GENERAL SURGERY
A Guide to the Five Year Specialty Training Program
Contents

Introduction ................................................................................................................................. 1
Program Administrators ........................................................................................................... 2
Competencies Of Residents ..................................................................................................... 3
Program Structure & Rotations .............................................................................................. 6
Supervision & Assessment ...................................................................................................... 7
Academic Activities ............................................................................................................. 8
Syllabus ................................................................................................................................. 9
Yearly Objectives .................................................................................................................. 10
Clinical Research .................................................................................................................. 13
References ............................................................................................................................. 15
Introduction

This document sets out the program for surgical training in the Residency Program of Dubai Health Authority, (DHA). It further describes the entry requirements, knowledge and skills content, rotations, assessment methods accreditation and certification for training in General Surgery. It is expected that trainees will acquire the training and experience necessary for independent practice in surgery.

The mission of the program is to develop and train General Surgeons who are competent to practice Surgery independently.

General Objectives

The training program will provide a broad educational experience in recognition and treatment of surgical disorders. Upon completion of training, the graduate is expected to be a competent specialist in General Surgery capable of independent practice.

During training, the resident will have acquired a thorough knowledge of the theoretical basis of General Surgery, including its foundations in the basic medical sciences and be exposed to research activities. The graduate will be able to access, apply relevant knowledge and skills to clinical practice, and provide effective consultation services with respect to patient care, education and medico-legal issues.

The resident in General Surgery must acquire:
- Knowledge and expertise in clinical and operative management of diseases of the alimentary tract, breast and endocrine systems, trauma and critical care, general surgical oncology and ambulatory patient care for general surgical disorders
- Mastery of surgical skills of open cavity surgery, endoscopy, minimal access surgery, endocrine surgery, breast surgery, trauma surgery & soft tissue surgery including abdominal wall surgery; a basic training in orthopedic surgery
- Skills in effective clinical judgment and decision making in dealing with general surgical problems based on sound surgical principles.
- The knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to General Surgery and incorporate these in research activities.

Specific Objectives (Summary)

The resident in General Surgery is required to attain sufficient training and knowledge of:
- Basic science related to General Surgery including relevant clinical applied anatomy.
- The pathophysiology, differential diagnoses and management of surgical disease
- Appropriate skills in instrumental diagnostic procedures (endoscopy of alimentary tract, ultrasound of thorax, abdomen and laparoscopy)
- Indications for either surgical or conservative treatment
- Laboratory investigation for surgical disorders
- Pharmacological agents and contrast medium used in surgical practice
- Clinical and operative competence in both emergency and elective settings
- Intensive care, management of shock and resuscitation
- Local and regional anesthesia
- Enteral and parenteral nutrition
- Particular requirements of day case surgery
- Quality control of surgical procedures
- Palliative care and quality of life issues
- Clinical audit
- Medical ethics, health economics, medico-legal matters, risk management, medical statistics, information technology and health service management
- Research methods
- Teaching and training others in general surgery
- Making oral presentations at professional meetings effectively.
Program Administrators

Our Program Administrators in partnership with an expert team of supervisors & faculty steer the General Surgery Program towards the zenith of quality Residency training education offered in Dubai.

Under their expert care, your training journey is guaranteed to be an enlightening experience.

Dr. Yousif Hussein Hag El Tayeb
PROGRAM DIRECTOR
Consultant, Rashid Hospital

Dr. Ali Abdulla Ali Khammas Yammahi
PROGRAM CO-DIRECTOR
Consultant, RH

Dr. Esaaf Hasan Ghazi Mohd
PROGRAM CO-DIRECTOR
Head & Consultant, DH
Competencies of Residents

At the completion of training, Resident will have acquired various competencies and will function effectively as:

**Medical Expert / Clinical Decision-Maker**

Consultants will possess a defined body of knowledge and procedural skills, which are used to collect and interpret data, make appropriate clinical decisions, and carry out diagnostic and therapeutic procedures within the boundaries of their discipline and expertise. Their care is characterized by up-to-date (and whenever possible evidence-based), ethical, and cost-effective clinical practice and effective communication in partnership with patients, other health care providers, and the community. The role of medical expert/clinical decision maker is central to the function of the specialist clinician.

Resident in General Surgery is required to attain sufficient knowledge, diagnostic expertise, judgement & skills in general surgical techniques including endoscopy & minimal access surgery to manage adult patients in regard to:

- Diseases of the alimentary tract, including the esophagus, spleen, liver, pancreas & biliary tract
- Trauma & critical illness, incl. emergency and intensive care
- Malignant diseases incl. the multidisciplinary management of cancer patients
- Endocrine disease — including breast disease
- Surgical infections and inflammatory diseases
- Abdominal wall pathology
- Skin and soft tissue diseases
- Head and neck disease
- Principles of thoracic surgery
- Orthopedic trauma with neurovascular compromise
- Interventional imaging technologies
- Diagnostic laboratory procedures & interpretation
- Multidisciplinary care
- Continuing professional development
- Life-long learning
- Health information systems

**Communicator**

In order to provide humane, high-quality care, Consultants establish effective relationships with patients, other physicians, and other health professionals. Communication skills are essential for the functioning of a specialist, and are necessary for obtaining information from, and conveying information to, patients and their families. Furthermore, these abilities are critical in eliciting patients’ beliefs, concerns, and expectations about their illnesses, and for assessing key factors affecting patients’ health.

**General Requirements include the ability to:**

- Establish rapport with patients/families
- Obtain relevant history from patients/families/communities
- Listen effectively
- Discuss appropriate information with patients/families and the health care team

**Specific Requirements**

- Recognize that being a good communicator is an essential function of a surgeon, and understand that effective communication can foster patient satisfaction and compliance as well as influence the manifestations and outcome of a patient’s illness.
- Establish relationship with patients, characterized by understanding, trust, respect, empathy & confidentiality.
- Gather information not only about the disease but also about the patient’s beliefs, concerns and expectations about the illness, while considering the influence of factors such as the patient’s age, gender, ethnic, cultural and socioeconomic background, and spiritual values on that illness.

**Collaborator**

Residents work in partnership with others who are appropriately involved in the care of individuals or specific groups of patients. It is therefore essential for Residents to be able to collaborate effectively with patients and a multi-disciplinary team of expert health professionals for provision of optimal patient care, education & research activities.

**General Requirements**

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

**Specific Requirements**

- Develop an ability to work effectively and harmoniously with other health care workers.
- Function competently in the initial management of conditions that in major centers fall within the realm of other surgical specialties.
- Develop a care plan for a patient, who has been assessed, including investigation, treatment and continuing care, in collaboration with other members of the interdisciplinary team.

Copyright © 2009 The Royal College of Physicians and Surgeons of Canada. [http://rcpsc.medical.org/canmeds](http://rcpsc.medical.org/canmeds). Reproduced with permission
- Identify & describe the role, expertise and limitations of all members of an interdisciplinary team required to optimally achieve a goal related to patient care, a research problem, an educational task, or an administrative responsibility.
- Participate in an interdisciplinary team meeting, demonstrating the ability to accept, consider and respect the opinions of other team members, while contributing personal specialty-specific expertise.
- Understand how health care governance influences patient care, research and educational activities at a local, provincial, regional, and national level.
- Effectively communicate with the members of an interdisciplinary team in the resolution of conflict, provision of feedback, and where appropriate, be able to assume a leadership role.

Manager

Residents function as managers when they make everyday practice decisions involving resources, co-workers, tasks, policies, and their personal lives. They do this in the settings of individual patient care, practice organizations, and in the broader context of the health care system. Thus, Consultants require abilities to prioritize and effectively execute tasks through teamwork with colleagues, and make systematic and rational decisions when allocating finite health care resources. As managers, Consultants take on positions of leadership within the context of professional organizations and the health care system.

General Requirements
- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements
- Understand how to function effectively in health care organizations, ranging from individual clinical practice to local, regional and national surgical associations.
- Understand the structure, resourcing, and operation of the Emirates health care system, and function effectively within it, as well as being capable of playing an active role in its evolution.
- Acquire the ability to access and apply a broad base of information to the care of ambulatory patients, and those in hospitals and other health care settings.
- Make clinical decisions and judgments based on sound evidence for the benefit of patients & the population served.
- Understand population-based approaches to health care & their implication for medical practice & prioritization to access services.

Health Advocate

Consultants recognize the importance of advocacy activities in responding to the challenges represented by those social, environmental, and biological factors that determine the health of patients. They recognize advocacy as an essential and fundamental component of health promotion that occurs at the level of the individual patient, the practice population, and the broader community. Health advocacy is appropriately expressed both by individual and collective responses of specialist physicians in influencing public health and policy.

General Requirements
- Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements
Demonstrate an understanding of the following:
- Determinants of health by identifying those that are the most important (i.e., poverty, unemployment, early childhood education, social support systems), being familiar with the underlying research evidence, and applying this understanding to common problems and conditions in general surgery;
- Determination of the patient’s status with respect to one or more of the determinants of health and adapting management accordingly; assessing patient’s ability to access various services in the health & social system;
- The need to work collaboratively with specialty societies and other associations in identifying current "at risk" groups and application of available knowledge regarding prevention to "at risk" groups.

Scholar

Residents engage in a life-long pursuit of mastery of their domain of professional expertise. They recognize the need to be continually learning and model this for others. Through their scholarly activities, they contribute to the appraisal, collection, understanding of health care knowledge, facilitating the education of their students, patients, and others.

General Requirements
- Develop, implement and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.
- Facilitate learning of patients, interns, students and other health professionals.
- Contribute to development of new knowledge.

Specific Requirements
The Resident in General Surgery will develop an inquisitive mind and a critical attitude to scientific literature, as well as an ability to adapt to innovations and development which will occur during a career in general surgery.
- Deliver information to the patient and family in a humane manner and in such a way that it is understandable, encourages discussion and promotes the patient’s participation in decision-making to a degree that is compatible with current surgical practice.
- Understand and demonstrate the importance of cooperation and communication among health professionals involved in the care of individual patients such that their roles are delineated and consistent messages are delivered to patients and their families.
- Demonstrate skills in working with others who present significant communication challenges as a result of an ethno-cultural background which is different from the clinician’s own, or who exhibit anger or confusion.

Clinical:
- Identify clinical problems in general surgery
- Recognize and identify gaps in knowledge & expertise
- Formulate a management plan
- Conduct appropriate literature search based on clinical question
- Assimilate and appraise the literature

Research:
- Pose research queries; clinical/basic/population health
- Develop a proposal to solve the research question
- Conduct an appropriate literature search based on the research question
- Identify, consult & collaborate with appropriate content experts to conduct the research
- Propose a methodological approach to solve a query
- Carry out the research outlined in the proposal
- Defend and disseminate the results of the research
- Identify areas for further research emerging from results

Education:
Demonstrate an understanding of:
- Principles of adult learning, with respect to oneself and others as well as being able to apply it.
- Preferred learning methods in dealing with students, residents, and colleagues.

Professional
Residents have a unique societal role as professionals with a distinct body of knowledge, skills, and attitudes dedicated to improving the health and well-being of others. Consultants are committed to the highest standards of excellence in clinical care and ethical conduct, and to continually aspiring to mastery of their discipline.

General Requirements
- Deliver the highest quality care with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behavior.
- Practice medicine ethically consistent with the obligations of a clinician.

Specific Requirements
- Acquire the training and experience to maintain competence as a specialist or sub specialist
- Assume responsibility for the overall care of the surgical patient
- Have a comprehensive knowledge of the principles of biomedical ethics and medical jurisprudence
- Maintain ethical relationships with colleagues, patients and relatives
- Recognize one’s own limitations of professional competence
- Have the ability to explore and resolve interpersonal difficulties in professional relationships
- Demonstrate ways of attempting to resolve conflicts and role strain
- Have knowledge & understanding of the professional, legal and ethical codes to which clinicians are bound
- Have the ability to recognize, analyze and know how to deal with unprofessional behavior in clinical practice, taking into account local and national regulations

Program Structure & Rotations

As per Arab Board requirements the program is divided into:
- 1st year general surgery
- 2nd and 3rd year rotation between general surgery, orthopedics, neurosurgery, cardiothoracic, urology, Accident & Emergency, ICU, plastic and reconstructive.
  
<table>
<thead>
<tr>
<th>旋转</th>
<th>时长</th>
<th>内容</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopedic &amp; Trauma</td>
<td>4 months</td>
<td></td>
</tr>
<tr>
<td>Accident &amp; Emergency</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>Pediatric Surgery</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>Plastic Surgery</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>Vascular</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>Cardiothoracic</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>Surgical ICU</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>Urology</td>
<td>2 months</td>
<td></td>
</tr>
<tr>
<td>General Surgery</td>
<td>4 months</td>
<td></td>
</tr>
</tbody>
</table>
- 4th & 5th year general surgery exclusively

<table>
<thead>
<tr>
<th>旋转</th>
<th>时长</th>
<th>内容</th>
</tr>
</thead>
<tbody>
<tr>
<td>General surgery 12 months</td>
<td></td>
<td>The primary emphasis is the evaluation of patients under routine and emergency circumstances, and providing pre and postoperative care of patients with elective surgical problems. Learning basic surgical skills to perform minor operation. Courses: Basic Surgical Skills, ATLS, BLS Part 1 Arab Board, MRCS</td>
</tr>
<tr>
<td>General surgery 2 months</td>
<td></td>
<td>Other surgical specialty 10 months (trauma, accident/emergency) There is an increased emphasis on the care of critically ill patients. Develop the surgical skills, which are necessary for operations that are more complex. Courses: Basic Laparoscopic Course, ATLS Part 1 Arab Board, MRCS</td>
</tr>
<tr>
<td>General surgery 2 months</td>
<td></td>
<td>Other surgical specialty 10 months (vascular, urology, ICU) They are in charge of the service throughout the rotation, making the final disposition of patients and performing the majority of the operations under the supervision of a senior. Develop skills necessary for the function as a trauma team leader. Continue to develop the surgical skills. Courses: Advanced Laparoscopic Course</td>
</tr>
<tr>
<td>General surgery 6 months</td>
<td></td>
<td>Other surgical specialty 6 months (plastic and other specialties) An integral part of the surgical team. Complete responsibility for the management of surgical patients and complex problems. Has significant teaching responsibilities of the junior house staff members and medical students and performs laparoscopic procedures. Demonstrate personal and professional leadership skills necessary to practice as a surgeon practitioner Courses: DSTC</td>
</tr>
<tr>
<td>General Surgery 12 months</td>
<td></td>
<td>Be able demonstrate the surgical judgment, technical skill, and maturity necessary to be an independent operating surgeon. Courses: ATOM Part 2 Arab Board, MRCS Oral and Clinical Board Examination at the end of final year</td>
</tr>
</tbody>
</table>
Supervision & Assessment

Procedure of supervision:
- Clinical responsibilities shall be assigned to the residents in a carefully supervised & graduated manner, so that residents assume progressively increasing responsibilities in line with their level of education, ability & experience.
- Teaching staff supervision must include timely and appropriate feedback to the residents.
- The resident’s clinical involvement shall be in fulfillment of the program’s written educational curriculum.
- Teaching staff schedule will be structured to ensure continuous supervision of residents & availability of consultation
- All decisions regarding diagnostic tests and therapeutics, initiated by the residents will be reviewed with the responsible Consultants during patient care rounds.
- Patients will be seen by the team of residents, interns and medical student and their care will be reviewed with the Consultant at appropriate intervals.
- The residents are required to promptly notify the patient’s Consultant physician in the event of any controversy regarding patient care or any serious change in the patient’s condition.
- In clinics & consultation services, the Consultant or supervising physician must review overall patient care rendered by residents.
- In the OT, the Consultant or supervising physicians are responsible for the supervision of all operative cases. Consultants supervising physicians must be present in the operating room with residents during critical parts of the procedure. For less critical parts of the procedure, the Consultant or supervising physician must be immediately available for direct participation.

The continuous appraisal and regular assessments of trainees with feedback are essential elements of the program.

<table>
<thead>
<tr>
<th>Year</th>
<th>Basis of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arab Board Part 1 Written Examination</td>
</tr>
<tr>
<td>2</td>
<td>Three monthly DOPS and a formal evaluation at the end of the year.</td>
</tr>
<tr>
<td>3-4-5</td>
<td>Logbook and three monthly feedbacks - EOY Promotion Exam - Satisfactory performance evaluation</td>
</tr>
</tbody>
</table>

Log Book:
Residents are required to document their activities during the program in a logbook of procedures and interventions (endoscopic, radiological and surgical) and retain the documentation. The entry is to be signed by the Resident as well as by the responsible Trainer. At the completion of the Rotation all documents, the Logbook and assessment records will be forwarded to the Surgery Residency Committee.

The trainee’s log book, and copies of reports which record the trainee’s operative and diagnostic experience (including endoscopy and interventional radiological procedures), should indicate the degree of supervision -
  • (A) Assisting senior surgeon
  • (L1) Performing a procedure under direct supervision-Consultant” scrubbed” for the major part of the operation (includes performing a significant part of the operation under supervision)
  • (L2) Performing a procedure under supervision-Consultant present in the theatre but not “scrubbed”
  • (L3) Performing a procedure without direct supervision
  • (T) Supervising a more junior trainee.

Analysis of the content of the logbook will be used to assess both the experience of the trainee and the training post. That can be facilitated by the use of a computerized record and, if data from successive trainees is aggregated, provides the means to assess training posts. The SRC (Surgical Residency Committee) therefore requires that trainees submit a minimum data set, derived from their logbooks, to their Program Director at 6 monthly intervals, preferably on disc using approved software. Courses and meetings attended should also be recorded in the logbook.

Regular appraisal and feedback as well as trainee’s reports of their personal evaluation at the end of every rotation.

Minimum requirements for numbers of procedures is the minimum number of cases to be operated or assisted by the Resident during the course of the training program.

<table>
<thead>
<tr>
<th>List of Specific Procedures</th>
<th>Minimum #</th>
<th>List of Specific Procedures</th>
<th>Minimum #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultrasound of the abdomen (incl. FAST)</td>
<td>30</td>
<td>Central venous line insertion</td>
<td>30</td>
</tr>
<tr>
<td>Ultrasound of urogenital organs</td>
<td>15</td>
<td>Arterial catheterization</td>
<td>10</td>
</tr>
<tr>
<td>Documentation of medical history</td>
<td>300</td>
<td>Abdominal / Plural / Paracentesis</td>
<td>20</td>
</tr>
<tr>
<td>Verification of the procedure of Blood transfusion</td>
<td>25</td>
<td>Enteral / parenteral therapy and nutrition</td>
<td>20</td>
</tr>
<tr>
<td>Anti-thrombosis therapy including prophylaxis</td>
<td>50</td>
<td>Ventilation techniques and intubation</td>
<td>20</td>
</tr>
<tr>
<td>Perform local and regional Anesthesia</td>
<td>30</td>
<td>Insertion of chest tube</td>
<td>30</td>
</tr>
<tr>
<td>Proctoscopy</td>
<td>50</td>
<td>Appraisal of complicated cases</td>
<td>25</td>
</tr>
<tr>
<td>Sigmoidoscopies / partial endoscopy</td>
<td>30</td>
<td>Interpretation of blood gas analysis</td>
<td>100</td>
</tr>
<tr>
<td>Gastroscopy</td>
<td>30</td>
<td>Interpretation of laboratory tests</td>
<td>500</td>
</tr>
<tr>
<td>Multi-modal-therapy in patients with cancer/ attending multi-disciplinary meetings (MDM)</td>
<td>40</td>
<td>Follow-up of cancer patients after surgical therapy of the disease</td>
<td>30</td>
</tr>
</tbody>
</table>
## Mandatory Operative Procedures

<table>
<thead>
<tr>
<th>General Operative Procedures</th>
<th>Surgeon/ Asst to Snr Resident</th>
<th>Asst to Snr Surgeon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hernia</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Gall Bladder</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Proctology Procedures</td>
<td>20</td>
<td>Any Number</td>
</tr>
<tr>
<td>Appendectomy</td>
<td>25</td>
<td>Any Number</td>
</tr>
<tr>
<td>Upper G.I.T (Esophagus, Stomach &amp; Duodenum)</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Bowel Surgery</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Liver Surgery</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Incisional Hernia</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Splenic and/or Portal Hyper Tension Surgery</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Pilonidal Sinus Surgery</td>
<td>3</td>
<td>Any Number</td>
</tr>
<tr>
<td>Pancreatic Surgery</td>
<td>Any Number</td>
<td>2</td>
</tr>
<tr>
<td>Laparotomy</td>
<td>5</td>
<td>Any Number</td>
</tr>
<tr>
<td>Laparoscopic Surgery</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Pediatric Surgery</td>
<td>Any Number</td>
<td>Any Number</td>
</tr>
<tr>
<td><strong>NECK</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid and/or Parathyroid</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Tumor Biopsy; Neck Dissection Tracheotomy etc.</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td><strong>BREAST</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biopsy, abscess, Aspiration, etc.</td>
<td>10</td>
<td>Any Number</td>
</tr>
<tr>
<td>Mastectomy or Breast Reconstruction</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>VASCULAR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thromboembolectomy</td>
<td>Any Number</td>
<td>Any Number</td>
</tr>
<tr>
<td>Varicosities</td>
<td>Any Number</td>
<td>Any Number</td>
</tr>
<tr>
<td>Vascular Anastomosis</td>
<td>Any Number</td>
<td>Any Number</td>
</tr>
</tbody>
</table>

## Academic Activities

- The self-directed education of the trainees can be carried out with the aid of:
  - X-ray demonstrations (radiology conference)
  - Weekly pathological conference
  - Histopathology meeting
  - A joint multidisciplinary treatment meeting is preferable
- Monthly journal club: Every trainee is required to present an article in the following form:
  - Reasons for choice of presented publication
  - Presentation of the aims of study
  - Methods, Results & discussion with the audience.
  - Positive & negative aspects of the publication
- Monthly pathology & oncology sessions
- Monthly clinical pharmacology sessions
- Attendance at local, regional, national meetings and international conferences
- Mortality & Morbidity meetings
- Clinical teaching
- Ward rounds
- Courses - A formal basic surgical skill course has to be completed in the first year of the program and an advanced training life support course to be completed at some stage

Attendances of all related academic activities with radiology and pathology departments have to be registered regularly in the logbook. The resident ought to be in 80% of the meetings within the training period. The chairs of the two departments (radiology, pathology) will confirm evidence of participation.

## Resident Responsibilities

Residents are required to document activities of the program in a logbook of procedures and interventions (endoscopic-radiological-surgical). In addition, trainees must document every diagnostic intervention or operative procedure and retain the documentation. The original report is to be signed by the resident as well as the responsible Trainer. At the completion of the rotation, all documents, logbook & assessment / letter of recommendation from the responsible liaison member will be forwarded to the Residency Surgical Training Committee.

To optimize experience based learning, the resident will be required to take part in on-call duties for a maximum of six on-calls a month (four-week days and two weekend days)

- Over the first 3 years, this will be for the care of surgical emergencies & activities in operation theatre on a first on-call basis.
- In the final two years of program, the resident will work in a more senior capacity & can operate independently.

On satisfactory completion of the entire program of specialist training, the Program Director will notify the Head of Academic Affairs Centre. The Arab Board will certify those who pass their Arab Board Exam for Medical Specialization.
Syllabus

The following pages comprise schedules of knowledge and operative skills, which provide a syllabus for training in General Surgery. The knowledge required includes basic science.

The syllabus should be taken in conjunction with the relevant general objective. It represents the minimum to be achieved in training.

EMERGENCY AND CRITICAL CARE

By the end of these rotations, residents should have knowledge and management of the following conditions, and of the relevant basic science:

Assessment of the acute abdomen
- Appendicitis and right iliac fossa pain
- Peritonitis
- Acute intestinal obstruction
- Intestinal pseudo-obstruction
- Biliary tract emergencies

Superficial sepsis and abscesses
- Acute ano-rectal sepsis
- Ruptured aortic aneurysm
- Acute urological disease
- Drainage of ano-rectal sepsis
- Urethral catheterization
- Suprapubic cystostomy

Trauma and treatment of fractures
- Assessment of the multiply injured patient
- Blunt & penetrating abdominal injuries including splenic
- Hepatic pancreatoco-duodenal,injuries
- Blunt chest injuries
- Stab and gunshot wounds
- Arterial injuries
- Injuries of the urinary tract
- Initial management of head injuries & interpretation of CT scans
- Initial management of severe burns.
- Simple & complicated fractures (conservative/ operative/ therapy)

Trainees must acquire an understanding of the disturbances of normal physiology and of the bacteriological, pathological and immunological changes that affect the seriously ill patient.

Intensive, Critical Care
A thorough knowledge, including the relevant basic science, to enable recognition and management as well as to make appropriate referrals for intensive care admission:

- Hypotension, hemorrhage/ shock, hemorrhagic and thrombotic disorders, blood transfusion and blood component therapy, septicemia and the sepsis syndrome, antibiotic therapy and the management of opportunistic infection, gastro-intestinal fluid losses and fluid balance, nutritional failure and nutritional support, respiratory failure, renal failure, fluid overload and cardiac failure, myocardial ischemia, cardiac arrhythmia, multiple organ dysfunction, pain control, cardiac arrest, respiratory arrest and brain death, organ donation. A detailed knowledge of the methods and results of intensive monitoring will not be required.

The following practical skills MUST be mastered:
- Cardiopulmonary resuscitation techniques
- Chest drain insertion
- Central venous pressure line insertion

ENDOSCOPY AND ULTRASOUND

Endoscopy and Ultrasound training will be for all General surgical trainees and the minimum experience required for the program is shown in Appendix A.

CARDIOTHORACIC / VASCULAR SURGERY

Trainees, by the end of training, shall be expected to have a knowledge of the diagnosis and surgical management of the following groups of conditions, and of the relevant basic science: Arterial trauma, Ischaemic limb, Venous thromboembolism, Hyper/hypo coagulable states, Chronic venous insufficiency, Continuous wave Doppler, Duplex ultrasound
The skills to be mastered include:

- Vascular suture/anastomosis
- Approach to control of infra-renal aortic, iliac and femoral arteries
- Control of venous bleeding
- Balloon thrombo-embolectomy
- Above knee amputation
- Fasciotomy
- Treatment of long saphenous varicosities

**GENERAL/ ABDOMINAL SURGERY**

Residents, by the end of training are expected to have knowledge of the diagnosis and surgical management of the following conditions, and of the relevant basic science:

- Carcinoma of the breast, benign breast disease, Large bowel diseases (neoplasms, inflammatory, diverticular disease, injuries, colonic obstruction/ perforation), Anal disorders (Haemorrhoids, fissure, prolapse and sepsis), Acute appendicitis; Small bowel diseases (intestinal obstruction; pseudo-obstruction; ischaemia); Peritonitis; Pediatric disorders (testicular pain; trauma; pyloric stenosis; tracheoesophageal fistula; Hirschprung’s disease; ano-rectal anomalies); Hydrocoele; epididymal cyst; Burns; Thyroid, parathyroid and adrenal diseases; Pancreatic disease (neoplasma; acute and chronic pancreatitis and their complications; jaundice; Gastro-oesophageal reflux and its complications; Peptic ulceration and its complications; Radiation enteritis; Abdominal and thoracic trauma; Head injuries; Neoplasms of the upper GI tract; Management of perforations of the upper GI tract; Gallstone disease; Carcinoid syndrome

**The skills to be mastered include:**

- Surgical therapy and hormone therapy for benign and malignant breast disease
- Thyroid
- Parathyroid surgery/conservative therapy
- Upper GI surgery; closure of perforated ulcer
- Control of upper GI bleeding
- Stomach resection
- Bile duct and gall bladder surgery
- Operative cholangiography/endoscopy
- Small bowel surgery
- Principles of liver and pancreatic surgery
- Colon resection
- Hartmann’s procedure
- Colostomy
- Ileostomy
- Appendicectomty
- Hernia Surgery
- Soft tissue surgery
- Surgical therapy of anal disorders (sepsis, hemorrhoids, fissure)
- Circumcision/ Reduction of paraphimosis
- Exploration for testicular torsion
- Basic course in laparoscopy
- Physiology of pneumo-peritoneum
- Dangers of pneumoperitoneum
- Principles of diathermy
- Informed consent for laparoscopic procedures
- Cholecystectomy
- Diagnostic laparoscopy
- Laparoscopic appendicectomy
- Laparoscopic hernia repair
- Informed consent
- Breaking bad news

**Yearly Objectives**

During the second year of residency, the resident will have mandatory rotation to accident/emergency department and intensive care unit of three months duration each.

A six months elective rotation of three months each spent in two of the following specialties:

- Trauma surgery of Rashid Hospital
- Vascular surgery in Rashid Hospital
- Cardiothoracic surgery in Dubai Hospital
- Pediatric Surgery in Lateefa Hospital
- Orthopedic surgery in Dubai Hospital plastic surgery in Rashid Hospital
- Urology in Dubai Hospital
- Maxillo-cranio-facial surgery in Rashid Hospital.
<table>
<thead>
<tr>
<th>YEAR</th>
<th>KNOWLEDGE</th>
<th>SKILL</th>
<th>ACADEMICS</th>
<th>EVALUATION</th>
<th>EXAM</th>
</tr>
</thead>
</table>
| YEAR 1 – Initial Six Months | - Principles of wound healing & dressing  
- Local and regional anesthesia  
- Instruments and sutures  
- Surgical infection or Specific infectious diseases  
- Shock  
- Surgical Emergency (Trauma, Disaster)  
- Burns  
- Pain management (Protocol)  
- General features of surgical procedures (indication-preparation-consent-prognosis)  
- Surgical intervention (Definition, Operative theatre, Recovery from Anesthesia & Surgery)  
- Postoperative monitoring / complications  
- Surgical oncology  
- Transplantation | - Surgical Clinical Documentation & filing  
- Surgical Clinical examination  
- Suturing and knots  
- Wound dressing & suture removal  
- Basic endoscopy  
- Basic laparoscopy  
- Surgical ultrasound  
- Surgical hand-scrub  
- Punctures and drainages  
- Biopsy  
- Minor surgeries (on the list)  
- Intermediate surgeries (as per proficiency) | - Presentation of two surgical topics  
- Attendance at Departmental CME lectures | - Departmental orientation  
- Monthly Feedback Interview  
- 6 MINI-CEX  
- 6 DOPS  
- Privilege to operate | Registration to Arab Board |
| YEAR 1 – Next Six months | - Missed objectives of the first 6 months rotation  
- Drains and catheters  
- Soft tissue (cellulitis, abscess, sebaceous cyst, pilonidal sinus, hydadenitis, Tumors of skin and soft tissue, tendons and ganglion)  
- Lymph vessels and lymph nodes (lymphangitis, lymphoma, lymphedema)  
- Surgical endocrinology (thyroid, parathyroid, adrenals, pancreas)  
- Salivary glands  
- Breast  
- Hernias  
- Proctology  
- Appendix | - Cosmetic skin suture  
- Secondary wound closure  
- I&D  
- Debridement and fasciotomy  
- Lymphnode excision and biopsy  
- Breast biopsy and lumpectomy  
- Inguinal/umbilical/ epigastric hemia repair  
- Appendectomy  
- Hemorrhoids, fissurectomy, I&D, proctoscopy, rectoscopy  
- Excision of lipomas, fibroma, pilonidal sinus, skin tumors  
- Explorative laparoscopy  
- FAST ultrasound  
- BLS & ATLS | - 2 presentations about surgical techniques  
- Attendance of departmental CME lectures  
- Participation in teaching of students & IHOs  
- Attendance of at least one surgical conference  
- MRCS part 1 | - Monthly Feedback Interview  
- 6 Mini-CEX (copy for the file)  
- 6 DOPS  
- Review of privileging | Arab Board Written Exam Part 1 |
| YEAR 2 | During accident/emergency rotation  
- Assessment of acute diseases & injuries  
- Pain assessment  
- Logistics of polytrauma  
- Triage systems  
- Investigation plan  
- Criteria for admission  
- During intensive care unit rotation  
- Live threatening conditions  
- Post-agression syndrome  
- Respiratory insufficiency  
- Cardiac / Renal failure  
- Post-operative bleeding  
- Fever  
- Thrombo-embolism  
- Antibiotics  
- During free rotation: As per basic skills of chosen specialty | During accident/emergency rotation  
- Management of acute pain  
- Surgical treatment of injuries  
- Management of polytrauma patient  
- Disaster management  
- Triage  
- Elementary therapy  
- During intensive care unit rotation  
- Monitoring  
- Oxygenation and ventilation  
- Cardiac evaluation  
- Post-operative balance of metabolism  
- Treatment of acute renal failure  
- Central venous line / Resuscitation  
- Prophylaxis of thrombo-embolism  
- Choice of antibiotic  
- During free rotation: As per basic skills of chosen specialty | - One presentation in each rotation  
- Attendance of respective meetings and lectures | - Monthly feedback  
- Consultant evaluation after each rotation | MRCS Part 2 |
<table>
<thead>
<tr>
<th>YEAR</th>
<th>KNOWLEDGE</th>
<th>SKILL</th>
<th>ACADEMICS</th>
<th>EVALUATION</th>
<th>EXAM</th>
</tr>
</thead>
</table>
| YEAR - 3 | Gallbladder and bile ducts  
- Obstructive jaundice  
- Diaphragmatic hernias and rupture  
- Surgical diseases of esophagus and mediastinum  
- Stomach surgery  
- Surgical disorders of small bowel  
- Abdominal trauma  
- Gastrointestinal bleeding  
- Intestinal obstruction  
- Indication for limb amputation | Cholecystectomy  
- Gastroscopy  
- Gastrojejunostomy  
- Surgery for bleeding or perforated ulcer of stomach and duodenum  
- Resection of stomach  
- Adhesiolysis and Enterocanostomosis  
- Small bowel resection  
- Ileostomy  
- Colectomy  
- Amputation of limb | Two presentations about complex abdominal disorders or syndromes  
- Attendance to Departmental meetings and CME activities  
- Attendance of at least one international surgical conference  
- Training in laparoscopic surgery  
- Collaboration in clinical audit and/or scientific publication  
- Participation in teaching medical students and intern house officers | Monthly feedback (one hour interview)  
- 12 DOPS  
- Cumulated evaluation of the third year  
- Review of privileging | MRCS Part 3 |
| YEAR - 4 | Surgical diseases of liver and spleen  
- Disorders of pancreas  
- Surgical diseases of colon  
- Surgery and specific aspects of the rectum  
- Re-intervention | Splenectomy & spleen preserving procedures  
- Surgery for liver diseases (trauma, abscess, hydatid cyst, tumor, drainage of abscess, liver resection)  
- Pancreatic surgery (biopsy, neurectomy, drainage of pseudocyst, resection)  
- Operations on the colon (colon resection, hemicolectomy, Hartmann procedure)  
- Rectal surgery (anterior resection, rectopexy, surgery for rectal injuries) | Two presentations about complex surgical disorders  
- Attendance of departmental meetings & lectures, mortality and morbidity lectures  
- Attendance of at least one international conference  
- Participation in clinical audit and quality improvement plans  
- Participation in teaching of students/IHO | Monthly Feedback Interview  
- 12 DOPS  
- 1 Multisource feedback  
- Career counseling | Exam of Year 4  
Arab Board 2  
MRCS 3 |
| YEAR - 5 | In relevance to the specialty chosen:  
- Detailed knowledge of anatomy, physiology, patho-physiology, pathology & conservative treatment of diseases.  
- Knowledge of specific technical investigations usually undertaken  
- Interventional and other alternative techniques  
- Detailed knowledge of indications, variety of procedures and related complications | Ultrasound, Doppler and endoscopic investigations as far as necessary for the respective specialty  
- Use of specific technical equipment in theatre such as laser, cusa, ultrasonic, liga-sure, nerve stimulator, intraoperative ultrasound, intra-operative endoscopy, detector probes  
- Extensive experience in performing procedures of the specialty chosen  
- Acquired skills in minimally invasive techniques  
- Management of postoperative complications  
- Performance of re-intervention | Two academic presentations of specialty chosen per year  
- Regular attendance of meetings and lectures of the specialty  
- Attendance of at least one international conference per year  
- Contact professional societies of specialty  
- Review of actual literature  
- Participation in teaching IHOs, students and Residents  
- Audit & quality improvement activities | Feed Back monthly (1 hour)  
- Evaluation every 6 months  
- 6 DOPS per year  
- Final exam after successful completion of training and logbook of specialty | Board Certification  
(Refer to Arab Board Program Booklet) |
Residents are required to present a research through final year thesis and for this purpose, workshops are held as follows:
- Research methodology (3 days)
- Literature review & Refworks (1 day)
- SPSS (Basic Statistics)

The goal of these workshops is to understand and able to apply the following:
- Using electronic databases such as Medline & Internet to conduct literature searches and to locate information
- Critically appraise/evaluate relevant literature, reviews and new techniques/technologies
- Use word processors, databases, spreadsheets and statistical packages to produce statistical analysis & research papers
- Conduct a literature review
- Develop an hypothesis to be tested
- Choose an appropriate research methodology and design a research study
- Write a grant application to fund a research project.
- Apply for ethics committee approval for a clinical or laboratory based study
- Collect, collate and interpret data
- Apply basic statistical analysis to clinical data
- Develop an outline structure for a research paper
- Write a literature review for a research paper
- Apply the developed outline to write a research paper
- Searching the literature and data-bases purposefully
- Appraising critically relevant articles and reports
- Interpreting findings and consider their applications to other contexts
- Know how to select and draw on clinical evidence to inform practice
- Be able to define the following terms
  - Clinical significance
  - Statistically significant / insignificant
  - Variability
  - Biological variability
  - Laboratory variability
  - Observer variability
  - Data types: categorical, continuous, qualitative, quantitative, discrete
- Understand the following methods of and terms associated with data collection:
  - Epidemiological studies
  - Randomized controlled & crossover clinical trials
  - Randomized controlled laboratory study
  - Observational studies
  - Discrete and continuous variables
  - Sample size determination
- Recognize and understand the following concepts of problems associated with data:
  - Bias: confounding - measurement - sampling
  - Randomization
  - Stratification
  - Blindness (masking)
  - Relevance of sample size to the ultimate
  - Outcome of the statistical analysis
  - Mean, median, mode
  - Variance
  - Co-variance
  - Standard deviation
  - Confidence interval
- Understand and apply the following statistical terms:
  - Probability & probability distribution models
  - Regression and correlation analysis
  - Risk – sensitivity analysis, particularly:
  - Exposure odds ratio
  - Number needed to treat
  - Significance testing
  - Meta-analysis
  - Absolute risk
  - Absolute risk difference
  - Absolute risk reduction
  - Attributable risk
  - Etiologic fraction
  - Relative Risk
- Getting Research skills:
  - Choosing a topic for research
  - Having a detailed literature review for this purpose
  - Designing a research as per standard methodology
  - Choosing a mentor on the related field
  - Finalize the research proposal and get both scientific and ethical approval
  - The research proposal will consist of at least of Title page, Specific Aims
  - Introduction/Background and Significance
  - Objectives and Hypothesis
  - Research Design and Methodology
  - References / Bibliography
  - Conduct the research through data gathering, survey, or any standard tool
  - Analyze the data
  - Present the data on a thesis as per DRTP thesis guidelines.
Each thesis must be arranged in the following order:
- Title Page (Sample A). Do not place a page number on this page.
- Dedication. Do not place a page number on this page.
- Acknowledgements and/or Preface. Do not place a page number on this page.
- Abstract (Sample B). Do not place a page number on this page.
- Table of Contents. Do not place a page number on this page.
- List of Tables, Figures, Illustrations/Maps/Slides, List of Supplemental Files such as multimedia files.
- List of abbreviations
- Text of the Thesis. All pages from the first page of text through the bibliography or Vita, if included, are numbered consecutively in Arabic numerals, beginning with Arabic numeral “1” on the first page of the thesis text.
- Introduction
- Material and Methods
- Results
- Discussion
- Limitations
- Conclusion
- Appendix or Appendices. Continue text numbering with Arabic numerals.
- References. Vancouver or Harvard standard style.
- Publications (please insert the full text of your published paper if you have any)
- Curriculum Vita. Continue text numbering with Arabic numerals.

Thesis Formatting and Layout Requirements:

<table>
<thead>
<tr>
<th>Page Size</th>
<th>Page size should be standard A4 size (8.50 x 11.00).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Margins</td>
<td>1 inch on all sides, including page numbers.</td>
</tr>
<tr>
<td>Page Nos.</td>
<td>Should be at least 1&quot; from the below margins edges of the page, as appears in this document.</td>
</tr>
<tr>
<td>Spacing</td>
<td>Preliminary pages and text must be double-spaced or 1.5-spaced. Under certain conditions, quotations may be single spaced. Table of Contents and lists with lengthy entries may be single spaced with a double space between entries. References may be single spaced, with a double space between entries.</td>
</tr>
<tr>
<td>Page Alignment</td>
<td>Each new chapter major section (i.e. Chapter 1 - 2, Appendix, Bibliography, Vita) must begin on a new page.</td>
</tr>
<tr>
<td>Pagination</td>
<td>All text page in the thesis is numbered. All text page numbers in the thesis must be centered under the text in the same location on each page and located at least one inch from the bottom of the page.</td>
</tr>
<tr>
<td>Word Processing</td>
<td>Your final thesis must be correct in spelling and punctuation and presented in a consistent, structured format. A single, legible font must be used throughout the thesis, the only exceptions being in tables, figures, graphs, appendices, foot notes, and supplemental files. The font size should be 12-pt. Accuracy and consistency is required in format of the thesis.</td>
</tr>
<tr>
<td>Tables &amp; Illustrations</td>
<td>Pages carrying illustrative material must be given page numbers appropriate to their place in the document. Illustrative material may not be inserted after the page number has been numbered and given numbers such as “10a.” All tables, figures, illustrations, and other types of examples included and referenced in the text of the thesis should be numbered for identification. There should be no duplication of these numbers; i.e., no two tables should be assigned the same number. Figures may be numbered in one of two ways: consecutively throughout the document (Table 1, Table 2, Table 3, etc.), or double-numbered so that illustrations’ numbers reflect their locations in the document (Fig. 9.3 is the third figure in Chapter 9, or Fig. A2 is the second figure in Appendix A.)</td>
</tr>
<tr>
<td>Captions &amp; legends</td>
<td>To be placed on the same page with the figure, graph, table or illustration they describe. In order to fit both figure and caption on the same page, captions may be single-spaced, margins may be decreased to one inch, and figures may be reduced in size to fit. If the figures are reduced from their original size, then the page number must be added after the reduction so as not to alter its size. If there is no other way to manage the amount of material to be shown, the caption and figures should be side-by-side in continuous view. This method should only be used in the rare instance where all of the pertinent material will not fit on the same page. Figures, captions, and page numbers must be easily readable when the electronic document is viewed at 100 percent.</td>
</tr>
<tr>
<td>Copies Required</td>
<td>Residents upload a single pdf file of their thesis to Research website (e.g. thesis submission site). The electronic pdf file serves as the DHA archival copy of the thesis. As an extra measure of security, students are strongly encouraged to keep a copy of their approved thesis and to provide an additional copy to their thesis supervisor or department/program library, if applicable. By keeping an electronic backup on hand, students can easily provide scholars with a copy of the thesis during the time between submission and publication, if necessary. A paper copy of the thesis is required by the AAC.</td>
</tr>
<tr>
<td>Footnote, Citations, References &amp; Bibliography</td>
<td>Each thesis must include a reference, or bibliography section. This section may be called “Bibliography” or “References”. The bibliography is the last required section of the thesis and the last section heading listed on the Table of Contents unless an optional Vita page is included. When a Vita page is included, the bibliography immediately precedes the Vita at the end of the thesis. The bibliography must indicate materials actually used, such as articles, chapters of books, websites, etc.</td>
</tr>
</tbody>
</table>
References

- Arab Board of Medical Specialization, Jokhadar, M.D., F.A.C.C., Secretary General, Arab Board for Medical Specializations
- MRCS Regulations & Guidelines for Basic Surgical Training Royal College of Physicians & Surgeons of Glasgow Specialty Boards
- The Surgical Royal Colleges of Great Britain and Ireland, Royal College of Surgeons of Edinburgh
- The Royal College of Surgeons of England, 2006
- Canadian Board for Surgery http://rcps.medical.org/English/residency/certification/training/gensur_e.html
- Postgraduate Training Program in Surgery by Professor Dr Farouk Safi 2006