stick injury, select appropriate investigations and treatment according to local/national policy.
11. ENDOCRINOLOGY AND DIABETES

11.1. Anterior pituitary and hypothalamus:
K.11.1.1. Recall the hormones secreted by various pituitary cells and its regulatory mechanisms.
K.11.1.2. Recognize the causes, pathophysiology and clinical presentation of hypopituitarism/ pituitary, hypothalamic and other sellar masses.
K.11.1.3. Recognize aetiology and clinical presentation of hyperprolactinaemia and galactorrhea.
K.11.1.4. Discuss causes, clinical features and differential diagnosis of disturbed growth and development.
K.11.1.5. Discuss aetiology, clinical features and differential diagnosis of growth hormone excess.
K.11.1.6. Discuss clinical presentations of gonadotrophin deficiencies.
K.11.1.7. Discuss clinical presentations of ACTH producing tumours (Cushing's disease).
K.11.1.8. Neurohypophysis:
K.11.1.8.1. Discuss aetiology and clinical features of diabetes insipidus.
K.11.1.8.2. Outline causes and differential diagnosis of polyuria.
CS.11.1.1. Conduct clinical examination, diagnosis and treatment of a case of:
- Hypopituitarism.
- Hyperprolactinaemia and galactorrhea.
- Disturbed growth and development.
- Growth hormone excess.
- Gonadotrophin deficiencies.
- Cushing's disease.
- Diabetes insipidus.

11.2. Thyroid Gland:
K.11.2.1. Discuss causes, classification, pathogenesis and clinical manifestations of hypothyroidism.
K.11.2.2. Discuss classification, aetiology, pathogenesis and clinical manifestations of hyperthyroidism.
K.11.2.3. Discuss causes, classification and clinical presentation of thyroiditis.
K.11.2.4. Discuss causes, classification and clinical presentation of goiter/ thyroid nodules.
CS.11.2.1. Conduct clinical examination, diagnosis (including subclinical cases with subtle symptoms and signs) and treatment of a case of:
- Hypothyroidism.
- Hyperthyroidism.
- Thyroiditis,
- Goiter/ thyroid nodules.

11.3. Adrenal cortex:
K.11.3.1. Recall classification, secretion, metabolism and actions of rennin-angiotensin system.
K.11.3.3. Discuss causes, clinical manifestations and differential diagnosis of cushing’s syndromes.
K.11.3.4. Discuss classification (primary and secondary), causes and clinical features of hyperaldosteronism.
K.11.3.5. List syndromes of androgen excess. Recognize causes, differential diagnosis and clinical presentation of hirsutism and virilization.
K.11.3.6. Discuss classification (primary and secondary), causes and clinical features of hypofunction of adrenal cortex.

CS. 11.3.1. Conduct clinical examination, diagnosis and treatment of a case of:
- Cushing's syndrome.
- Hyperaldosteronism.
- Hirsutism and virilization.
- Hypofunction of the adrenal cortex.

11.4. Adrenal medulla:
K.11.4.1. Discuss clinical manifestations of pheochromocytoma.
CS. 11.4.1. Conduct clinical examination, diagnosis and treatment of a case of pheochromocytoma (including peri-operative management).

11.5. Diabetes mellitus:
K.1.5.1. Outline carbohydrate metabolism.
K.1.5.2. Outline lipid metabolism.
K.1.5.3. Outline protein metabolism.
K.11.5.1. Recognize ultrastructure and physiology of endocrine pancreas.
K.11.5.2. Recognize aetiology, epidemiology and pathogenesis of DM.
K.11.5.3. Discuss clinical presentations: Classic picture, acute complications and chronic complications.
CS.11.5.1. Recognize lab diagnosis and management of a case of DM: initial management – long term management.
CS.11.5.2. Diagnose and plan management of diabetic complications:
- Microvascular complications: retinal, renal and neuropathy.
- Macrovascular complications: CAD, CVD, PAD, skin, Gut.
CS.11.5.3. Counsel a patient regarding diabetes education: medical nutrition, therapy, exercise (management before, during and after exercise), self monitoring of blood glucose, urine ketone monitoring, insulin administration, diabetes management during illness, foot and skin care, risk-factor modifying activities.

11.6. Parathyroid gland:
K.11.6.2. Discuss causes and clinical features of:
- Hypophosphataemia and hyperphosphataemia.
- Hypomagnesaemia and hypermagnesaemia.
- Hypocalcaemia and hypercalcaemia.
K.11.6.3. Discuss aetiology, classification, pathogenesis, pathology and clinical presentations of hypo/ hyperparathyroidism.
K.11.6.4. Define osteoporosis and discuss its aetiology, pathogenesis and clinical presentation.
CS. 11.6.1. Conduct clinical examination, diagnosis and treatment of a case of:
- Hyperparathyroidism.
- Osteoporosis.

11.7. Obesity:
K.11.7.1. Recall the physiology of regulation of body energy balance.
K.11.7.2. Recall the adipocyte endocrine function.
K.11.7.3. Define obesity and recognize its measurement and prevalence.
K.11.7.4. Recognize causes and pathogenesis of obesity.
K.11.7.5. Recognize clinical presentations, complications, diagnosis and differential diagnosis of overweight/obesity.
CS 11.7.1. Conduct clinical examination for a case with obesity.
CS 11.7.2. Order and interpret relevant investigations for case with obesity.
CS 11.7.3. Construct a comprehensive management plan for a case with obesity (including diet, behavior modification, motivation and other lines of treatment e.g. drugs and surgery).

11.8. Endocrine emergencies:
K.11.8.1. Recognize causes, precipitating factors, pathogenesis and key features of common endocinal emergencies including: DKA, hypoglycaemia, hyperosmolar coma, thyroid storm, myxoedema coma, addisonian crisis, pituitary failure and hypertensive emergencies (in pheochromocytoma).
CS.11.8.1. Plan initial management of these endocinal emergencies
CS.11.8.2. Council patients regarding: the precipitating factors, early signs, emergency home maneuvers and prevention of such emergencies.

12. GERIATRIC MEDICINE

K1.2.9. Physiology of ageing: Recall the effects of ageing on the major organ systems, including diminished homeostatic abilities, altered metabolism and effects of drugs and other changes.

K.12.1. Describe the normal psychological, social and environmental changes of aging, including reactions to common stresses and changes such as retirement, bereavement, relocation and ill health, and the changes in family relationships that affect health care of the elderly.

K.12.2. List the unique modes of presentation of elderly patients for care, including altered and nonspecific presentations of specific diseases.

K.12.3. Recognize the tendency of elderly patients toward iatrogenic disease, immobilization and its consequences, dependency or long-term institutionalization while in the process of receiving medical care.

CS.12.1. Conduct clinical examination for elderly patients presented with various complaints.
CS.12.2. Manage common elderly medical problems and refer appropriately to specialist care when indicated.
CS.12.3. Identify the various types of long-term care facilities and alternative housings available to the elderly.
CS.12.4. Evaluate the functional status of the elderly patient.

13. PSYCHIATRY

13.1. Psychosomatic disorders
K.13.1.1. List diagnosis and differential diagnosis of Psychosomatic disorders: (somatisation disorders, malingering, dissociative disorders, hypochondriasis, psychogenic (or somatoform) pain disorders and factitious disorders)

CS.13.1.1. Safely determine after appropriate work up that a patient is likely to have a non-organic cause for their presentation
CS.13.1.2. conduct clinical examination and formulate a management plan for a patient with psychosomatic disorder
13.2. Depression
K.13.2.1. Recognize diagnostic criteria of common major depression and other depressive disorders
CS.13.2.1. Safely determine after appropriate work up that a patient is likely to have a depressive disorder
CS.13.2.2. conduct clinical examination and formulate a management plan for a patient with depressive disorder

13.3. Anxiety
K.13.3.1. Recognize diagnostic criteria of common anxiety disorders (Generalized anxiety, panic disorders, obsessive compulsive disorders and post-traumatic stress disorder)
CS.13.3.1. Safely determine after appropriate work up that a patient is likely to have an anxiety disorder
CS.13.3.2. conduct clinical examination and formulate a management plan for a patient with an anxiety disorder

13.4. Drug dependence
K.13.4.1. Recall the different presentations of alcoholism and substance misuse/ overdose.
CS.13.4.1. Recognize the co-existence of psychiatric disease
CS.13.4.2. order proper investigations and formulate a management plan for a patient with drug dependence

13.5. Psychiatric emergencies
K.13.5.1. List life threatening and important psychiatric conditions that present to the emergency internal medicine service
K.13.5.2. Highlight medical life threatening conditions that could be presented by psychiatric symptoms to the ER (delirium and acute psychosis)
CS.13.5.1. Perform a rapid focused clinical examination and apply management of psychiatric emergencies including referral to specialists

14. DERMATOLOGY

14.1. General dermatology
K.14.1.1. Describe morphology and patterns of common skin lesions
K.14.1.1. List the common skin manifestations of systemic diseases

14.2. Hyperpigmented lesions
K.14.2.1. Discuss clinical presentations, diagnosis, differential diagnosis and treatment of hyperpigmented lesions

14.3. Cellulitis
K.14.3.1. List causes, diagnosis, and differential diagnosis of cellulitis
CS.14.3.1. Conduct clinical examination and management of cellulitis

14.4. Cutaneous drug eruptions, urticaria and angioedema

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K.14.4.1. Describe the pathophysiology and clinical manifestations of the most common drug eruptions, urticaria and angiodema lesions
CS.14.4.1. Conduct clinical examination and management for cases with drug eruptions, urticaria or angiodema lesions

14.5. Dermatological emergencies
CS.14.5.1. Manage a case of anaphylaxis.

15. ALTERNATIVE AND COMPLEMENTARY MEDICINE
K.15.1. Define alternative, complementary and unconventional medicine
K.15.2. List principles of alternative and complementary and unconventional medicine
K.15.3. List indications and limitations of homeopathy, herbal medicine, acupuncture, meditation and others

GENERIC SKILLS

1. History Taking

K16. 1.1. Identify and record risk factors for conditions relevant to mode of presentation
CS16.1.1. Take a focused history relative to the clinical context.
CS16. 1.2. Use skills to overcome barriers to communication
CS16. 1.3. Identify possible cultural or religious barriers to effective communication
CS16. 1.4. Manage alternative and conflicting views from family, carers & friends

A16.1.1. Fully address patients concerns, ideas and expectations
A16.1.2. Respect patient confidentiality
A16.1.3. Maintain cultural awareness and identity
A16.1.4. Value patient comprehension
A16.1.5. Recognize importance of a collateral history in certain situations e.g. unreliable history

2. Clinical Examination

K16. 2.1. Describe the pathophysiological and anatomical basis for clinical signs
CS16. 2.1. Perform an examination relevant to the presentation and risk factors that is valid, targeted and time efficient
CS16. 2.2. Perform valid examination in more challenging situations (e.g. critical care setting, unconscious patient, distracting environment)
CS16. 2.3. Assess mood and cognitive function as appropriate.
A16.2.1. Respect a patient’s dignity and cultural background and other beliefs
A16.2.2. Recognize importance of patient consent in context of examination
A16.2.3. Demonstrate willingness and ability to teach junior and health worker colleagues
A16.2.4. Demonstrate sound examination technique
3. Principles of Diagnosis and Clinical Reasoning

K16. 3.1. List the drawbacks of commonly used guidelines
K16. 3.2. Define the steps of diagnostic reasoning:
   - Interpret history and clinical signs
   - Generate hypothesis within context of clinical likelihood
   - Test, refine and verify hypothesis
   - Develop problem list and action plan
   - Describe commonly used statistical methodology

CS16. 3.1. Analyze symptoms & signs and construct a differential diagnosis for common presenting complaints.
CS16. 3.2. Design an appropriate diagnostic plan for evaluation of common presenting complaints which is appropriate in terms of the differential diagnosis, the severity of the clinical situation and the risks, benefits and costs to the patient.
CS16. 3.3. Accurately interpret the results of commonly used diagnostic procedures.
CS16. 3.4. Identify risk factors for disease processes and injury, and institute the appropriate diagnostic, preventive, and therapeutic interventions.
CS16. 3.5. Identify the indications and logistics of referring patients to higher levels of experience or specialization
CS16. 3.6. Construct treatment plan, incorporating his knowledge, best available evidence, and patient’s preferences in a cost effective manner.
CS16. 3.7. Search and comprehend medical literature to guide reasoning

A16.3.1. Recognize the difficulties in predicting occurrence of future events
A16.3.3. Be willing to facilitate patient choice
A16.3.4. Show willingness to search for evidence to support clinical decision making
A16.3.5. Demonstrate ability to identify one’s own biases and inconsistencies in clinical reasoning

4. Therapeutics and Safe Prescribing

K16. 4.1. Recall range of adverse drug reactions to commonly used drugs, including complementary medicines
K16.4.2. Recall drugs requiring therapeutic drug monitoring and interpret results
K16. 4.3. Outline tools to promote patient safety and prescribing.

CS16. 4.1. Undertake regular review of long term medications
CS16. 4.2. Predict and avoid drug interactions, including complementary medicines
CS16.4.3. Make appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)
CS16. 4.4. Employ appropriate methods to improve patient concordance with medication
CS16. 4.5. Provide effective explanation for the role of medicines

A16.4.1. Recognize the benefit of minimizing number of medications taken by a patient
A16.4.2. Remain open to advice from other health professionals on medication issues
A16.4.3. Recognize the importance of resources when prescribing, including the role of a Drug Formulary
A16.4.4. Ensure prescribing information is shared promptly and accurately between a patient’s health providers, including between primary and secondary care
A16.4.5. Remain up to date with therapeutic alerts, and respond appropriately

5. Communication skills

5.1. Within a Consultation

K16. 5.1.1. Recall the Interview structure:
- Effective listening
- Clarify information given by patient
- Use comprehensible language tailored to patient
- Use open and closed questions appropriately
- Gauge patients’ ideas, concerns, expectations and comprehension
- Appropriate use of written materials and interpreters
- Act in a courteous, polite and professional manner

CS16. 5.1.1. Demonstrate good communication skills to the patient.
CS16. 5.1.2. Manage patient follow-up effectively
CS16. 5.1.3. Accurately record details of discussions with the patient over care
CS16. 5.1.4. Identify and manage communication barriers while respecting confidentiality: language, cultural, hearing impairment, poor literacy etc

A16. 5.1.1. Show willingness to provide patients with a second opinion
A16. 5.1.1. Show willingness to identify other sources of information for patients (printed literature, support societies etc)
A16. 5.1.1. Ensure the patient is well informed and central to the decision making process
A16. 5.1.1. Be aware of significant others and recognize their role in the management of the patient with a long term condition

5.2. Breaking Bad News

K16. 5.2.1. Recall the steps of breaking bad news.
K16. 5.2.2. Outline the stages of bereavement

CS16. 5.2.1. Demonstrate to others good practice in breaking bad news
Counsel families on issues of:
- Death and dying
- Withdrawing and withholding life-prolonging treatment
- Incapacity (such as follows disabling stroke)

A16. 5.2.1. Take leadership in breaking bad news
A16. 5.2.2. Respect the different ways people react to bad

5.3. Complaints and Medical Errors

K16. 5.3.1. Recall the Awareness of local complaints procedure
- Factors likely to lead to complaints (poor communication, dishonesty etc)
- Adopt behavior likely to prevent complaints Deal with dissatisfied patients or relatives
- Recognize when something has gone wrong and identify appropriate staff to communicate this with
- Act with honesty and sensitivity in a non-confrontational manner

K16. 5.3.2. Define the local complaints procedure
K16. 5.3.3. Identify sources of help and support when a complaint is made about yourself or a colleague

CS16. 5.3.1. Contribute to processes whereby complaints are reviewed and learned from
CS16. 5.3.2. Explain comprehensibly to the patient the events leading up to a medical error
CS16. 5.3.3. Deliver an appropriate apology
CS16. 5.3.4. Distinguish between system and individual errors

A16. 5.3.1. Take leadership over complaint issues
A16. 5.3.2. Recognize the impact of complaints and medical error on staff, and patients
A16. 5.3.3. Contribute to a fair and transparent culture around complaints and errors
A16. 5.3.3. Recognize the rights of patients, family members and carers to make a complaint

5.4. Communication with Colleagues and Collaboration

K16. 5.4.1. Outline the features of an effective comprehensive handover
K16. 5.4.2. Identify the important roles played by all members of a multi-disciplinary team
K16. 5.4.3. Outline features of good team dynamics
K16. 5.4.4. Outline the principles of effective inter-professional collaboration to optimize patient, or population, care

CS16. 5.4.1. Establish effective communication with relevant teams by means appropriate to the urgency of a situation e.g. accurate written consultation letter
CS16. 5.4.2. Delegate to members of the medical team and members of the multi-disciplinary team whilst maintaining appropriate supervision
CS16. 5.4.3. Participate in, and co-ordinate, an effective hospital at night team
CS16. 5.4.4. Participate in, and co-ordinate, an effective hand over between shifts and the hospital at night team
CS16. 5.4.5. Take responsibility for accurate and prompt information distribution to primary care and community care following an admission or hospital visit
CS16. 5.4.6. Utilize the expertise of the multi-disciplinary team
CS16. 5.4.7. Ensure confidentiality is maintained during information distribution to other health care teams following admission or hospital visit
CS16. 5.4.8. Communicate effectively with administrative bodies and support organizations
CS16. 5.4.9. Employ collaborative negotiation to prevent and resolve conflict

A16. 5.4.1. Foster a supportive and respectful environment where there is open and transparent communication
A16. 5.4.2. Respect opinions and encourage open communication with all members of the multi-disciplinary team to improve learning and patient care
A16. 5.4.3. Encourage an atmosphere of open communication within teams to improve patient care and learning
A16. 5.4.4. Show willingness to participate in multi-disciplinary and multi-specialty team meetings
6. Medical Ethics and Legal Issues

6.1. Confidentiality

K.16.6.1.1. Outline the importance of medical confidentiality and its practical implications in a number of situations.
K.16.6.1.2. Outline the major professional guidelines and legal approaches to confidentiality
K.16.6.1.3. Outline situations where patient consent, while desirable, is not required for disclosure e.g. communicable diseases, public interest

CS16.6.1.1. Use and share information with the highest regard for confidentiality, and encourage such behaviour in other members of the team
CS16.6.1.2. Use and promote strategies to ensure confidentiality is maintained e.g. anonymisation
CS16.6.1.3. Counsel patients on the need for information distribution within members of the immediate healthcare team

A16. 6.1.1. Show willingness to seek advice of peers, legal bodies, and the ethical council in the event of ethical dilemmas over disclosure and confidentiality
A16. 6.1.2. Respect patients’ requests for information not to be shared, unless this puts the patients or others at risk of harm

6.2. Valid Consent

K.16.6.2.1. Outline common law, the Mental Capacity and guidelines, related to consent for medical treatment.
K.16.6.2.2. Outline Consent and Decision-Making Capacity
K.16.6.2.3. List situations in which consent for treatment is not needed under common law

CS16.6.2.1. Present all information to patients in a format they understand, allowing time for reflection on the decision to give consent
CS16.6.2.2. Provide a balanced view of care options
CS16.6.2.3. Obtain an informed consent from a patient or a simulated patient in a clinical situation

A16. 6.2.1. Respect a patient’s rights of autonomy, even in situations where their decision might put themselves at risk of harm
A16. 6.2.2. Avoid exceeding the scope of authority given by a patient
A16. 6.2.3. Avoid withholding information relevant to proposed care or treatment in a competent adult
A16. 6.2.4. Respect a patient’s withdrawal of consent
A16. 6.2.5. Show willingness to obtain a second opinion, senior opinion, and legal advice in difficult situations of consent or capacity

6.3. ETHICAL AND LEGAL ISSUES AT THE END OF LIFE

CS16.6.3.1.Apply ethical principles, government laws and regulations to specific patient care scenarios:
- End of Life care
- “Do not resuscitate” (DNR) orders
- Heart-lung death
- Brain death
- Persistent vegetative state
- Medical futility and inappropriate care requests
- Autopsy
- Organ Donation
- Euthanasia and physician-assisted suicide

6.4. GENETICS

K.16.6.4.1. Identify the key ethical issues arising in cases in clinical genetics concerning the use of prenatal testing.
K.16.6.4.2. Describe the ethical implications of two areas of practice in clinical genetics:
  - The use of prenatal diagnosis (PND) with particular reference to disability
  - The sharing of genetic information with families

CS16.6.4.1. Apply the skills of reasoning and argument learned (e.g. case comparison and constructing an argument) to the ethical issues they have identified

6.5. MEDICO-LEGAL ISSUES

K.16.6.5.1. Outline the legal criteria for malpractice and negligence and describe their application
CS16.6.5.1. Write up a death certificate
CS16.6.5.2. Write a well-structured medical report, covering medical and legal aspects of a patient

7. Information Management

K16. 7.1. Outline the local process for clinical coding & the role of coding in health funding
K16. 7.2. Outline the local systems for information retrieval, including IT systems
K16. 7.3. Define the provisions of the Data Protection Act and the Freedom of Information Act within the context of patient information

CS16. 7.1. Demonstrate good information management to others
CS16. 7.2. Share written information of a patient’s care appropriately by following local procedure
CS16. 7.3. Retrieve investigation results in a timely manner and act upon result appropriately
CS16. 7.4. Use local systems appropriately within the context of the data protection act

A16. 7.1. Provide leadership for note keeping, referrals, letters and timely discharge summaries written by members of team
A16. 7.2. Recognize the patient safety and medico-legal impact of poor note keeping

8. Evidence and guidelines

K16. 8.1. Outline the advantages and disadvantages of guidelines
K16. 8.2. Describe the principles of critical appraisal
K16. 8.3. Outline the advantages and disadvantages of different study methodologies (randomized control trials, case controlled cohort etc)
CS16. 8.1. Contribute to the construction, review and updating of local (and national) guidelines of good practice using the principles of evidence based medicine
CS16. 8.1. Appraise retrieved evidence to address a clinical question
CS16. 8.1. Apply conclusions from critical appraisal into clinical care Identify the limitations of research

A16. 8.1. Keep up to date with national reviews and guidelines of practice A16. 8.2. Aim for best clinical practice (clinical effectiveness) at all times
A16. 8.3. Recognize the occasional need to practice outside clinical guidelines
A16. 8.4. Encourage discussion amongst colleagues on evidence-based practice

9. Infection Control

K16. 9.1. Outline the principles of infection control defined by the local authority
K16. 9.2. Outline the principles of infection prevention in high risk groups (e.g. antibiotic use and Clostridium difficile) including antibiotics prescribing policy
K16. 9.3. List the principle notifiable diseases in the Egypt
K16. 9.4. Outline the role of the Consultant in Communicative Disease Control

CS16. 9.1. Counsel patients on matters of infection control
CS16. 9.2. Actively engage in local infection control methods
CS16. 9.3. Prescribe antibiotics according to local antibiotic guidelines

A16. 9.1. Encourage other staff to observe infection control principles

10. Audit

K16. 10.1. Recall the role of audit (developing patient care, risk management etc)

CS16. 10.1. Design, implement and complete audit cycles
CS16. 10.2. Contribute to local and national audit projects as appropriate

A16. 10.1. Appreciate the need for audit in clinical practice