



MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

Sector-01, Kamothe, Navi Mumbai - 410 209

Tel 022-27432471, 022-27432994, Fax 022 - 27431094

E-mail : registrar@mgmuhs.com | Website : www.mgmuhs.com

MGM 20 MS General Surgery

Program Outcomes

At the end of postgraduate training, the PG student shall be able to:

PO1: Diagnose and manage common surgical conditions (including emergencies)

PO2: Provide proper pre-operative and post-operative care for surgical patients

PO3: Counsel patients and their relatives regarding the need of a surgical procedure, its implications and related problems; obtain a proper informed consent for a surgical procedure

PO4: Identify cases requiring urgent surgical intervention / referral at the optimum time to appropriate centre

PO5: Decide upon priorities in cases of mass disasters

PO6: Deliver medico-legal and ethical responsibilities effectively

PO7: Formulate preventive and rehabilitative measures for surgical patients as and when necessary

PO8: Conduct a surgical audit periodically and maintain proper records

PO9: Update knowledge and newer techniques in the specialty

PO10: Demonstrate an aptitude for scientific writing, including critical appraisal of published literature

PO11: Plan a research project with defined evaluation outcomes

PO12: Demonstrate competency in teaching medical / paramedical students

PO13: Conduct himself / herself professionally, with integrity, accountability, responsibility and compassion for fellow beings, striving for excellence and continuous professional development

SUBJECT SPECIFIC COMPETENCIES

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

A. Cognitive domain

- Demonstrate knowledge of applied aspects of basic sciences like applied anatomy, physiology, biochemistry, pathology, microbiology and pharmacology.
- Demonstrate knowledge of the bedside procedures and latest diagnostics and therapeutics available.
- Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children.
- Demonstrate the theoretical knowledge of general principles of surgery.
- Demonstrate the theoretical knowledge of systemic surgery including disaster management and recent advances.
- Demonstrate the theoretical knowledge to choose, and interpret appropriate diagnostic and therapeutic imaging including ultrasound, Mammogram, CT scan, MRI.
- Demonstrate the knowledge of ethics, medico-legal aspects, communication skills and leadership skills. The PG student should be able to provide professional services with empathy and humane approach.

B. Affective domain

- Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
- Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
- Develop communication skills to word reports, obtain a proper relevant history and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.
- Obtain informed consent for any examination/procedure and explain to the patient and attendants the disease and its prognosis with a humane approach.
- Provide appropriate care that is ethical, compassionate, responsive and cost effective and in conformation with statutory rules.

C. Psychomotor domain

- Perform a humane and thorough clinical examination including internal examinations and examinations of all organs/systems in adults and children
- Write a complete case record with all necessary details.
- Arrive at a logical working diagnosis / differential diagnosis after clinical examination.
- Order appropriate investigations keeping in mind their relevance (need based).
- Choose, perform and interpret appropriate imaging in trauma - ultrasound FAST (Focused Abdominal Sonography in Trauma).

- Perform minor operative procedures and common general surgical operations independently and the major procedures under guidance.
- Provide basic and advanced life saving support services in emergency situations
- Provide required immediate treatment and comprehensive treatment taking the help of specialist as required.
- Perform minimally invasive surgery in appropriate clinical settings. Must have undergone basic training in operative laparoscopy related to general and GI Surgery.
- Undertake complete patient monitoring including the preoperative and post operative care of the patient.
- Write a proper discharge summary with all relevant information.

COURSES OUTCOME Syllabus

Course Contents:

No limit can be fixed and no fixed number of topics can be prescribed as course contents. She/he is expected to know the subject in depth, however, emphasis should be on the diseases/health problems most prevalent in that area. Knowledge of recent advances and basic sciences as applicable to his/her specialty should get high priority. Competence in surgical skills commensurate with the specialty (actual hands - on training) must be ensured.

1. General topics:

A student should have fair knowledge of basic sciences (Anatomy, Physiology, Biochemistry, Microbiology, Pathology and Pharmacology) as applied to his specialty. Further, the student should acquire in-depth knowledge of his subject including recent advances and should be fully conversant with the bedside procedures (diagnostic and therapeutic) and having knowledge of latest diagnostics and therapeutics available.

1. History of medicine with special reference to ancient Indian texts
2. Health economics - basic terms, health insurance
3. Medical sociology, doctor-patient relationship, family adjustments in disease, organizational behavior, conflict resolution
4. Computers - record keeping, computer aided learning, virtual reality, robotics
5. Hazards in hospital and protection:
AIDS, hepatitis B, tuberculosis, radiation, psychological
6. Environment protection - bio-medical waste management
7. Surgical audit, evidence based surgical practice, quality assurance
8. Concept of essential drugs and rational use of drugs
9. Procurement of stores and material & personal management

10. Research methodology - library consultation, formulating research, selection of topic, writing thesis protocol, preparation of consent form from patients
11. Bio-medical statistics, clinical trials
12. Medical ethics
13. Consumer protection
14. Newer antibiotics
15. Problem of resistance.
16. Sepsis - SIRS
17. Nosocomial infection
18. Advances in imaging technologies
19. Disaster management, mass casualties, Triage
20. O.T. design, technologies, equipment
21. Critical care in surgical practice
22. Response to trauma
23. Wound healing
24. Fluid and electrolyte balance
25. Nutrition
26. Blood transfusion
27. Brain death
28. Cadaveric organ retrieval

1. Systemic Surgery

The student must acquire knowledge in the following important topics are but teaching should not be limited to these topics. A standard text-book may be followed, which will also identify the level of learning expected of the trainees.

- Wound healing including recent advances
- Asepsis, antisepsis, sterilization and universal precaution
- Surgical knots, sutures, drains, bandages and splints
- Surgical infections, causes of infections, prevention
- Common aerobic and anaerobic organisms and newer organisms causing infection including *Helicobacter Pylori*
- Tetanus, gas gangrene treatment & prevention
- Chronic specific infections TB, Filariasis
- Boils, cellulites, abscess, necrotizing fasciitis and synergistic infection
- Antibiotic therapy rationale including antibiotic prophylaxis, misuse, abuse
- Hospital acquired nosocomial infection causes and prevention including MRSA etc.
- HIV, AIDS and Hepatitis B & C, Universal precautions when dealing with patients suffering from these diseases
- Fluid and electrolyte balance including acid – base disturbance, consequences,

interpretation of blood gas analysis data and management

- Rhabdomyolysis and prevention of renal failure
- Shock (septicaemic, hypovolaemic, Neurogenic, anaphylactic), etiology, pathophysiology and management
- Blood and blood components, transfusion indication, contraindication, mismatch and prevention and management of complications of massive blood transfusion
- Common preoperative preparation (detailed preoperative workup, risk assessment according to the disease and general condition of the patient as per ASA grade) and detailed postoperative complications following major and minor surgical procedures
- Surgical aspects of diabetes mellitus particularly management of diabetic foot and gangrene, preoperative control of diabetes, consequences of hypo- and hyperglycaemia in a postoperative setting
- Consequences and management of bites and stings including snake, dog, human bites
- Mechanisms and management of missile, blast and gunshot injuries
- Organ transplantation: Basic principles including cadaver donation, related Human Organ Transplant Acts, ethical and medicolegal aspects.
- Nutritional support to surgical patients
- Common skin and subcutaneous condition
- Sinus and fistulae, pressure sores
- Acute arterial occlusion, diagnosis and initiate management
- Types of gangrene, Burger's disease and atherosclerosis
- Investigations in case of arterial obstruction, amputation, vascular injuries: basic principles and management
- Venous disorders: Varicose veins
- Diagnosis, principles of therapy, prevention of DVT: basic principles and management
- Lymphatic: Diagnosis and principles of management of lymphangitis and lymphedema
- Surgical management of Filariasis
- Burns: causes, prevention and management
- Wounds of scalp and its management
- Recognition, diagnosis and monitoring of patients with head injury, Glasgow coma scale
- Undergo advanced trauma and cardiac support course (certified) before appearing in final examination
- Recognition of acute cerebral compression, indication for referrals.
- Cleft lip and palate
- Leukoplakia, retention cysts, ulcers of tongue

- Oral malignancies
- Salivary gland neoplasms
- Branchial cyst, cystic hygroma
- Cervical lymphadenitis nonspecific and tuberculous, metastatic lymph nodes and lymphomas.
- Diagnosis and principles of management of goitre
- Thyroglossal cyst and fistula
- Thyrotoxicosis
- Thyroid neoplasms
- Management of solitary thyroid nodule
- Thoracic outlet syndrome
- Management of nipple discharge
- Breast abscess
- Clinical breast examination, breast self examination
- Screening and investigation of breast lump
- Concept of Single Stop Breast Clinic
- Cancer breast diagnosis, staging and multimodality management (common neoadjuvant and adjuvant and palliative chemotherapy protocols and indications of radiation and hormonal therapy, pathology and interpretation of Tumour Markers, breast cancer support groups and counseling)
- Recognition and treatment of pneumothorax, haemothorax
- Pulmonary embolism: Index of suspicion, prevention/recognition and treatment
- Flail chest, stove in chest
- Postoperative pulmonary complication
- Empyema thoracis
- Recognition of oesophageal atresia and principles of management
- Neoplasms of the lung including its prevention by tobacco control
- Cancer oesophagus: principles of management including importance of early detection and timely referral to specialist
- Achalasia cardia
- Gastro-esophageal reflux disease (GERD)
- Congenital hypertrophic pyloric stenosis
- Aetiopathogenesis, diagnosis and management of peptic ulcer including role of H. Pylori and its diagnosis and eradication
- Cancer stomach
- Signs and tests of liver dysfunction
- Amoebic liver abscess and its non-operative management
- Hydatid cyst and its medical and surgical management including laparoscopic management
- Portal hypertension, index of suspicion, symptoms and signs of liver failure and

timely referral to a specialist center

- Obstructive jaundice with emphasis on differentiating medical vs surgical Jaundice, algorithm of investigation, diagnosis and surgical treatment options
- Neoplasms of liver
- Rupture spleen
- Indications for splenectomy
- Clinical features, diagnosis, complications and principles of management of cholelithiasis and cholecystitis including laparoscopic cholecystectomy
- Management of bile duct stones including endoscopic, open and laparoscopic management
- Carcinoma gall bladder, incidental cancer gallbladder, index of suspicion and its staging and principles of management
- Choledochal cyst
- Acute pancreatitis both due to gallstones and alcohol
- Chronic pancreatitis
- Carcinoma pancreas
- Peritonitis: causes, recognition, diagnosis, complications and principles of management with knowledge of typhoid perforation, tuberculous peritonitis, postoperative peritonitis
- Abdominal pain types and causes with emphasis on diagnosing early intra-abdominal acute pathology requiring surgical intervention
- Intestinal amoebiasis and other worms manifestation (Ascariasis) and their surgical complications (Intestinal Obstruction, perforation, gastrointestinal bleeding, involvement of biliary tract)
- Abdominal tuberculosis both peritoneal and intestinal
- Intestinal obstruction
- **Appendix:** Diagnosis and management of acute appendicitis
- Appendicular lump and abscess

Colon

- Congenital disorders, Congenital megacolon
- Colitis infective / non infective
- Inflammatory bowel diseases
- Premalignant conditions of large bowel
- Ulcerative colitis
- Carcinoma colon
- Principles of management of types of colostomy

Rectum and Anal Canal:

- Congenital disorders, Anorectal anomalies
- Prolapse of rectum

- Carcinoma rectum
- Anal Canal: surgical anatomy, features and management of fissures, fistula - in – ano.
- Perianal and ischiorectal abscess
- Haemorrhoids – Non-operative outpatient procedures for the control of bleeding (Banding, cryotherapy, injection) operative options - open and closed haemorrhoidectomy and stapled haemorrhoidectomy
- Anal carcinoma
- Clinical features, diagnosis, complication and principles of management of inguinal hernia including laparoscopic repair
- Umbilical, femoral hernia and epigastric hernia
- Open and Laparoscopic repair of incisional/primary ventral hernia
- Urinary symptoms and investigations of urinary tract
- Diagnosis and principles of management of urolithiasis
- Lower Urinary tract symptoms or prostatism
- Benign prostatic hyperplasia; diagnosis and management
- Genital tuberculosis in male
- Phimosi and paraphimosi
- Carcinoma penis
- Diagnosis and principles of treatment of undescended testis
- Torsion testis
- Hydrocele, haematocele and pyocele Varicocele: Diagnosis (Medical Board for fitness)
- Varicocele: Diagnosis (Medical Board for fitness)
- Acute and chronic epididymo-orchitis
- Testicular tumours
- Principles of management of urethral injuries
- Management of soft tissue sarcoma
- Prosthetic materials used in surgical practice
- Telemedicine, teleproctoring and e-learning
- Communication skills

A student should be expert in good history taking, physical examination, providing basic life support and advanced cardiac life support, common procedures like FNAC, Biopsy, aspiration from serous cavities, lumbar puncture etc. The student should be able to choose the required investigations.

Clinical cases and Symptoms-based approach to the patient with:

1. Ulcers in oral cavity

2. Solitary nodule of the thyroid
3. Lymph node in the neck
4. Suspected breast lump
5. Benign breast disease
6. Acute abdominal pain
7. Blunt Trauma Abdomen
8. Gall stone disease
9. Dysphagia
10. Chronic abdominal pain
11. Epigastric mass
12. Right hypochondrium mass
13. Right iliac fossa mass
14. Renal mass
15. Inguino-scrotal swelling
16. Scrotal swelling
17. Gastric outlet obstruction
18. Upper gastrointestinal bleeding
19. Lower gastrointestinal bleeding
20. Anorectal symptoms
21. Acute intestinal obstruction
22. Obstructive jaundice
23. Acute retention of Urine
24. Bladder outlet obstruction
25. Haematuria
26. Peripheral vascular disease
27. Varicose veins
28. New born with developmental anomalies
29. Hydronephrosis , Pyonephrosis, perinephric abscess
30. Renal tuberculosis
31. Renal tumors
32. Carcinoma prostate
33. Genital tuberculosis in male

At the end of the course, post graduate students should be able to perform independently (including perioperative management) the following:

- Start IV lines and monitor infusions
- Start and monitor blood transfusion
- Venous cut-down
- Start and manage a C.V.P. line
- Conduct CPR (Cardiopulmonary resuscitation)

- Basic/ advance life support
- Endotracheal intubation
- Insert nasogastric tube
- Proctoscopy
- Urethral catheterisation
- Surgical management of wounds
- Biopsies including image guided
- Manage pneumothorax / pleural space collections
- Infiltration, surface and digital Nerve blocks
- Incise and drain superficial abscesses
- Control external hemorrhage
- Vasectomy (Preferably non-scalpel)
- Circumcision
- Surgery for hydrocele
- Surgery for hernia
- Surgery and Injection/banding of piles
- Management of all types of shock
- Assessment and management of burns
- Hemithyroidectomy
- Excision of thyroglossal cyst
- Excision Biopsy of Cervical Lymphnode
- Excision of benign breast lump
- Modified Radical mastectomy
- Axillary Lymphnode Biopsy
- Excision of gynaecomastia
- Excision of skin and subcutaneous swellings
- Split thickness skin graft
- Management of hernias
- Laparoscopic and open cholecystectomy
- Management of Liver abscess
- appendectomy
- Management of intestinal obstruction, small bowel resection, perforation and anastomosis
- Colostomy

The student must have observed or assisted (the list is illustrative) in the following:

- Hartmann's procedure for cancer rectum
- Splenectomy (emergency)
- Stomach perforation
- Varicose Vein surgery

- Craniotomy (Head Injury)
- Superficial parotidectomy
- Submandibular gland excision
- Soft tissue tumours including sarcoma
- Pancreaticoduodenal resection
- Hydatid cyst liver
- Pancreatic surgery
- Retroperitoneal operations



Dr. Rajesh B. Goel
Registrar

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NAVI MUMBAI- 410 209