

Curriculum

DNB Broad Specialty



General Surgery

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- ◆ Programme Goal & Objectives
- ◆ Teaching and Training Activities
- ◆ Syllabus
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I. INTRODUCTION

Preamble

After qualifying in the final examination of the NBE, the candidate should be able to function as a specialist in General Surgery. This requires a thorough knowledge of the fundamentals. He/She should be reasonably acquainted with the recent advances and be able to perform essential elective and emergency operative procedures independently. He/She should be able to make decisions regarding patient management and adopt favorable attitudes. During this period, the candidate will also acquire skills of experience in research methodology by writing a dissertation / thesis.

II. PROGRAMME GOAL & OBJECTIVES

1. PROGRAMME GOAL: The goal of DNB course in Surgery is to produce a competent surgeon who:

- Has acquired the competence pertaining to surgery that is required to be practiced in the community and at all levels of health care system
- Has acquired the skills to manage the patients of trauma and all lifesaving surgeries effectively.
- Has acquired skill in effectively communicating with patient and his attendants.
- Has the desired surgical skills to independently operate on elective and emergency cases
- Is aware of the latest developments in the field of surgery
- Is oriented to principles of research methodology
- Has acquired skills in educating medical and paramedical professionals

2. PROGRAMME OBJECTIVES: The aim of the courses is to develop human resources and personnel in the field of surgery who shall:

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- Provide the health care to the patients needing surgical care with principles and ethics.
 - Teach and train future undergraduates and postgraduates medical students and junior doctors in General Surgery in Hospitals and other Institutions.
 - Carry out and guide research to improve the practice of the art and science of surgery
 - Have management capabilities to manage personnel and budgets to make health care more cost-effective
 - Organize health teams to provide care during natural or man-made calamities.
 - Develop further in the areas of their interest and/or specialize to practice existing or new specialties allied to surgery through further training programs as required

At the end of the course, the Diplomate of National Board in Surgery shall be able to:

1. Practice the art and science of surgery in his/her field of practice and seek and provide consultation as required. He/She will be able to provide comprehensive and good quality surgical care in general surgery including pre-operative and postoperative care
2. Conduct research and communicate the findings, result and conclusion to his fraternity
3. Acquire necessary skills of teaching and training his junior colleagues and medical students and Para-medical personnel
4. Keep abreast with the latest developments by self-learning and/or participating in continuing medical education programs
5. Organize and manage administrative responsibilities in the routine day to day work as well as new situations including natural and/or man-made accidents/ calamities
6. Manage situations calling for emergency interventions in the sphere of surgical

specialties and also routine problems in their areas within the ambit of the general surgeon

7. Exhibit awareness of the importance of surgical audit and the need for considering cost affectivity in patient management
8. Be aware of one's professional and infrastructural limitations and be able to refer to appropriate centers at the optimum time, when required
9. Exhibit awareness of the need for accurate documentation in medical records including medico-legal cases.
10. Adopt ethical procedures in the field of doctor-patient relationship
11. Exhibit proper attitude in dealing with patients and relatives and be able to communicate with them effectively
12. To develop the skill of innovation and improvisation in times of need.

III. TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme should include:

1. Case presentations & discussion- once a week
2. Seminar – Once a week
3. Journal club- Once a week
4. Grand round presentation (by rotation departments and subspecialties)- once a week
5. Faculty lecture teaching- once a month
6. Clinical Audit-Once a Month
7. A poster and have one oral presentation at least once during their training period in a recognized conference.

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

The training program would focus on knowledge, skills and attitudes (behavior), all

essential components of education. It is being divided into theoretical, clinical and practical in all aspects of the delivery of the rehabilitative care, including methodology of research and teaching.

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

Symposia: Trainees would be required to present a minimum of 20 topics based on the curriculum in a period of three years to the combined class of teachers and students. A free discussion would be encouraged in these symposia. The topics of the symposia would be given to the trainees with the dates for presentation.

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

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

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

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

IV. SYLLABUS

The following pages comprise schedules of knowledge and operative skills, which provide a syllabus for training in general surgery and its sub-specialties. The knowledge required includes the basic science relevant to each topic. There is no intention to limit knowledge and operative experience. Trainees, as part of their general surgical training, must acquire competence in the scheduled operations but will also have experience of other procedures from the sub- specialty departments.

Knowledge: The Postgraduates are required to acquire sound knowledge of the below listed topics. The list includes topics found in most standard surgical textbooks. The candidates should also be familiar with recent advances and current controversies.

1. Applied Basic Sciences include applied anatomy, physiology, biochemistry, microbiology, pharmacology and pathology.

2. General Surgical Topics include the following:

- History of Surgery
- Molecular and Cell Biology
- Mediators of Inflammatory Response
- Regenerative Medicine
- Fluids and Electrolyte balance/ Acid – Base metabolism
- Wound Healing and Wound Management
- Pathophysiology and Management of Shock
- Principles of Operative Surgery: Asepsis, Sterilization and Antiseptics
- Surgical Infections and Antibiotics
- Nutrition and Metabolism
- Principles of Burn Management
- Principles of Oncology
- Principles of Laparoscopy, Endoscopy and Robotics
- Hemostasis, Blood Transfusion

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- Trauma: Assessment of polytrauma, triage, basic and advanced trauma
 - Basic Principles of Anesthesia
 - Informed Consent and Medico legal Issues
 - Pediatric Surgery
 - Organ Transplantation
 - Molecular Biology and Genetics
 - Hernias: Types of hernias, repair techniques
 - Breast Diseases: Benign breast disorders, investigations, screening, genetics, Breast Cancer
 - Thyroid Disorders: Solitary nodule, investigations, multinodular goiter, Graves disease malignancies
 - GIT Diseases
 - Urogenital disease
 - Cardio thoracic disease
 - Hepatobiliary disease
 - Surgery in CNS disorder
 - Diabetes and Renal failure in Surgery
 - HIV AIDS in Surgery (Universal Safety precautions)

3. Imaging modalities in Surgery

- X-ray and Angiography
- MRI, Ultrasound, CT, PET, Etc.
- Image guided interventional procedures

PRE-OPERATIVE MANAGEMENT

Pre-operative Management

- Assessment of fitness for anesthesia and surgery.
- Tests of respiratory, cardiac and renal function.
- Management of associated medical conditions, e.g.: diabetes; respiratory disease, cardiovascular disease; malnutrition; anemia; steroid, anticoagulant,

Immunosuppressant and other drug therapy.

- Nutritional Management

Infection

- Pathophysiology of the body's response to infection.
- The sources of surgical infection - prevention and control.
- Surgically important micro-organisms.
- Principles of asepsis and antisepsis.
- Surgical sepsis and its prevention.
- Aseptic techniques.
- Skin preparation.
- Antibiotic prophylaxis.
- Sterilisation.
- HIV

Investigative and Operative Procedures

- Excision of cysts and benign tumours of skin and subcutaneous tissue.
- Principles of techniques of biopsy.
- Suture and ligature materials.
- Drainage of superficial abscesses.
- Basic principles of bowel anastomosis.

Anesthesia

- Principles of anesthesia.
- Pre-medication and sedation.
- Local and regional anesthesia.
- Care and monitoring of the anaesthetized patient.

Theatre Problems

- Surgical technique and technology.
- Diathermy - principles and precautions.

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- Lasers - principles and precautions.
 - Explosion hazards relating to general anesthesia and endoscopic Surgery.
 - Tourniquets - uses and precautions.
 - Prevention of nerve and other injuries in the anaesthetized patient.
 - Surgery in hepatitis and HIV carriers (special precautions).
 - Disorders of coagulation and haemostasis (prophylaxis of thromboembolic disease).

PRE-OPERATIVE MANAGEMENT

Skin and Wounds

- Pathophysiology of wound healing.
- Classification of surgical wounds.
- Principles of wound healing.
- Incisions and their closure.
- Suture and ligature materials.
- Scars and contracture.
- Wound dehiscence.
- Dressings.

Fluid Balance

- Assessment and maintenance of fluid and electrolyte balance.
- Techniques of venous access.
- Nutritional support - indications, techniques, total parenteral nutrition.

Blood

- Disorders of coagulation and haemostasis.
- Blood transfusion - indications, hazards, complications, plasma substitutes.
- Haemolytic disorders of surgical importance.
- Haemorrhagic disorders; disorders of coagulation.

Post-operative Complications

- Post-operative complications - prevention, monitoring, recognition, management.
- Ventilatory support - indications.

Post-operative Sequelae

- Pain control
- Immune response to trauma, infections and tissue transplantation.
- Pathophysiology of the body's response to trauma.
- Surgery in the immuno-compromised patient.

TRAUMA

Initial Assessment and Resuscitation after Trauma

- Clinical assessment of the injured patient.
- Maintenance of airway and ventilation.
- Hemorrhage and shock. BLS,
- ATLS

Chest, Abdomen and Pelvis

- Cardio respiratory physiology as applied to trauma.
- Penetrating chest injuries and pneumothorax.
- Rib fractures and flail chest.
- Abdominal and pelvic injuries.

Central Nervous System Trauma

- Central nervous system: anatomy and physiology relevant to clinical examination of the central nervous system; understanding of its functional disorders particularly those caused by cranial or spinal trauma; and interpretation of special investigations.
- Intracranial hemorrhage.
- Head injuries, general principles of management.

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- Surgical aspects of meningitis.
 - Spinal cord injury and compression.
 - Paraplegia and quadriplegia - principles of management.

Special Problems

- Pre-hospital care.
- Triage.
- Trauma scoring systems.
- Traumatic wounds - principles of management.
- Gunshot and blast wounds.
- Skin loss - grafts and flaps.
- Burns.
- Facial and orbital injuries.

Principles of Limb Injury

- Peripheral nervous system - anatomy and physiology.
- Fractures - pathophysiology of fracture healing.
- Non-union delayed union, complications.
- Principles of bone grafting.
- Traumatic edema, compartment and crush syndromes, fat embolism.
- Brachial plexus injury.

INTENSIVE CARE

Cardiovascular

- The surgical anatomy and applied physiology of the heart relevant to clinical cases.
- Physiology and pharmacological control of cardiac output, blood flow, blood pressure, and coronary circulation.
- Cardiac arrest, resuscitation.
- Monitoring of cardiac function in the critically ill patient, central venous pressure, pulmonary wedge pressure, tamponade, cardiac O/P measurements.

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- The interpretation of special investigations.
 - The management of hemorrhage and shock.
 - Pulmonary edema.
 - Cardiopulmonary bypass - general principles, cardiac support.

Respiratory

- The surgical anatomy of the airways, chest wall, diaphragm and thoracic viscera.
- The mechanics and control of respiration.
- The interpretation of special investigations; lung function tests, arterial blood gases, radiology.
- The understanding of disorders of respiratory function caused by trauma, acute surgical illness and surgical intervention.
- Respiratory failure.
- Complications of thoracic operations.
- Adult respiratory distress syndrome.
- Endotracheal intubation, laryngotomy, tracheostomy.
- Artificial ventilation.

Multisystem Failure

- Multisystem failure.
- Renal failure - diagnosis of renal failure, complications of renal failure.
- GI tract and hepatic failure.
- Nutrition.

Problems in Intensive Care

- Sepsis, predisposing factors, organisms causing septicemia.
- Complications of thoracic operations.
- Localized sepsis, pneumonia, lung abscess, bronchiectasis, empyema, mediastinitis.

Principles of ICU

- Indications for admission.

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- Organization and staffing.
 - Scoring.
 - Costs.

NEOPLASIA: TECHNIQUES AND OUTCOME OF SURGERY

Principles of Oncology

- Epidemiology of common neoplasms and tumour-like conditions; role of cancer registries.
- Clinico-pathological staging of cancer.
- Pathology, clinical features, diagnosis and principles of management of common cancers in each of the surgical specialties.
- Principles of cancer treatment by surgery, radiotherapy, chemotherapy, immunotherapy and hormone therapy.
- The principles of carcinogenesis and the pathogenesis of cancer relevant to the clinical features, special investigations, staging and the principles of treatment of the common cancers.
- Principles of molecular biology of cancer, carcinogenesis; genetic factors; mechanisms of metastasis.
- Tumor Biology and Tumor Markers

Cancer Screening and Treatment

- The surgical anatomy and applied physiology of the breast relevant to clinical examinations, the interpretation of special investigations, the understanding of disordered function and the principles of the surgical treatment of common disorders of the breast.
- The breast: acute infections; benign breast disorders; nipple discharge; mastalgia, Carcinoma of breast; mammography; investigation and treatment.
- Screening program

Techniques of Management

- Terminal care of cancer patients; pain relief.
- Rehabilitation.
- Psychological effects of surgery and bereavement.

Ethics and the Law

- Medical/legal ethics and medico-legal aspects of surgery.
- Communication with patients, relatives and colleagues.

Outcome of Surgery

- The evaluation of surgery and general topics.
- Decision-making in surgery.
- Clinical audit.
- Statistics and computing in surgery.
- Principles of research and design and analysis of clinical trials.
- Critical evaluation of innovations - technical and pharmaceutical.
- Health service management and economic aspects of surgical care.

LOCOMOTOR SYSTEM

Musculo-skeletal anatomy and physiology relevant to clinical examination of the locomotor system and to the understanding of disordered locomotor function, with emphasis on the effects of acute musculoskeletal trauma.

Effects of Trauma and Lower Limb

- Effects of acute musculo-skeletal trauma.
- Common fractures and joint injuries.
- Degenerative and rheumatoid arthritis (including principles of joint replacement).
- Common disorders of the lower limb.

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- Amputations and prosthesis.

Infections and Upper Limb

- Common soft tissue injuries and disorders.
- Infections of bones and joints (including implants and prostheses).
- Pain in the neck, shoulder and arm.
- Common disorders of the hand, including hand injuries and infections.

Bone Disease and Spine

- Common disorders of infancy and childhood.
- Low back pain and sciatica.
- Metabolic bone disease (osteoporosis, osteomalacia).
- Surgical aspects of paralytic disorders and nerve injuries.

VASCULAR

The surgical anatomy and applied physiology of blood vessels relevant to clinical examination, the interpretation of special investigations and the understanding of the role of surgery in the management of cardiovascular disease

Arterial Diseases

- Chronic obliterative arterial disease.
- Amputations.
- Aneurysms.
- Carotid disease.
- Special techniques used in the investigation of vascular disease.
- Limb ischaemia: acute and chronic; clinical features; gangrene; amputations for vascular disease.
- Principles of reconstructive arterial surgery.
- Atherosclerosis
- Principles of Angioplasty/stenting

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- Thrombolysis
 - Reno-vascular disease
 - Raynaud's/vasospastic disorders
 - Lymphoedema
 - Cerebrovascular disease
 - Vasculitis
 - Mesenteric ischaemia
 - Graft prosthetics
 - Graft surveillance
 - Autonomic dysfunction
 - Reperfusion injury
 - Ischaemic limb Arterial trauma
 - Hyper/hypo coagulable state
 - Arteriography
 - Continuous wave doppler
 - Duplex ultrasound

Venous Diseases

- Vascular trauma and peripheral veins.
- Varicose veins.
- Venous hypertension, post-phlebitic leg, venous ulceration.
- Disorders of the veins in the lower limb.
- Deep venous thrombosis and its complications.
- Chronic ulceration of the leg.
- Thrombosis and embolism.

Lymphatics and Spleen

- Thromboembolic disease.
- Spleen; role of splenectomy; hypersplenism.
- Lymph nodes; lymphoedema.

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- Surgical aspects of auto-immune disease.
 - The anatomy and physiology of the haemopoietic and lymphoreticular systems.
 - Surgical aspects of disordered haemopoiesis.

HEAD, NECK and ENDOCRINE

The surgical anatomy and applied physiology of the head and neck relevant to clinical examination, the interpretation of special investigations, the understanding of disorders of function, and the treatment of disease and injury involving the head and neck.

The Head

- Laryngeal disease; maintenance of airway; tracheostomy.
- Acute and chronic inflammatory disorders of the ear, nose, sinuses and throat.
- Intracranial complications.
- Foreign bodies in ear, nose and throat.
- Epistaxis.
- Salivary gland disease.
- The eye - trauma, common infections.

Neck and Endocrine Glands

The surgical anatomy and applied physiology of the endocrine glands relevant to clinical examination, the interpretation of special investigations, the understanding of disordered function and the principles of the surgical treatment of common disorders of the endocrine glands.

- Common neck swellings.
- Thyroid: role of surgery in diseases of the thyroid; complications of thyroidectomy; and the solitary thyroid nodule.
- Parathyroid; hyperparathyroidism; hypercalcaemia.
- Secondary hypertension.

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- Pituitary Gland
 - Adrenal cortex
 - Adrenal medulla
 - Gut as endocrine organ
 - Endocrine pancreas and the management of:-
 - Thyrotoxicosis
 - Adrenal insufficiency
 - Hyper/hypo thyroidism
 - Carcinoid syndrome
 - Counselling and screening in familial disease
 - Anaesthetic and pharma-cological problems
 - Radio-immuno assays
 - Imaging techniques
 - Histo/cyto pathology

Skin in Surgical Disorders

- Skin and Subcutaneous Tissue / soft tissue

Paediatric Surgical Disorders

- Neonatal physiology: the special problems of anaesthesia and surgery in the newborn; and the principles of neonatal fluid and electrolyte balance.
- Correctable congenital abnormalities.
- Common paediatric surgical disorders: cleft lip and palate; pyloric stenosis; intussusception; hernia; maldescent of testis; torsion; and diseases of the foreskin.
- RIF pain
- Testicular pain
- Paediatric trauma
- Burns
- Intussusception
- Pyloric stenosis

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- Hirschprung's disease
 - Ano-rectal anomalies
 - Tracheo-oesophageal fistula
 - Spina bifida
 - Congenital small bowel obstruction
 - Intestinal malrotation
 - Associated anomalies
 - Paediatric oncology
 - Management of less complex abdominal trauma
 - Hydrocephalus

ABDOMEN

The surgical anatomy of the abdomen and its viscera and the applied physiology of the alimentary system relevant to clinical examination, the interpretation of common special investigations, the understanding of disorders of function, and the treatment of abdominal disease and injury.

Abdominal Wall

- Anatomy of the groin, groin and other ventral hernias, acute and elective; clinical features of hernias; complications of hernias.
- Anterior abdominal wall, anatomy, incisions, laparoscopic access.

Acute Abdominal Conditions

- Peritonitis; intra-abdominal abscesses.
- Common acute abdominal emergencies.
- Intestinal obstruction; paralytic ileus.
- Intestinal fistulae.
- Investigation of abdominal pain.
- Investigation of abdominal masses.

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- Gynaecological causes of acute abdominal pain.
 - Pelvic inflammatory disease.
 - Assessment of the acute abdomen
 - Appendicitis and right iliac fossa pain
 - Peritonitis
 - Acute intestinal obstruction
 - Intestinal pseudo-obstruction
 - Biliary tract emergencies
 - Acute pancreatitis
 - Strangulated hernia
 - Intestinal ischaemia
 - Swallowed foreign bodies
 - Gastrointestinal bleeding
 - Toxic megacolon
 - Superficial sepsis and abscesses
 - Acute ano-rectal sepsis
 - Ruptured aortic aneurysm
 - Acute presentations of urological disease
 - Acute presentations of gynaecological disease
 - Sub-total colectomy
 - Diagnostic laparoscopy
 - Gastrectomy for bleeding
 - Endoscopy for upper GI obstruction
 - Laparotomy for perforated colon
 - Suture of bleeding peptic ulcer
 - Emergency cholecystectomy
 - Exploration of scrotum for torsion
 - Emergency hernia repair
 - Laparotomy for abdominal

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- Reduction of paraphimosis
 - Laparotomy for small bowel injury
 - Diagnostic peritoneal lavage
 - Intestinal obstruction
 - Splenic repair
 - Hartmann's operation
 - Operation for ruptured liver
 - Pancreatic debridement
 - Median sternotomy

Reconstructive Surgery

- Myocutaneous flaps
- Tissue expanders
- Breast reduction

Colorectal

- Therapeutic Endoscopy, colonoscopy
- Anterior resection of rectum
- AP resection of rectum
- Ileorectal anastomosis
- Panproctocolectomy
- Closure of Hartmann's
- Prolapse surgery
- Incontinence surgery
- Sphincter repair
- Recto-vaginal fistula
- Ileo-anal and colonic pouch
- Colo-anal anastomosis
- Operation for intestinal fistula
- Complex fistula-in-ano

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- Posterior approach to rectum
 - Block dissection of groin
 - Operative cholangiography
 - Laparoscopic suturing and knotting
 - Nephrectomy
 - Pyelo and ureterolithotomy
 - Pyeloplasty
 - Open prostatectomy

Laparotomy for acute abdomen

- Splenectomy
- Oesophageal dilatation
- Operations for upper GI bleeding
- Exploration of common bile duct
- Biliary bypass
- Formation of Roux-en-Y loop
- Oesophagectomy/total gastrectomy
- Pancreatectomy
- Liver resection
- Oesophagectomy
- Total and subtotal gastrectomy
- Heller's myotomy
- Long oesophageal myotomy
- Pharyngeal pouch
- Repair of biliary stricture
- Whipple's procedure
- Pancreatectomy (distal and total)
- Drainage of infected pancreatitis
- Drainage of pancreatic pseudo-cyst

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- Liver injuries
 - Hydatid disease
 - Porto-systemic shunt
 - Vascular suture/anastomosis
 - Control of venous bleeding
 - Balloon thrombo-embolctomy
 - Fasciotomy
 - Arterial injuries
 - Vascular access for dialysis

Abdominal injury

- Assessment of the multiply injured patient
- Triage (major accidents)
- Battle triage and Field hospitals
- Initial management of head injuries.
- Closed abdominal injuries, especially splenic, hepatic and pancreatic injuries
- Closed chest injuries
- Stab and gunshot wounds
- Arterial injuries
- Injuries of the urinary tract
- Initial management of head injuries and interpretation of CT scans
- Initial management of severe burns

SMALL BOWEL AND COLORECTAL DISORDERS

- Neoplasms of large bowel
- Inflammatory bowel disease (inc.medical management)
- Diverticular disease
- Irritable bowel syndrome
- Haemorrhoids
- Anal fissure

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- Rectal prolapse
 - Acute appendicitis/RIF pain
 - Intestinal obstruction
 - Intestinal pseudo-obstruction
 - Intestinal ischaemia
 - Peritonitis
 - Large bowel and rectal injuries
 - Anal tumours
 - Pelvic autonomic nerves
 - Screening for colorectal cancer
 - Genetics of colorectal cancer
 - Place of radiotherapy and chemotherapy in treatment
 - Anorectal physiology
 - Anorectal ultrasound
 - Faecal incontinence
 - Chronic constipation
 - Intestinal fistulae
 - Colonic bleeding
 - Radiation enterocolitis
 - Other small bowel conditions
 - Colonic obstruction
 - Colonic perforation
 - The use of staplers

LAPAROSCOPIC SURGERY AND MINIMAL ACCESS SURGERY

- Laparoscopic anatomy of the abdomen
- Diagnostic laparoscopy
- Physiology of pneumo-peritoneum Dangers of pneumoperitoneum
- Principles of diathermy

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- Informed consent for laparo-scopic procedures
 - Pre and post operative management of laparoscopic cases
 - Port complications
 - Technology of video imaging, cameras, insufflator etc.
 - The methods of manipulation of images
 - Laparoscopic instruments, clips, staplers and port types
 - Management of equipment failure
 - Ultrasound interpretation, internal and external techniques
 - Recognition and management of laparoscopic complications
 - Use and dangers of diathermy
 - Anaesthetic problems in laparoscopic surgery
 - Medico-legal implications of video-endoscopic surgery
 - Theory and practice of choledocho-scopy
 - Theory of different forms of diathermy
 - Laparoscopic ultrasound
 - Advanced instrumentation and equipment
 - Endoscopic suturing devices
 - Theory, uses and dangers of lasers and other energy sources e.g. harmonic scalpel
 - Creation and maintenance of new endoscopic spaces
 - Use of assistance robots and robotic instruments

TRANSPLANTATION with special reference to RENAL AND HEPATIC DISEASE

- Pathology of renal and hepatic disease
- Patho-physiology of renal and hepatic failure
- Peritoneal- and haemo-dialysis
- Management of fluid and electrolyte disorders
- Selection of patients for transplantation
- Post-operative management
- Immuno-pathology of rejection

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- Management of rejection
 - Immunosuppression
 - Opportunist infections
 - Immunosuppression and cancer
 - Transmission of viral and fungal diseases
 - Tissue typing
 - The HLA system
 - Bladder dysfunction

HEPATOPANCREATOBILIARY SURGERY

- Gallstones and complications
- Biliary stricture
- Obstructive Jaundice
- Neoplasms of the Liver, Biliary Tract and Pancreas
- Pancreatitis, acute and chronic, complications
- Liver injuries
- Portal Hypertension
- Hydatid disease
- ESRD and Liver transplantation

UPPER GI TRACT

- Neoplasms of the upper GI tract
- Management of perforations of the upper GI tract
- Management of intestinal obstruction
- Management of GI bleeding
- Oesophageal motility disorders
- Oesophageal Strictures
- Gastro-oesophageal reflux and its complications
- Peptic ulceration and its complications

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- Radiation enteritis
 - Abdominal trauma
 - Principles of screening for cancer
 - The use and limitations of multimodality treatment for upper GI cancer
 - Oesophageal motility disorders
 - Other small bowel conditions
 - Principles of Small bowel resection
 - Sutured and stapled anastomoses
 - Genito Urinary Tract
 - Urinary tract infection.
 - Urinary Tract Obstruction
 - Haematuria.
 - Trauma to the urinary tract.
 - Urinary calculi.
 - Retention of urine.
 - Urinary tract Neoplasm
 - Disorders of prostate.
 - Pain and swelling in the scrotum.
 - Other Scrotal Lesions
 - Testicular Neoplasm

NEUROSURGERY

- Cranial, spinal and peripheral nerve tumors
- Head Injury
- Spinal and peripheral nerve injuries
- Hydrocephalus
- Cerebrovascular Accidents
- Infections
- Recent advances

CARDIAC AND THORASIC SURGERY

- Myocardial revascularization
- Valvular Disorders
- Peripheral vascular disease
- Reno vascular disease
- Secondary Hypertension
- Inflammatory Lung Disease
- Chest Wall lesions
- Thoracic Neoplastic Disease
- Chest Trauma
- Pleural Diseases

ORTHOPEDECS

- Principles of Orthopedic Trauma
- Casts and braces
- Nerve injuries
- Hand Infections
- Principles of Traction
- Amputations
- Principles of Rehabilitation
- Congenital Lesions
- Bone and Joint Infections

OTHER AREAS

- Biostatistics, Research Methodology and Clinical Epidemiology
- Ethics
- Medico legal aspects relevant to the discipline
- Health Policy issues as may be applicable to the discipline

CLINICAL POSTINGS

1. Surgical Posting: Each candidate is posted in different surgical units soon after joining the course
2. Rotations in Specialty Departments are for a period of minimum 3-6 months & a maximum of one year. This is done after candidate has spent at least 1 year in learning basic ward work and surgical skills in the surgical unit.

The postgraduate student rotates through all the clinical units in the department. In addition, following special rotations are also undertaken:

Mandatory Postings

- Accident & Trauma: 1 month
- ICU: 1 month

Rotational Postings (Optional)

- Cardiothoracic Surgery/Thoracic Surgery: 6 weeks
- Neurosurgery: 6 weeks
- Surgical Gastroenterology: 6 weeks
- Surgical Oncology: 6 weeks
- Paediatric Surgery: 6 weeks
- Plastic Surgery: 6 weeks
- Genitourinary Surgery: 6 weeks

If the institution does not have these departments, they should have a local tie up with a suitable hospital for imparting this training.

V. COMPETENCIES

Objectives

- To provide a comprehensive and structured training programme in general surgery and to enable trainees to achieve the training and experience necessary for independent practice.
- The PG should be able to take proper history, conduct physical examination, perform or request for relevant investigations. He should be able to interpret these investigations to arrive at a working diagnosis along with a list of differential diagnosis. He should be

able to develop and management plan which should be well documented and any emergency management should be initiated immediately if required.

- Communicate with patient. Discuss operative plan, possible management options, postoperative complications etc and be able to take informed consent
- Perform minor operative procedures and common major general surgical operations independently
- Evaluate and manage trauma and acute surgical emergencies.
- Undertake Critical care
- Undertake wound management

The skills should be differentiated into:

- Essential
- Desirable

Surgical Skills:

Essential

- Scrubbing (surgical hand wash and donning of gowns and gloves) & Patient part preparation and draping
- Working knowledge of sterilization of OT instruments including Laparoscopic Set
- Knowledge of Surgical Material, sutures and Instruments
- Electro Surgical Units
- Shifting of OT patients
- WHO Safety check list implementation
- Acquisition of basic surgical skills to perform minor/medium surgeries independently Suprapubic cystostomy
- Cystolithotomy
- Varicocele
- Orchidectomy
- Excision of Cyst & I&D
- Excision of Breast Lump

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- Surgery of Hydrocele
 - Appendectomy
 - Herniotomy
 - Hernia repair (ventral & groin) and management
 - Umbilical hernia
 - Exploratory laparotomy in different conditions
 - Haemorrhoidectomy
 - Fistulectomy
 - Fissurectomy
 - Circumcision
 - Skin grafting
 - Stoma Formation

Desirable

- Urethral Dilatation
- Ureterolithotomy

Basic Ward Procedures

Essential

- Insertion of intravenous cannula, Nasogastric tube, urinary catheters
- Removal of Tubes and Drains
- Abdominal Paracentesis, Pleural Tap
- Venous Cutdown
- Wound dressings

Desirable

- Taking blood samples

ICU Procedures

Essential

- Insertion of CVP line, arterial lines, endotracheal intubation

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- Intercostal Drainage
 - Tracheostomy
 - Knowledge of Ventilators and Monitors
 - Prescribing TPN
 - Taking an ABG Sample and its Interpretation -E

Minor Surgical Procedures

Essential

- Hydrocele surgery
- Lymph node biopsy
- Excision of superficial swellings
- Ingrowing toe nail
- Banding of Haemorrhoids
- Vasectomy
- Trucut Biopsy

Emergency Room Procedures

Essential

- Peritoneal lavage
- Suturing of lacerations
- Drainage of abscesses
- Wound Debridement
- Reduction and Plaster application of Common simple fractures and dislocations
- Use of external fixators in compound fractures
- Skeletal traction
- Anal Dilatation and Sphincterotomy
- Preoperative Workup and Postoperative Care

Desirable

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- Focussed Abdominal Sonography for Trauma

Major Operative Procedures

A) Perform Independently/ Assistance:

The following list is not exhaustive. The Trainee should try to get the maximal operative exposure possible. The range of exposure will also depend upon the type of surgeries a particular unit (where the Trainee is posted) is performing.

Routine

Essential

- Cholecystectomy
- Groin Hernia Repair
- Mastectomy
- Breast Lump Excision
- Suprapubic cystostomy
- Bowel Resection
- Feeding Gastrostomy and feeding jejunostomy
- Emergency Nephrectomy
- Orchidopexy

Desirable

- Microdochoectomy
- Radical Duct Excision
- Hemithyroidectomy
- Cystogastrostomy
- Bowel Anastamosis
- Cysts and Sinuses of the Neck
- Pyelolithotomy
- Ureterolithotomy
- Varicose vein surgery and Vein harvesting

Emergency: Essential

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- Appendectomy
 - Laparotomy for intestinal Obstruction
 - Trauma Laparotomy
 - Splenectomy
 - Closure of Peptic Ulcer Perforation
 - Enteric Perforation
 - Amputations
 - Tracheostomy

B) Assist/Observe

The below mentioned skills and procedures are desirable for a DNB General Surgery resident:

Vascular

- Reconstructive arterial surgery.
- Aneurysm Surgery

The Head

- Parotidectomy, submandibular gland excision

Neck and Endocrine Glands

- Thyroidectomy, parathyroidectomy, congenital or developmental problems
- Adrenalectomy
- Surgery for endocrine pancreatic tumours

Paediatric Disorders

- Common paediatric surgical disorders: cleft lip and palate; pyloric stenosis; intussusception; hernia; maldescent of testis; torsion; and diseases of the foreskin.

Plastic and Reconstructive Surgery

- Types of skin grafts, flaps, tissue expanders
- Reconstructive surgery for head and neck, breast, bedsores and abdominal wall defects

C) Surgical Audit (Essential)

- Bio Statistics
- Surgical practice & medical legal aspects
- Ethical surgical trials
- Bio Medical Waste Management
- Communication Skills

VI. LOG BOOK

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

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

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

1. Personal profile of the candidate
2. Educational qualification/Professional data
3. Record of case histories
4. Procedures learnt
5. Record of case Demonstration/Presentations
6. Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the log book. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative Head of the Institution.
7. In the absence of production of log book, the result will not be declared.

VII. RECOMMENDED TEXT BOOKS AND JOURNALS

Essential

1. Bailey and Love's Short practice of Surgery
2. Textbook of Surgery by David C Sabiston Jr. WB Saunders Co Or Schwartz-Principles of Surgery
3. Textbook of Operative Surgery – Farquharson Eric L
4. Clinical Methods – K Das
5. Recent advances in Surgery by Taylor
6. Applied Anatomy by RJ Last
7. Hamilton Bailey Demonstration of Clinical signs & Symptoms in surgery
8. Emergency Surgery By Hamilton Baily

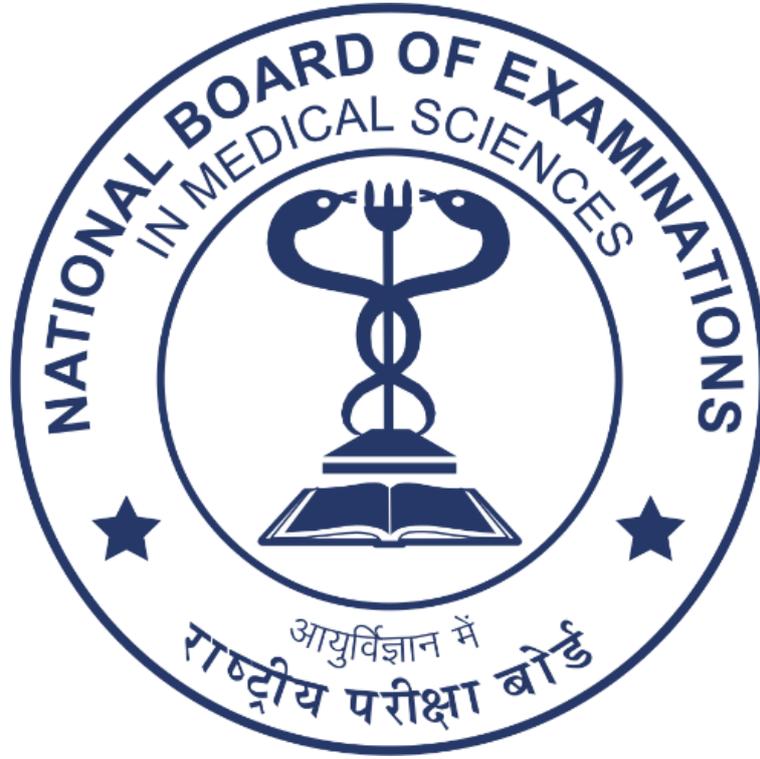
Preferable

9. An introduction to the symptoms and signs of surgical diseases Norman Browse
10. Mastery of Surgery by Josef Fisher
11. Maingot's Abdominal Operations by Zinner
12. Oxford Text Book of Surgery Vol.I,II & III by Morris and Wood
13. ACS textbook of Surgery
14. S.Das Text Book on Surgical Short Cases
15. Laparoscopic Surgery Technique-Darzi
16. Zollinger Altas of Surgical Operation

Journals

1. Indian Journal of Surgery
2. British Journal of Surgery
3. JACS
4. American Journal of Surgery
5. SCNA

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6. Annals of Surgery
 7. JAMA-Archives of Surgery
 8. Diseases of Colon and Rectum
 9. Journal of Trauma
 10. Journal of Minimal Access Surgery



आयुर्विज्ञान में राष्ट्रीय परीक्षा बोर्ड

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NATIONAL BOARD OF EXAMINATIONS IN MEDICAL SCIENCES

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