Surgery

Aims of the surgical education for undergraduates are to develop a primary care physician with appropriate knowledge, skill and attitude to treat common disease at the primary care level. Emphasis will be laid on the primary care of the injured, care of comatose, common wounds and ulcers, resuscitation of patient with cardiac arrest, initial care of acute abdominal conditions and other emergencies. Diagnosis, workup and proper referral of common conditions viz. hernia, lumps in breast, thyroid, piles and fissure & fistula, abdominal lumps, renal stones, varicose veins will be covered substantially.

OBJECTIVES

Knowledge

At the end of the course, the student shall be able to:

1. Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children;
2. Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion;
3. Define asepsis, disinfection and sterilization and recommend judicious use of antibiotics;
4. Describe clinical features and risk factors of common malignancies in the country and their management including prevention.
5. Enumerate different types of anaesthetic agents, their indications, mode of administration, contraindications and side effects.

Skills

At the end of the course, the student should be able to:

1. Diagnose common surgical conditions both acute and chronic, in adult and children;
2. Plan various laboratory tests for surgical conditions and interpret the results;
3. Identify and manage patients of haemorrhagic, septicemia and other types of shock;
4. Be able to maintain patent air-way and resuscitate a –
   (i) a critically injured patient;
   (ii) Patient with cardio-respiratory failure;
   (iii) A drowning case. 5. Monitor patients of head, chest, spinal and abdominal injuries, both in adults and children;
5. Provide primary care for a patient of burns;
6. Acquire principles of operative surgery, including pre-operative, operative and post operative care and monitoring;
7. Treat open wounds including preventive measures against tetanus and gas gangrene;
8. Diagnose neonatal and paediatric surgical emergencies and provide sound primary care before referring the patient to secondary / tertiary centers;
9. Identify congenital anomalies and refer them for appropriate management.
Human values, and Ethical practice

- Adopt ethical principles in all aspects of his clinical practice. Professional honesty and integrity are to be fostered. Surgical care is to be delivered irrespective of the social status, caste, creed or religion of the patient.
- Develop communication skills, in particular the skill to explain various options available in management
- Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues and specialist in the field when needed.
- Respect patient's rights and privileges including patient's right to information and right to seek a second opinion

© INTEGRATION

The undergraduate teaching in surgery shall be integrated at various stages with different pre and para and other clinical departments.

LEARNING METHODS

Lectures, Tutorials bedside clinics and lecture cum demonstrations

Distribution of Teaching hours -

- Lectures - 160 hours
- Tutorials and revision - 140 hours
- Bedside clinics - 468 hours five clinical postings totaling 26 weeks including Anesthesiology
- Clinical postings in General Surgery -
  - 3rd Semester - 6 weeks
  - 5th Semester - 4 weeks
  - 7th Semester - 4 weeks
  - 8th Semester - 6 weeks
  - 9th Semester - 6 weeks

Sequential organization of contents and their division –

GENERAL SURGERY LECTURES

4th Term

General Surgery: Part I 16 Lectures

6th Term 3 modules

- Module 1
  - Vascular Surgery: 8 Lectures
  - Tropical Surgery: 4 Lectures
  - Gen. Surgery Remaining 16 Lectures

- Module 2
  - Head and Neck surgery
  - Endocrine surgery 16 Lectures

- Module(3)
  - Breast surgery 4 Lectures
  - Plastic & Reconstructive Surgery 6 Lectures
  - Neurosurgery 6 Lectures

7th Term: 3 Modules

- Modules (1)
  - Cardio Thoracis Surgery 8 Lectures
  - Pediatric Surgery 8
Module (3)
- Liver
- Spleen
- Portal Hypertension
- 16 Lectures

8th Term 4 modules

Module (1)
- Lower G.I. tract
- Abdominal wall, Incision Hernia
- 16 Lectures

Module (2)
- Upper GUT
- Organ transplantation
- 16 Lectures

Module (3)
- Lower GUT
- Hernia, Hydrocoele
- 16 Lectures

9th Term

Revision Lectures/ tutorials/ lecture cum demonstrations
- 160 Hours

Revision Lectures/ tutorials/ lecture cum demonstrations
- 48

208

TUTORS

6TH Term
Surgical pathology
- 32

8th Term
Operative Surgery + Instruments
- 32

9th Term
Imaging sciences- Interpretation of Investigations
- 28

300

Course contents- General Surgery - including pediatric surgery

COURSE CONTENTS

A. GENERAL PRINCIPLES
1. Wound healing and management, scars: Hypertrophic scar and keloid; First aid management of severely injured.
2. Asepsis, antisepsis, sterilisation.
3. Surgical sutures, knots, drains, bandages and splints.
4. Surgical infections and rational use of antibiotics: Causes of infection, prevention of infection, common organisms causing infection.
5. Boils, cellulitis, abscess, necrotising fascitis.
7. Chronic specific infections: Tuberculosis, Filariasis, and Leprosy.
8. Antibiotic therapy.
9. Hospital infection.
10. AIDS and Hepatitis B; Occupational hazards and prevention.

B. 1. Mechanism and management of missile, blast and gunshot injuries.
2. Surgical aspects of diabetes mellitus.
3. Bites and stings.
4. Organ transplantation - Basic principles.
5. Nutritional support to surgical patients

II. RESUSCITATION.
1. Fluid electrolyte balance.
2. Shock: Aetiology, pathophysiology and management.

III. COMMON SKIN AND SUBCUTANEOUS CONDITIONS.
1. Sebaceous cyst, dermoid cyst, lipoma, haemangioma, neurofibroma, premalignant Conditions of the skin, basal cell carcinoma, naevi and malignant melanoma.
2. Sinus and fistulae. Pressure sores; prevention and management.

IV. ARTERIAL DISORDERS.
1. Acute arterial obstruction: diagnosis and initial management; types of gangrene; diagnosis of chronic arterial insufficiency with emphasis on Burger’s disease, athreosclerosis and crush injuries.
2. Investigations in cases of arterial obstruction. Amputations;
3. Vascular injuries: basic principles of management.

V. VENOUS DISORDERS.
1. Varicose veins: diagnosis and management; deep venous thrombosis: diagnosis, prevention, principles of therapy; thrombophlebitis.

VI. LYMPHATICS AND LYMPH NODES.
1. Diagnosis and principles of management of lymphangitis, lymphedema, acute and chronic lymphadenitis; cold abscess, lymphomas, surgical manifestations of filariasis.

VII. BURNS.
1. Causes, prevention and first aid management; pathophysiology; assessment of depth and surface area, fluid resuscitation; skin cover; prevention of contractures.

VIII. SCALP, SKULL AND BRAIN.
1. Wounds of scalp and its management: recognition, diagnosis and monitoring of patients with head injury including unconsciousness; Glasgow coma scale recognition of acute/chronic cerebral compression.

IX. ORAL CAVITY, JAWS, SALIVARY GLANDS.
Oral cavity: I) Cleft lip and palate; Leukoplakia; retention cyst; ulcers of the tongue.
Features, diagnosis and basic principles of management of carcinoma lip, buccal mucosa and tongue, prevention and staging of oral carcinomas.

IX. B. Epulis, cysts and tumours of jaw: Maxillofacial injuries; salivary fistulae

X. NECK.
1. Branchial cyst; cystic hygroma.
X. B. Thoracic outlet syndrome: diagnosis. XI. THYROID GLAND

XI. THYROID GLAND
1. Thyroid: Surgical anatomy, physiology, investigations of thyroid disorders; types, Clinical features, diagnosis and principles of management of goitre, thyrotoxicosis and malignancy, thyroglossal cyst and fistula.

XI. B. Thyroiditis, Hypothyroidism.

XII. PARATHYROID AND ADRENAL GLANDS.
1. Clinical features and diagnosis of hyperparathyroidism, adrenal hyperfunction/ hypofunction.

XIII. BREAST.
1. Surgical anatomy; nipple discharge; acute mastitis, breast abscess; mammary dysplasia; gynaecomastia; fibroadenomas.
2. Assessment and investigations of a breast lump.

XIV. THORAX.
1. Recognition and treatment of pneumothorax, haemothorax, pulmonary embolism: Prevention/ recognition and treatment, flail chest; Stove in chest ; Postoperative pulmonary complications

XIV. B. Principles of management of pyothorax; cancer lung.

XV. HEART AND PERICARDIUM.
1. Cardiac tamponade
2. Scope of cardiac surgery.

XVI. OESOPHAGUS.
1. Dysphagia: Causes, investigations and principles of management.

XVII. STOMACH AND DUODENUM.
1. Anatomy; Physiology, Congenital hypertrophic pyloric stenosis; aetiopathogenesis, diagnosis and management of peptic ulcer, cancer stomach; upper gastrointestinal haemorrhage with special reference to bleeding varices and duodenal ulcer.

XVIII. LIVER

XVIII. B. Surgical anatomy; primary and secondary neoplasms of liver.

XIX. SPLEEN
Splenomegaly: causes, investigations and indications for splenectomy: splenic injury.

XX. GALL BLADDER AND BILE DUCTS
1. Anatomy, physiology and investigations of biliary tree; clinical features, diagnosis, complications and principles of management of cholelithiasis and cholecystitis; obstructive jaundice.
XX. B. Carcinoma of gall bladder, choledochal cyst.

XXI. PANCREAS.
1. Acute pancreatitis: Clinical features, diagnosis, complications and management.
2. Chronic pancreatitis, pancreatic tumours.

XXII. PERITONEUM, OMENTUM, MESENTERY AND RETROPERITONEAL SPACE.
1. Peritonitis: Causes, recognition and principles of management; intraperitoneal abscess.

XXII B. Laparoscopy and laparoscopic surgery.

XXIII. SMALL AND LARGE INTESTINES
1. Diagnosis and principles of treatment of: Intestinal amoebiasis, tuberculosis of intestine, carcinoma colon; lower gastrointestinal haemorrhage; Enteric fever, parasitic infestations.

XXIII B. Ulcerative colitis, premalignant conditions of large bowel.

XXIV. INTESTINAL OBSTRUCTION.
1. Types, aetiology, diagnosis and principles of management; paralytic ileus.

XXV. ACUTE ABDOMEN.
1. Causes, approach, diagnosis and principles of management.

XXVI. APPENDIX
1. Diagnosis and management of acute appendicitis, appendicular lump and abscess.

XXVII. RECTUM.
1. Carcinoma rectum: diagnosis, clinical features and principles of management; indications and management of colostomy.
2. Management of carcinoma rectum; prolapse of rectum.

XXVIII. ANAL CANAL.
1. Surgical anatomy. Clinical features and management of: fissure, fistula in ano, perianal and ischiorectal abscess and haemorrhoids; Diagnosis and referral of anorectal anomalies.

XXIX. HERNIAS.
2. Omphalitis.

XXX. GENITO-URINARY SYSTEM.
1. Symptoms and investigations of the urinary tract.

XXXI. KIDNEY AND URETER
1. Investigations of renal mass; diagnosis and principles of management of urolithiasis, hydronephrosis, pyonephrosis, and perinephric abscess, congenital anomalies of kidney & Ureter and renal tumours.
2. Renal tuberculosis.

XXXII. URINARY BLADDER.
1. Causes, diagnosis and principles of management of haematuria, anuria and acute retention of urine.

XXXIII. PROSTATE AND SEMINAL VESICLES.
1. Benign prostatic hyperplasia: diagnosis and management.

XXXIII B. Carcinoma prostate.

XXXIII. URETHRA AND PENIS
1. Diagnosis and principles of management of Phimosis, paraphimosis and carcinoma penis.
2. Principles of management of urethral injuries.
3. Urethral strictures.

XXXV. TESTES AND SCROTUM
1. Diagnosis and principles of treatment of undescended testis; torsion testis; Hydrocoele, hematocoele, pyocoele, varicocele, epididymo-orchitis and testicular tumours.

XXXVI PAEDIATRIC SURGERY
1. Oesophageal atresia and Intestinal atresia
2. Anorectal malformations
3. Constipation in children: Hirschsprung's disease, Acquired megacolon,
4. Congenital diaphragmatic hernia
5. Extrophy, Epispadias complex and hypospadias
6. Spinal diastrophism and Hydrocephalus
8. Testicular Maldescent
9. Umbilical Hernia, Exompholos: Major/minor

Biliary Atresia and Surgical jaundice

**Suggested lecture program**

**Distribution of syllabus in respective semesters**
This is suggested programme and can vary at institute
Total 300 hours of teaching has to be done in General Surgery including Tutorials
Details of syllabus is given separately below after distribution as per semester

**4th Semester**
: 16 Lectures
1) Introduction to Surgery
2) Body response to injury
3) Wound and wound healing
4) Acute infection, Boils, Carbuncle etc
5) Chronic infections
6) Tetanus and Gas gangrene
7) Neoplasm General Consideration
8) Surgical Nutrition
9) Pre operative and Post operative Care
10) Sepsis and Anti Spesis
11) Burns
12) Shock
13) Fluid and Electrolyte Balance
14) Monitoring of surgical Patients
15) Hemostasis and Blood transfusion.

**6th Term 3 modules**
**Module 1**

**General surgery**
- a. Polytrauma
- b. Missiles and their effects & blast injuries
- c. Management of war wounds
- d. Surgical diseases skin conditions
- e. minimally invasive surgery
- f. Principal of Radiotherapy
- g. OT Techniques
- h. AIDS in surgery
- i. Foot including Diabetic Foot
- j. Hand and hand infection
**Vascular Surgery**

* ARTERIAL DISORDERS.
  1. Acute arterial obstruction: diagnosis and initial management; types of gangrene; diagnosis of chronic arterial insufficiency with emphasis on Burger’s disease, athreosclerosis and crush injuries.
  2. Investigations in cases of arterial obstruction. Amputations;
  3. Vascular injuries: basic principles of management.
  4. Surgically correctable Hypertension

* VENOUS DISORDERS.
  1. Varicose veins: diagnosis and management; deep venous thrombosis: Diagnosis, prevention, principles of therapy; thrombophlebitis.

*LYMPHATICS AND LYMPH NODES.
Diagnosis and principles of management of lymphangitis, lymphedema, acute and chronic lymphadenitis; cold abscess, lymphomas, surgical manifestations of filariasis.

**Module 2**
**HEAD, FACE, NECK** 8 lectures

1. ORAL CAVITY, JAWS, SALIVARY GLANDS.
   1. Oral cavity:
      I) Cleft lip and palate; Leukoplakia; retention cyst; ulcers of the tongue.
      II) Features, diagnosis and basic principles of management of carcinoma lip, buccal mucosa and tongue, prevention and staging of oral carcinomas.
   2. Salivary glands:
      I) Acute sialoadenitis, neoplasm: diagnosis and principles of treatment
      II) Salivary fistulae
   2. Epulis, cysts and tumours of jaw: maxillofacial injuries

3 NECKS
   1. Branchial cyst; cystic hygroma.
   2. Cervical lymphadenitis: Non specific and specific,
   3. Tuberculosis of lymphnodes, secondaries of neck.


2. **ENDOCRINE SURGERY** 8 lectures

A. THYROID GLAND
   I) Thyroid: Surgical anatomy, physiology, investigations of thyroid disorders; types, clinical features, diagnosis and principles of management of goitre, thyrotoxicosis and malignancy, thyroglossal cyst and fistula.
   II) Thyroiditis, Hypothyroidism.

B. PARATHYROID AND ADRENAL GLANDS.
   Clinical features and diagnosis of hyperparathyroidism,
   Tumours of the adrenal gland
   Adrenal hyperfunction/hypofunction

C. Diseases of thymus

➢ **Module 3**

1. **NEURO-SURGERY** 6 lectures
   1. Head injury
   2. Intracranial tumours & other ICSOL
   3. Congenital anomalies of brain & spinal cord
   4. Surgery of peripheral nerves & diseases

2. Surgery of Breast 5 lectures

   1. Surgical anatomy; nipple discharge; acute mastitis, breast abscess;
mammary dysplasia; gynaecomastia; fibroadenomas.
2. Assessment and investigations of a breast lump.
3. Cancer breast: diagnosis, staging, principles of management

3. PLASTIC & RECONSTRUCTIVE SURGERY 6 lectures

1. Management of burns
2. Skin grafting including flaps
3. Injuries of the hand
4. Infections of the hand

7th Semester
Module (1)
Cardio Thoracic surgery 8
Paediatric surgery 8 16 lectures

CARDIO-THORACIC SURGERY
1. Injuries of the chest
2. Tumours of the lung & bronchial tree
3. Congenital heart disease
4. Acquired heart disease
5. Surgery of ischaemic heart disease
6. Diseases of pericardium
7. Cardiac arrest

Paediatric Surgery
1. Oesophageal atresia and Intestinal atresia
2. Anorectal malformations
3. Constipation in children: Hirschsprung's disease, Acquired megacolon,
4. Congenital diaphragmatic hernia
5. Extrophy, Epispadias complex and hypospadias
6. Spinal diastrophism and Hydrocephalus
8. Testicular Maldescent
9. Umbilical Hernia, Exompholos: Major/minor
10. Wilm’s Tumours: Neuroblastoma, Ganglioneurom and Cystic hygroma, Haemangioma.
12. Biliary Atresia and Surgical jaundice

Module 2
TROPICAL SURGERY
1. Surgical consideration in Amoebiasis & Enteric fever
2. Filariasis, Dracontiasis & Ascariasis
3. Hydatid disease
4. Leprosy, Madura foot, Tropical ulcer Actionomycosis

HEPATOBIARIARY PANCREATIC SURGERY +SPLEEN
A. LIVER
Clinical features, diagnosis and principles of management of: Amoebic liver abscess, Liver trauma
Surgical anatomy; primary and secondary neoplasms of liver.

SPLEEN
Splenomegaly: causes, investigations and indications for splenectomy: splenic injury.

GALL BLADDER AND BILE DUCTS
Anatomy, physiology and investigations of biliary tree; clinical features, diagnosis, complications and principles of management of cholelithiasis and cholecystitis; obstructive jaundice.
Carcinoma of gall bladder, choledochal cyst. PANCREAS.
Acute pancreatitis: Clinical features, diagnosis, complications and management.
Chronic pancreatitis, pancreatic tumours. PORTAL HYPERTENSION
Clinical presentation, Investigation and management

Module 3

Upper gastrointestinal Tract and Peritoneum

PERITONEUM, OMENTUM, MESENTERY AND RETROPERITONEAL SPACE.
1. Peritonitis: Causes, recognition and principles of management;
2. Intraperitoneal abscess
   OESOPHAGUS.
   1. Dysphagia: Causes, investigations and principles of management.
   STOMACH AND DUODENUM.
   1. Anatomy; Physiology, Congenital hypertrophic pyloric stenosis; aetiology, diagnosis and management of peptic ulcer, cancer stomach; upper gastrointestinal haemorrhage with special reference to bleeding varices and duodenal ulcer.
   SMALL INTESTINES
   1. Diagnosis and principles of treatment of, tuberculosis of intestine.

8th Semester
Module 1
Lower gastrointestinal Tract and abdominal wall

Acute Abdomen
INTESTINAL OBSTRUCTION.
Types, aetiology, diagnosis and principles of management; paralytic ileus
Aetiology, Clinical Features, Investigations and management
Abdominal Wall
1. Features, diagnosis, complications and principles of management of: Umbilical, epigastric hernia., incisional; hernia ventral hernia
LARGE INTESTINES
Ulcerative colitis, premalignant conditions of large bowel carcinoma colon; lower gastrointestinal haemorrhage;, parasitic infestations.

APPENDIX
Diagnosis and management of acute appendicitis, Appendicular lump and abscess.
RECTUM.
Carcinoma rectum: diagnosis, clinical features and principles of management; indications and Management of colostomy.
Management of carcinoma rectum; Prolapse of rectum.
ANAL CANAL
. Surgical anatomy. Clinical features and management of: fissure, Fistula in ano, perianal and ischiorectal abscess and haemorrhoids; Diagnosis and referral of anorectal anomalies.
Anal carcinoma.
- Umbilicus and Abdominal wall
Umbilical fistulae, Burst abdomen, ventral hernia.

Module 2
Upper genito-urinary Tract and Organ Transplantation

- GENITO- URINARY SYSTEM.
- Symptoms and investigations of the urinary tract.
- KIDNEY AND URETER
Anatomy and Embryology of Kidney and ureter Congenital anomalies of kidney & Ureter Investigations of renal mass; Diagnosis and principles of management of urolithiasis, Hydronephrosis, pyonephrosis, perinephric abscess, Renal tumours. Renal tuberculosis.

Module 3
Upper genito-urinary Tract and Hernia

- URINARY BLADDER.
Causes, diagnosis and principles of management of haematuria, Anuria and Acute retention of urine.
- PROSTATE AND SEMINAL VESICLES.
Benign prostatic hyperplasia: diagnosis and management. Carcinoma prostate.
- URETHRA AND PENIS
Diagnosis and principles of management of Phimosis , paraphimosis and. Principles of management of urethral injuries. Urethral strictures. Carcinoma penis
- TESTES AND SCROTUM.
Diagnosis and principles of treatment of undescended testis; torsion testis; Hydrocoele, hematocoele, pyocoele, Varicocele, epididymo-orchitis and Testicular tumours
- HERNIAS.
Clinical features, diagnosis, complications and principles of management of: Umbilical, Inguinal, epigastric and femoral hernia.
Introduction of “Brain Death and Organ Donation” topic in subjects of Physiology , Preventive & Social Medicine, Psychiatry, Medicine & Surgery
RECOMMENDED BOOKS FOR GENERAL SURGERY

TEXT BOOKS:
3. JSP Lumley: Hamilton Bailey”s Physical Signs 18th Edn Butterworth/Heinemann. 1997,

REFERENCE TEXT BOOKS
1. James Kyle : Pye”s Surgical handicraft, Indian edition, k.m. Varghese Company David C.

Criteria of passing surgery subject at III MBBS Examination

<table>
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<tr>
<th>Subject</th>
<th>Theory paper/oral/practical/internal assessment</th>
<th>Maximum Marks</th>
<th>Minimum marks required to pass in each part</th>
<th>Minimum marks required to pass in each subject out of</th>
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<td>General Surgery</td>
<td>Theory</td>
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150
300
It is compulsory to obtain 50% marks in theory.
It is mandatory to obtain 50% marks in theory+viva/oral.

FINAL MBBS EXAMINATION IN SURGERY

Evaluation: Methods – Internal assessment, Theory, Practical and Viva

Internal Assessment (Formative Assessment)

Theory – 30 Practical - 30 Total 60

- Marks of Internal Assessment should be sent to University before the commencement of Theory examination.
- Passing in internal assessment is essential for passing, as Internal assessment is separate head of passing in examination.
- It will also be considered for grace marks as per existing rules.
- Combined theory and practical of internal assessment will be considered for passing in internal assessment.
- Student will be allowed to appear for both theory and practical exam independent of marks obtained in internal assessment but if fails in that head even after including the grace marks he will be declared “Fail in that Subject”

Internal assessment in Theory –

Examinations during semesters:
This will be carried out by conducting two theory examinations during 6th and 8th semesters (100 marks each).
Total of 200 marks to be converted into 15 marks.( A/15)

Prelim examination:
This shall be carried out during 9th semester. Two theory papers of 60 marks each as per university examination Pattern
Total of 120 marks to be converted into 15 marks. (B/15)
Total marks of Internal assessment for Theory will be addition of A and B.

Internal assessment in Practical

Examinations at end of Clinical postings:
There will be practical examination at the end of each clinical posting of General Surgery. (3rd, 5th, 7th and 8th semester) Each examination will be of 50 marks. Total of 4 examinations - 200 marks.
These marks and marks from Orthopaedics 100, Radiology 50, Dentistry 50 and Casualty 50 will be added. - Total 450 marks will be converted to 15 marks.( C/15)

Prelim examination:
This will be conducted for 120 marks as per university pattern and marks will be converted to 15 (D/15).
Total marks of internal assessment for Practical will be addition of C and D.

Record BOOK
Case record will have to be entered in a record book.
A combined record book of General surgery, Orthopaedics, Causality, Anaesthesiology, Dentistry and radiology will have to be maintained Minimum of five histories have to be recorded in each posting
The certificate of satisfactory completion of all clinical posting will be required from Head Of the department of Surgery. This will be base on multiple similar certificates from all postings in all subjects. In addition it will have details of all marks in posting ending exam on second page and calculation of internal assessment. Record book will not carry any marks but it will be prerequisite for Appearing for examination.