Association of Surgeons of Malta
Charter on Training in General Surgery

The ASM Curriculum Committee:

Chairman:	Arthur Felice
Members:	Gordon Caruana-Dingli
	Aaron Casha
	Mark Schembri
	Hermann Borg Xuereb
Emergency Medicine:	Mary Rose Cassar
Urology:	Simon Bugeja
Orthopaedics and Trauma:	Ivan Esposito
	Mark Portelli
Otolaryngology	Hermann Borg Xuereb
Plastic surgery	Joseph Briffa
Portfolio subcommittee:	Simon Bugeja
	Joseph Debono
	Ruth Attard

August 2007

Table of Contents

Acknowledgements

The European Board of General Surgery Curriculum

The Intercollegiate Surgical Curriculum Project (ISCP)

The Joint Committee on Higher Surgical Training (JCHST)
General Surgery Curriculum UK

The General Surgery Residency Program at the Mayo Clinic USA

Preface

"The mind is not a vessel to be filled,
but a fire to be kindled"

Plutarch 46-120 A.D.

Malta has a distinguished surgical history.

The first documented barber-surgeon in Malta was called Xema Girbi. He was such a popular clinician that he was elected President of the Jewish community in Malta in 1486. His patients soon campaigned to relieve him of his office so that he would have more time for his craft!

The hospitallier knights of St John built the Sacra Infermeria in the new city called Valletta. It was one of the best hospitals in Europe, where the knights attended the sick personally using silver utensils. The knights gave birth to our medical school in 1676, one of the oldest in the English speaking world. A foundation for the teaching of surgery was established by Bali Fra Clemente Resseigner in 1775. During these times Maltese surgeons trained in France and Italy.

Of course surgery was then performed without anaesthesia and speed was essential. The surgeon Michel'Angelo Grima was renowned for his skill, performing lithotomy in two and a half minutes and mastectomy in three minutes. These were dangerous times for surgeons. Ship surgeon Claudio Camilleri was captured by the Turks. While a slave he became the personal surgeon of the Commander of the Turkish galleys at Rhodes, Mustapha Basha on board the flagship Lupa. In 1784 the Christian slaves rose against the Turks and took possession of the ship and sailed to Malta with the Mustapha Basha as their prisoner.

In the 19th Century Malta became a British military base and many talented young surgeons worked here during the early stages of their career. Sir Thomas Spencer Wells served for six years as assistant surgeon at the Naval hospital at Bighi. He introduced ether anaesthesia to Malta in March 1847, only four months after it was first used in the United States. He is recognized as a pioneer of abdominal surgery and was appointed Hunterian Professor and President of the Royal College of Surgeons of England. Almost a century later a relative of his, Sir Winston Spencer Churchill, met President Roosevelt in Malta before the Yalta conference.

Another President of the English College, Lord Berkeley Moynihan, was born in Malta in 1865. His father was a serviceman based in Malta who died shortly after his son was born. The young Moynihan's family returned to England where he became one of the country's most prominent surgeons.

Maltese surgeons have rendered sterling service locally and have also reached prestigious positions abroad. Michelangelo Grima published prize-winning papers on head injuries, intestinal anastamosis and splenectomy in Paris, Venice and Florence in the late 18th century. Joseph Barth was Professor of Anatomy and Physiology in Vienna until his death in 1818. He also held the first chair of Ophthalmology in Europe.
Most contemporary Maltese surgeons have trained in the United Kingdom and some others trained in Germany and Italy. We have also had contact with a substantial number of European surgeons that have worked in Malta over the last three decades.

Since Malta joined the European Union the Association of Surgeons of Malta has been given the task of organising post-graduate surgical training. The ASM has compiled this curriculum for General Surgery, Emergency Medicine, Urology, Orthopaedics and Trauma, Otolaryngology and Plastic Surgery. I would like to thank all those who have worked very hard to compile this document.

Surgery in Malta is about to enter a new era in a brand new hospital. We have established strong links with foreign institutions and the Government is committed to postgraduate education. The ASM has already tapped the European Social Fund to organise training. It is now time to establish the infrastructure to start postgraduate training.

This curriculum should allow Maltese surgery to give a distinguished future to its prestigious past.

Gordon Caruana-Dingli
President
Association of Surgeons of Malta
August 2007

Introduction

The need to define criteria for training and assessment of this training in surgery on a national level has been mounting over the years. There is a clear need for clearly defined, directional and formulated training and career paths for surgical trainees and their trainers. The factors which have made these needs more urgent and critical were:

- The changes in surgical training requirements in the United Kingdom (U.K.), which has been the preferred country for post-graduate training utilized by our trainees. The development of the Intercollegiate Surgical Curriculum Project and other administrative reforms related to career prospects, which may well affect the future choices of our aspiring surgeons.
- The drafting of the UEMS charter on training of medical specialists in the European Union.
- The European Working Time Directive (EWTD)
- Increasing public expectations on accountability and transparency.
- Threats to professional values, ethics and behaviour.
- New working practices.
- The introduction of the Specialist Register.

Because of this, the Association of Surgeons of Malta (ASM) Curriculum Committee has accepted the responsibility to define standards, systems, resources and strategies for surgical teaching. The intention of the Committee is to help the trainees to achieve the required standards which can be assessed in a 'formative' manner, so that they can then be allowed to proceed to a 'summative' assessment. The view of the committee is that the latter assessment should be done by the UEMS Boards, the Colleges in the U. K., or by equivalent bodies in countries outside the EU which are recognized by the UEMS. The future of surgical practice in our country, it is hoped, will depend on the training of our trainees.

The envisaged training is a major shift from a time based to a competence based training programme in line with both the Intercollegiate Surgical Curriculum Project in U.K. and the UEMS Charter on training of Medical Specialists, in a way that allows our surgical trainees a wide choice of routes for their summative assessment. This involves structured modular training and includes the basic sciences, which allows for international uniformity and greater flexibility, satisfying service needs and individual needs.

The role of the ASM is to set standards, provide quality assurance and Continuous Medical Education. It aims at the harmonization and improvement of the quality of surgical practice in Malta and on an international level.

The goal of the training programme

The primary goal of the training programme is to provide the trainee with a broad knowledge base, the necessary operative and procedural skills and experience, as well as professional judgement for independent surgical practice. A further goal is to further his/her knowledge of clinical thinking and methodology, teach him/her self-criticism, critical assessment of his/her results, the ability to self-directed learning and appraisal of external clinical evidence, which leads to continued growth, expert practice and professionalism.

Definition of the specialty

General Surgery is a large specialty requiring specialized knowledge and skills in managing congenital and acquired diseases and injuries of most organ systems, which are treated by surgical methods. It provides for the operative and non-operative management i.e. prevention, diagnosis, evaluation, treatment, intensive care and rehabilitation of patients with pathological processes that affect these organs, including the management of pain.
General surgery co-operates with other surgical specialties, anaesthesia, intensive care, emergency medicine, radiology, neurology, paediatrics, internal medicine, geriatrics rehabilitation medicine and pharmacy in the management of patients.

Arthur Felice
Chairman Curriculum Committee
July 2007

Syllabus for Basic Sciences

1. Anatomy and Physiology
2. Pathology, Microbiology and Radiology
3. Surgical Pathophysiology and Management
4. Professional Practices
5. Perioperative care
6. Assessment of the Surgical patient

1. ANATOMY AND PHYSIOLOGY

1.1 Anatomy

1.1.1 Applied anatomy:

□ Development of organs and structures

□ Surface and imaging anatomy of thorax, abdomen, pelvis, perineum, limbs, neck as appropriate for surgical operations

1.2 Physiology

1.2.1 Physiology:

□ Homeostasis
□ Metabolic pathways
□ Sepsis
□ Metabolic abnormalities
□ Thermoregulation
□ Blood loss
□ Fluid balance and fluid replacement

1.2.2 Nutrition

- *Knowledge*:
  - □ Effects of malnutrition, both excess and depletion
  - □ Methods of screening and assessment
- *Clinical Skills*:
  - □ Arrange access to suitable artificial nutritional support, preferably via a nutrition team: Dietary supplements
  - □ Arrange access to suitable artificial nutritional support, preferably via a nutrition team: Enteral nutrition
  - □ Arrange access to suitable artificial nutritional support, preferably via a nutrition team: Parenteral nutrition.

2. PATHOLOGY, MICROBIOLOGY AND RADIOLOGY

2.1 Pathology

2.1.1 Inflammation

2.1.2 Wound healing

2.1.3 Cellular injury

2.1.4 Vascular disorders

2.1.5 Disorders of growth, differentiation and morphogenesis

2.1.6 Tumours

2.1.7 Surgical Immunology

2.1.8 Surgical haematology

2.1.9 Bleeding Diathesis

- *Knowledge*:
  - Diagnosis:
  - □ Mechanism of haemostasis
  - □ Pathology of impaired haemostasis e.g. haemophilia, liver disease, massive haemorrhage
  - Treatment:
  - □ Understands use of blood products
- *Clinical Skills:*
  - Diagnosis:
  - □ Recognition of conditions likely to lead to the diathesis
  - □ Recognition of abnormal bleeding during surgery
  - Treatment:
  - □ Avoidance by correct surgical techniques
  - □ Corrective measures, e.g. warming, packing
- *Professional Skills*:
  - Diagnosis:
  - □ Communication with laboratory staff
  - Treatment:
  - □ Communication with anaesthetist, theatre team and laboratory staff

2.1.10 Venous Thrombosis + Embolism

- *Knowledge*:
  - Coagulation:
  - □ Clotting mechanism (Virchow Triad)
  - □ Effect of surgery and trauma on coagulation □ Test for thrombophilia and other disorders of coagulation
  - Diagnosis:
  - □ Methods of investigation for suspected thromboembolic disease
  - Treatment:
  - □ Anticoagulation, heparin and warfarin
  - □ Role of V/Q scanning, CT angiography and thrombolysis
  - □ Place of pulmonary embolectomy.

- Prophlaxis:
□ Knowledge of methods of prevention, mechanical and pharmacological

- *Clinical Skills*:
  - Coagulation:
  □ Recognition of patients at risk
  - Diagnosis:
  □ Awareness of symptoms and signs associated with pulmonary embolism and DVT
  □ Role of duplex scanning, venography and d-dimer measurement
  - Treatment:
  □ Initiate and monitor treatment prophylaxis
  □ Awareness at all times of the importance of prophylaxis
- *Subtopic Technical Skills & Procedures*
- *Professional Skills*:
  - Coagulation:
  □ Protocol management
  - Diagnosis:
  □ Ability to organize and time appropriate investigation
  - Treatment:
  □ Prioritisation of investigation and treatment
  □ Patient counselling
  - Prophylaxis:
  □ Able to implement in the team setting the culture of prophylaxis

2.2 Microbiology

2.2.1 Surgically important microorganisms
2.2.2 Sources of infection:
□ Asepsis and antisepsis
□ Sterilisation
□ Antibiotics
□ High risk patient management

2.3 Radiology

2.3.1 Radiology: Principles of diagnostic and interventional radiology

3. SURGICAL PATHOPHYSIOLOGY & MANAGEMENT

3.1 Electrolyte metabolism

3.1.1 Fluid and electrolyte balance
3.1.2 Hyponatraemia
- □ Pathophysiology of fluid and electrolyte balance
- □ Causes of hyponatraemia
- □ Treatment

3.1.3 Hypercalcaemia
- □ Causes and effects of hypercalcaemia
- □ Investigations of hypercalcaemia
- □ Treatment of hypercalcaemia

3.2 Endocrine Disorders

3.2.1 The thyroid
- Thyrotoxicosis:
- □ Pathophysiology of thyroid hormone excess and associated risks from surgery
- □ History and examination
- □ Investigation of thyrotoxicosis

- Hypothyroidism
- □ Pathophysiology of thyroid hormone deficiency and associated risks from surgery
- □ History and examination
- □ Investigation

3.2.2 Diabetes Mellitus
- □ Peri-operative management of diabetic patients
- □ Complications

3.2.3 The adrenal
- Corticosteroid therapy
- □ Complications
- □ Steroid insufficiency
- □ Peri-operative management of patients on steroid therapy

3.3 Management of the dying patient

3.3.1 Knowledge:
- Palliative Care:
- □ Care of the terminally ill
- □ Analgesia
- □ Antiemetics
- □ Laxatives
- Principles of organ donation:
- □ Circumstances in which consideration of organ donation is appropriate
- □ Principles of brain death
- □ The certification of death

3.3.2 Clinical Skills:

- Palliative Care:
  - □ Symptom control in the terminally ill patient

3.3.3 Professional Skills:

- Palliative Care:
  - □ Communication with the patient and relatives
  - □ Liaison with the palliative care team
- Principles of organ donation:
  - □ Communication with relatives
  - □ Liaison with the transplant team
  - □ Learn to cope with crisis and mortality

4. PROFESSIONAL PRACTICES

4.1 Academic Activity

4.1.1 Knowledge:

- Research:
  - □ Research methodology
- Teaching:
  - □ Teaching methods

4.1.2 Clinical Skills:

- Research:
  - □ Ability to analyse published evidence
- Teaching:
  - □ Ability to teach small groups

4.2 Communication

4.2.1 Interactive clinical communication skills: patients

4.2.2 Interactive clinical communication skills: colleagues

4.2.3 Written clinical communication skills

5. PERIOPERATIVE CARE

5.1 Preoperative assessment

5.1.1 Preoperative assessment and management:

- □ Cardiorespiratory physiology
- □ Diabetes mellitus
- □ Renal failure
- □ Pathophysiology of blood loss
- □ Pathophysiology of sepsis
- □ Risk factors for surgery and scoring systems
- □ Principles of day surgery

5.2 Intraoperative care

5.2.1 Intraoperative care:

- □ Safety in theatre
- □ Diathermy, laser use
- □ Radiation use and risks
- □ Principles of local, regional, general anaesthesia
- □ Sharps safety
- □ Infection risks
- □ Tourniquets

5.3 Postoperative care

5.3.1 Postoperative care:

- □ Assessment of patient's condition
- □ Postoperative analgesia
- □ Fluid and electrolyte management
- □ Monitoring of postoperative patient
- □ Detection of impending organ failure
- □ Initial management of organ failure
- □ Use of multi disciplinary team meetings

5.3.2 Postoperative care:

- □ Cardiorespiratory physiology
- □ Diabetes mellitus
- □ Renal failure
- □ Pathophysiology of blood loss
- □ Pathophysiology of sepsis
- □ Complications specific to particular operation
- □ Critical care

5.3.3 Post operative pain control

5.4 Blood and blood products

5.4.1 Blood products:
- □ Components of blood
- □ Alternatives to use of blood products

5.4.2 Blood products:
- □ Appropriate use of blood products
- □ Management of the complications of blood product transfusion

5.5 Use of antibiotics:

5.5.1 Antibiotics:
- □ Common pathogens in surgical patients
- □ Antibiotic sensitivities
- □ Antibiotic side-effects
- □ Principles of prophylaxis and treatment

5.5.2 Antibiotics:
- □ Appropriate prescription of antibiotics

5.6 Professional Skills:

5.6.1 Preoperative assessment and management:
- □ Communication with patient and relatives
- □ Liason with physicians and ITU staff

5.6.2 Intraoperative care:
- □ Communication with other staff members

5.6.3 Postoperative care:
- □ Communication with patient and relatives
- □ Liason with physicians and ITU staff

5.6.4 Blood Products:
- □ Communication with patient and relatives

6. ASSESSMENT OF THE SURGICAL PATIENT

6.1 Surgical history and examination (elective and emergency)

6.2 Construct a differential diagnosis

6.3 Plan investigations

6.4 Case work up and evaluation; risk management

6.5 Taking consent for intermediate level intervention; emergency and elective

6.6 Assessment of multiple injured patients including children

6.6.1 Knowledge:

- □Anatomy
- □ Pathogenesis of shock
- □ Differences in Children

6.6.2 Clinical Skills:

- □ History and examination
- □ Investigation
- □ Resuscitation and early management according to ATLS and APLS guidelines
- □ Referral to appropriate surgical subspecialties

6.6.3 Principles of technical skills and procedures:

- □ Central venous line insertion
- □ Chest drain insertion
- □ Diagnostic peritoneal lavage

Curriculum in General Surgery

Introduction

The specialty of general surgery requires specialized knowledge and skills in managing congenital and acquired diseases and injuries in most organ systems, which are treated by surgical methods.

The surgeon must have acquired and must maintain specialized knowledge relating to the diagnosis, preoperative, operative and postoperative management in the following areas of primary responsibility

- Abdominal wall and abdominal organs,
- Alimentary tract,
- Thoracic wall and organs,
- Head and neck, including vascular, endocrine, congenital and oncological disorders, particularly tumors of the skin, salivary glands, thyroid, parathyroid and oral cavity.
- Surgical oncology, including coordinated multidisciplinary management of the cancer patient,
- Endocrine system,
- Breast, skin and soft tissue,
- Vascular system, excluding the intracranial vessels, the heart and those vessels intrinsic and immediately adjacent thereto,
- Urogenital tract,
- Comprehensive management of all forms of trauma, including musculoskeletal trauma. Responsibility for the coordination of all phases of treatment is one of the main components of surgery,
- Care of critically ill patients with underlying conditions including coordinated multidisciplinary management,
- Rigid and flexible endoscopy of alimentary tract, diagnostic and therapeutic,
- Methods for gastrointestinal function diagnosis, especially manometry and pHmetry
- Diagnostic and interventional radiology and sonography.

The specialty covers acute and nonacute diseases and injuries and acute and elective procedures in patients of all ages. The focus is on diagnosis and treatment. Diagnosis and treatment comprises all non-instrumental and instrumental techniques including flexible endoscopy, radiology, sonography, computer tomography and magnetic resonance imaging. The surgeon must be capable of employing endoscopic techniques both for diagnostic and therapeutic purposes and must have the opportunity to gain knowledge and experience of evolving technological methods.

Surgical activity covers the pre-, peri- and postoperative period and follow-up of patients, especially in surgical oncology. The specialty also includes individual and general preventive activities. The specialty particularly focuses on managing diseases and injuries of the oesophagus, stomach, intestines, rectum and pelvic floor, abdominal wall, biliary tract, liver, spleen and pancreas, thyroid gland, parathyroid gland, adrenal glands, mammary glands, vessels, skin and subcutaneous tissues.

Also included are the most common problems and interventions listed under the goals for orthopaedics, gynaecology and obstetrics, urology, plastic surgery, hand surgery, child and adolescent surgery, maxillofacial surgery, neurosurgery, traumatology, vascular, thoracic cardiac and transplant surgery.

The knowledge and skills required by general surgery relate closely to other related specialties and general surgeons collaborate with these and most other specialties.

Additionally, General Surgeons are expected to have a knowledge of anatomy, physiology and biochemistry which enable them to understand the effects of common surgical disease and injuries upon the normal structure and function of the various systems of the body. They are expected to have a knowledge of cell biology which enable them to understand normal and disordered function of tissues and organs. They should have an understanding of the pathogenesis of the common correctable congenital abnormalities. They are expected to know the actions and toxic effects of drugs commonly used in perioperative and intraoperative care and in the management of critically ill surgical patients. They must also have an understanding of general pathology including the principles of immunology and microbiology in relation to surgical practice.

The surgeon must be trained in the economics of health care, in the assessment of research methods and scientific publications and be given the option of research in a clinical and relevant field of further training in another related specialty.

Trainee/Trainer Ratios
In no circumstances may the ratio of 1.2 middle grade staff to 1 consultant (full time equivalent) be exceeded.
It is mandatory that trainees are at all times exposed to the clinical practice of at least two trainers.

Programme Sequence
The minimum period of Higher Specialist Training in General Surgery is six years, five of which must be "in programme". Any flexible year will normally be clinical in content, spent abroad in an approved post. In some circumstances, particularly for trainees intending to enter an academic career, it may be research based.

Placements
These will usually be for one year but may be for six months or any other convenient period particularly in the first three years. Junior trainees will tend to be placed in more general posts with more sub-specialised posts being occupied by senior trainees.

Model of Surgical Training
Within the "Mentoring and Mastery" model of surgical education, the trainee will operate with the consultant surgeon whenever he or she is operating and will see outpatients whenever the consultant is in clinic. This model provides for an educational continuity from preoperative evaluation through operative techniques to postoperative techniques to postoperative care from day one of training.

The trainee will begin his/her experience in the first two years with common diseases and simple to moderately complex operations.

In the third and fourth years the trainee will treat a broad scope of surgical disease and perform more complex operative procedures.

Emergencies
Experience of emergency surgery must be sufficient to attain the confidence and ability to be responsible as a consultant for an unsorted general surgical "Take". This will require involvement in the rota for unselected general surgical emergencies for a minimum four years of HST, with an on call frequency of not less than one in six. All Higher Surgical Trainees in General Surgery must at all times in their clinical years have an emergency commitment, which may be in a subspecialty for the last two years.

Continuity of Care
It is essential that Higher Surgical Trainees have sufficient flexibility in their timetables to allow them to experience continuity of patient care. In particular they must be able to follow the patients that they have managed and operated upon themselves. An important part of training is to learn to hand over clinical problems to the succeeding team at the end of a period of duty.

Operative log books
It is essential that all higher trainees keep an up to date operative log book, clearly divided into experience in the current post and cumulative career experience. This should be continually available to the Programme Director. In log books the appropriate board will wish to see an adequate ratio of assisting, operating with senior help, and operating alone. Complex operations may be split into component parts where appropriate.

Assessment of Training
There will be numerical targets for clinical and operative experience.
A 'Review Assessment' will be performed on all surgical trainees on a yearly basis. Trainees can only progress into the next year of the training program upon obtaining a successful assessment. A Review Board can decide to either recommend a successful 'Pass' or a 'Notice to Repeat' part of a year or a 'Fail'. A 'Fail' will require a repeat of a whole year within the training program.

Research
The flexible year in training can be used for full time research. Not more than one year of research can be recognized as fulfillment of the requirements of the training program.

For a year of research to be recognized it has to be accepted prior to the start of the research program. Acceptance of the year of research depends on a successful assessment at the end of the term of research. This will require review of the quality of the research undertaken.

Examination
Following completion of trainees' General Surgery Training Program in Malta, the Association of Surgeons of Malta (ASM) will recommend candidates to the European Board of General Surgery as to their eligibility to sit the European Board of General Surgery Qualification EBGSQ part 2 examination.

Core Curriculum

BASIC VIEW

The syllabus of General Surgery comprises "Topics" (Knowledge) and "Procedures" (Skills). TOPICS have to be documented and assessed by examination. Documented PROCEDURES have to be listed and proved in the log-book or can be assessed by examination.

Core Curriculum
The Core Curriculum describes the training compulsory for all General Surgeons by the completion of Higher Surgical Training and outlines the syllabus for the general surgery part of the Examination. These are the areas to which all trainees should be exposed to provide core skills and to assist them in their choice of sub-specialisation.

1. Topics
The specialty of General Surgery requires documented and assessed knowledge in:

Preoperative Management
· Physical examination
· Assessment of fitness for anaesthesia and surgery
· Electrocardiography and interpretation
· Tests of respiratory, cardiac, renal and endocrine function
· Management of associated medical conditions, e.g. diabetes, respiratory disease, cardio-vascular disease, malnutrition, anaemia, jaundice, steroid, anticoagulant, immuno-supressant and other drug therapy, and drug treatment for psychiatric disorders
· Premedication and sedation
· Prophylaxis of thromboembolic disease
. Informed consent

Intraoperative Care
· Principles of anaesthesia
· Care and monitoring of the anaesthetised patient
· Prevention of nerve and other injuries in the anaesthetised patient

Postoperative Management
· Pain control
· Respiratory failure-recognition and treatment
· Assessment and maintenance of fluid and electrolyte balance
· Blood transfusion-indications, hazards, complications, plasma substitutes
· Techniques of venous access
· Post-operative monitoring
· Nutritional support-indications, techniques, total parenteral nutrition
· Post-operative complications
· Prevention, recognition and management of complications

Surgical Sepsis and its Prevention

· Surgically important micro-organisms
· Pathophysiology of the body's response to infection
· Septic shock
· The sources of surgical infection-prevention and control
· Principles of asepsis and antisepsis
· Aseptic techniques
· Sterilisation
· Antibiotic prophylaxis and therapy of infections
· Surgery in hepatitis and HIV carriers-special precautions

Surgical Techniques and Technology

· Skin preparation
· Local and regional anaesthesia
· Incisions and their closure
· Suture and ligature materials
· Patient positioning
· Dressings
· Disorders of coagulation and haemostasis
· Diathermy-principles and precautions, alternative energy sources
· Lasers-principles and precautions
· Explosion hazards relating to general anaesthesia and endoscopic surgery
· Pathophysiology of wound healing
· Classification of surgical wounds
· Principles of wound management
· Scars and contracture
· Wound dehiscence
· Excision of cysts and benign tumours of skin and subcutaneous tissues
· Principles and techniques of biopsy and cytological sampling
· Modalities of tissue probe sampling for frozen section and paraffin histology, cytology and bacteriology
· Sampling of body fluids and/or body excretions for laboratory investigation, interpretation of results
· Drainage of superficial abscesses
· Basic principles of bowel and blood vessel anastomosis

Traumatology and Emergency Medicine

The applied basic science relevant to the clinical assessment of more or less severely injured patients and to the understanding of disorders of function caused by trauma, haemorrhage and shock.

· Principles of pre-hospital care
· Clinical assessment of critically ill and severely injured patients-scoring systems
· Management of the unconscious patient
· Monitoring of vital functions in critically ill or severely injured patients
· Management of polytraumatised patients
· Resuscitation and haemodynamic support
· Haemorrhage and shock
· Surgical emergency procedures and trepanation

· Initial management of traumatic spine injury, para- and tetraplegia
· Cardiac arrest
· Cardiac tamponade
· Traumatic wounds
· Gunshot and blast injuries
· Burn injury
· Skin loss-principles of treatment by grafts and flaps
· Pathophysiology of fracture healing, non-union, delayed union, complications, principles of treatment, principles of bone grafting
· Traumatic oedema and the compartment syndromes
· Head injuries including facial and orbital trauma
· Initial treatment in severe head and brain injury
· Maintenance of airway in severely injured and unconscious patients, endotracheal intubation, laryngotomy, tracheostomy
· Closed and penetrating chest injuries
· Pneumothorax
· Closed and penetrating abdominal injuries
· Injuries to the urinary tract
· Traumatic haematuria
· Traumatic organ contusion and rupture, e.g. lung, liver, spleen, pancreas, kidney

Critical Surgical illness and Intensive Care Medicine

The applied basic science relevant to the clinical assessment of critically ill patients and to the understanding of disorders of function caused by haemorrhage, shock and sepsis.

· Post-traumatic, preoperative, perioperative and postoperative intensive care medicine
· Cardiopulmonary and pharmacological resuscitation
· Central venous catheterisation
· Catheterisation of the pulmonary artery
· Catheterisation of the radial and femoral artery
· Intracranial pressure measurement devices
· Fluid replacement, infusion therapy and parenteral alimentation
· Blood transfusion and serology
· Blood coagulation disorders and substitution measures
· Blood gas analysis and acid base balance
· Single organ failure (heart, liver, kidney)
· Multiple system organ failure (pathopysiology and treatment)
· Respiratory failure-pulmonary oedema “shock lung”, adult respiratory distress syndrome, lobar and pulmonary collapse
· Pulmonary embolism
· Peritonitis
· Acute necrotizing pancreatitis
· Septic inflammatory response syndrome
· Common acute abdominal emergencies (ileus, perforation, bleeding)
· Acute gastrointestinal haemorrhage
· Acute renal failure in surgical patients
· Hemofiltration, dialysis and plasmapheresis
· Malignant hyperthermia

· Principles of organ transplantation surgery
· Cardiac pacemaker implantation

Oncology

The applied basic sciences relevant to the understanding of the clinical behaviour, diagnosis and treatment of neoplastic disease.

· Principles of molecular biology of cancer
· Carcinogenesis
· Genetic factors
· Mechanisms of metastasis
· Epidemiology of common cancers
· The role of cancer registers
· Screening for cancer
· Clinico-pathological staging of cancer and premalignant states
· 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, hormone therapy
· Terminal care of cancer patients, pain relief

Haemopoietic and Lymphoreticular Systems

The anatomy, physiology and pathology of the haemopoietic and lymphoreticular systems appropriate to the understanding of clinical signs and special investigations.

· Surgical aspects of disordered haemopoiesis
· Haemolytic disorders of surgical importance
· Haemorrhagic disorders, disorders of coagulation
· Immune response to trauma, infections and tissue transplantation
· Surgery in the immuno-compromised patient
· Surgical aspects of autoimmune disease
· Lymphoedema
· Splenectomy for hypersplenism
· Lymph node surgery in malignant disease

The Evaluation of Surgery and General Topics

· Decision-making in surgery
· Clinical audit
· Statistics and computing in surgery
· Documentation
· 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
· Medical/legal ethics and medico-legal aspects of surgery
· Psychological effects of surgery and bereavement
· Communication with patients, relatives and colleagues
· Rehabilitation
· Screening programmes
· Principles and pharmacology of intravenous drug delivery
· Quality management

The Alimentary System

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

· Dysphagia and gastroesophageal reflux
· Abdominal hernias
· Laparotomy and laparoscopy
· Intra-abdominal abscesses
· Common acute abdominal emergencies
· Intestinal obstruction, paralytic ileus
· Intestinal fistulae
· Gastrostomy, ileostomy, colostomy and other stomata
· Gastrointestinal endoscopy in diagnosis and treatment
· Investigation of abdominal pain
· Investigation of abdominal masses
· Jaundice: differential diagnosis and management
· Liver cirrhosis, portal hypertension, ascites
· Gall stones and complications
· Pancreatitis
· Peptic ulcer disease
· Gastrointestinal bleeding (overt and occult)
· Common anal and perianal disorders
· Principles and complications of laparascopic surgery
· Malignant disease of the gastrointestinal tract
· Inflammatory bowel diseases
· Intestinal ischemia

Vascular System

The surgical anatomy and applied physiology of the vascular system relevant to clinical examination, to the interpretation of special investigations and to the understanding of the disorders of function caused by diseases and injuries of the blood vessels.

· Special techniques used in the investigation of vascular disease
· Limb ischaemia: acute and chronic-arterial embolism
· Gangrene
· Amputations for vascular disease
· Aneurysms (e.g. aneurysms of the abdominal aorta)
· Principles of arterial reconstructive surgery
· Reconstructive aortoiliac and femoropopliteal bypass
· Carotid artery
· Disorders of veins of the lower limbs
· Deep venous thrombosis and its complications
· Chronic ulceration of the leg
· Vascular access for dialysis

Endocrine System

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

· The role of surgery in diseases of the thyroid
· Complications of thyroidectomy
· The solitary thyroid nodule
· Hyperthyroidism, Thyroiditis
· Thyroid resection
· Thyroid cancer
· Parathyroid
· Hyperparathyroidism
· Hypercalcaemia
· Adrenal disease and endocrine pancreatic disease
· Endocrine causes of secondary hypertension
· Endocrine tumours of the abdomen and retroperitoneum

Breast

The surgical anatomy, applied physiology and pathology of the breast

· Acute mammary infections
· Nipple discharge
· Mastalgia
· Benign breast disorders
· Carcinoma of the breast

Respiratory System, Heart and Great Vessels

The surgical anatomy and pathology of the heart, great vessels, air passages, chest wall, diaphragm and thoracic viscera and the applied cardio-respiratory physiology relevant to clinical examination, interpretation of special investigations and understanding of disorders of cardio-respiratory function caused by disease, injury and surgical intervention.

· Thoracoentesis, chest drainage
· Techniques of thoracotomy
· The role of surgery in the treatment of cardiac disease
· Cardiopulmonary by-pass-general principles
· Special techniques used in the investigation of cardiac disease
· Bronchoscopy, thoracoscopy, mediastinoscopy
· Empyema thoracis
· Pneumothorax
· The role of surgery in the treatment of lung and oesophageal disease
· Complications of thoracic operations
· Malignant disease of the lungs and bronchi

Genito-urinary System

The surgical anatomy, applied physiology and pathology of the genito -urinary system, relevant to clinical examination, to interpretation of special investigations, to the understanding of disordered function and to the principles of the surgical treatment of genito-urinary disease and injury.

· Urinary tract infection
· Haematuria
· Urinary calculi
· Retention of urine
· Chronic renal failure: Principles and techniques of dialysis
· Principles of renal transplantation
· Scrotal pain and scrotal swellings
· Testicular torsion
· Disorders of the prostate
· Gynaecological causes of acute abdominal pain
· Pelvic inflammatory diseases
· Malignant disease of the genito-urinary tract

Central Nervous System

The anatomy and physiology relevant to clinical examination of the central nervous system, to the understanding of its functional disorders, particularly those caused by cranial or spinal trauma, and to the interpretation of special investigations.

· Surgical aspects of meningitis
· Intracranial abscesses
· Intracranial haemorrhage
· Space occupying intracranial lesions and their effects
· Spinal cord injury and compression
· Paraplegia and quadriplegia: Principles of management

Musculo-skeletal System

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

· Common disorders of infancy and childhood
· Metabolic and degenerative bone disease: osteoporosis and osteomalacia
· Bone and joint infections including those related to prostheses
· Principles of joint replacement
· Amputations, principles of orthotics and rehabilitation of the amputee
· Diagnosis and treatment of common fractures
· Diagnosis and treatment of common injuries and disorders of joints
· Hand infections and injuries
· Principles of tendon repair
· Common disorders of the foot
· Cervical and shoulder pain
· Back pain, Sciatica
· Differential diagnosis of arthritis
· Peripheral nerve lesions
· Nerve regeneration-principles of nerve repair
· Malignant disease of bone and soft tissues

Paediatric
· Neonatal physiology
· Special problems of anaesthesia and surgery in the newborn
· Principles of neonatal fluid and electrolyte balance
· Correctable life-threatening congenital abnormalities
· Common paediatric surgical disorders, cleft lip and palate, pyloric stenosis, intussusception, hernia, maldescent of testis, torsion.

Endoscopy
· Flexible diagnostic esophago-gastroduodenoscopy
· Rigid and flexible diagnostic procto- sigmoidoscopy and colonoscopy
· E.R.C.P., papillotomy, bile stone extraction and intraluminal stenting
· Therapeutic endoscopic interventions (e.g. polypectomy, dilatation)
· Sclerotherapy of esophageal varices
· Treatment of gastrointestinal bleeding sites (injection, clipping, LASER)
· Handling of endoscopes and hygienic measures

Radiology
· Principles of diagnostic radiography, Sonography, Computed Tomography and Magnetic Resonance Imaging
· Principles and handling of contrast media
· Diagnostic and therapeutic interventional radiological methods
· Interventional radiological implantation of prostheses and stents into vessels, organs and other structures
· X-ray guided detection of foreign bodies
· Sonographically guided identification of unpalpable lesions
· Sonographic "Doppler" investigation of abdominal and limb vessels
· Sentinel lymph node marking and detection
· Security measures in Radiology

Esophagogastric and anorectal function diagnosis
· Diagnosis of gastroesophageal reflux (e.g. pH-metry)
· Diagnosis of esophageal and gastric motility disorders (e.g. manometry)
· Diagnosis of colonic and anorectal disorders (e.g. anal sphincter manometry)

Procedures and Skills

The specialty of General Surgery requires assessed and documented knowledge and skills. Candidates for the qualification must demonstrate skills in each of the above areas of responsibility.

The Logbook: Catalogue of Interventions, Procedures, Endoscopies and Operations

A. Interventions, Procedures

1. Radiological examination of head, thorax, abdomen and extremities (e.g. emergencies, trauma, preoperative assessment and strategy plan, foreign bodies, angiography, intraoperatively)
2. Abdominal sonographies
3. Punctures, biopsies and/or drainages of solid and /or hollow organs, cavities and/ or fluid retentions with or without sonographic or CT guided assistance
4. Resuscitation
5. Orotracheal and/or nasotracheal intubation
6. Central venous catheter
7. Reposition and fixation of limb fractures

B. Endoscopy

1. Flexible esophagogastroduodenoscopy
2. ERCP
3. Flexible colonoscopy
4. Flexible bronchoscopy
5. Endoscopic interventions (e.g. polypectomy, sclerotherapy, papillotomy, dilatation, LASER ablation)

C. Operations

1. Head & Neck

- Thyroid (e.g. Resection, Thyroidectomy, Hyperparathyreoidism, Neck dissection)
- Tracheostomy
- Misc. (e.g. lymph nodes, tumours, Zenker's div.)

2. Thorax

- Thoracotomy
- Pleural drainage
- Lung

3. Breast surgery

- Breast cancer
- Miscellaneous

4. Abdomen

- Stomach (e.g. gastroenteroanastomosis, closure of perforation, pyloroplasty, gastrostomy)
- Gastric resection
- Cholecystectomy
- Bile duct (e.g. stone, T-drainage, choledochojejunostomy)
- Small bowel (e.g. resection, ileostomy)
- Colon and rectum (e.g. colotomy, colostomy)
- Colon resection
- Appendectomy
- Liver and spleen (e.g. biopsy, organ injury, resection)
- Pancreas (e.g. necrosectomy, (pseudo)cysts, resection)
- Inguinal hernia
- Abdominal wall

- Proctology (e.g. haemorrhoids, abscess, fistulae)
- Retroperitoneum (e.g. nephrectomy, adrenalectomy)
- Urogenital (e.g. bladder, ureter, uterus, ovaries)
- Misc. (e.g. exploration, laparoscopy, peritoneal lavage)

5. Soft Tissues and Musculoskeletal

- Operative osteosynthesis of fractures of long bones
- Operative osteosynthesis of fractures close to joints
- Puncture of joints
- Soft tissue injuries
- Soft tissue infections
- Diabetic foot
- Defects of the skin and soft tissue
- Soft tissue tumours
- Major amputations
- Misc. (e.g. minor amputations, removal of osteosynthetic material)

6. Vessels and Nerves

- Varices (e.g. crossectomy, stripping, perforans ligation)
- Arteries (e.g. arteriotomy, thrombectomy, endarterectomy, embolectomy, vascular reconstruction)
- Peripheral nerves (e.g. neurolysis)
- Miscellaneous (e.g. access for dialysis, implantation of subcutaneous venous ports)

Expanded View of the Core Curriculum in General Surgery

EMERGENCY SURGERY	
TOPICS	PROCEDURES
Assessment of the acute abdomen Biliary tract emergencies Acute pancreatitis Swallowed foreign bodies Gastrointestinal bleeding Appendicitis and right iliac fossa pain Abdominal pain in children Peritonitis Acute intestinal obstruction Intestinal pseudo-obstruction Strangulated hernia Intestinal ischaemia Toxic megacolon Superficial sepsis and abscesses Acute ano-rectal sepsis Ruptured aortic aneurysm Acutely ischaemic limb Acute presentations of urological disease Acute presentations of gynaecological disease Scrotal emergencies in all age groups **Trauma** Assessment of the multiple injured patient including children 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	Drainage of superficial abscesses Tracheostomy Emergency thoracotomy Diagnostic laparoscopy Closure of perforated peptic ulcer, open and laparoscopic Endoscopy for upper GI bleeding Operations for GI bleeding including partial gastrectomy Emergency cholecystectomy Splenectomy for trauma Emergency hernia repair Laparotomy for small bowel obstruction Small bowel resection Ileostomy Laparotomy for large bowel obstruction Laparotomy for perforated colon Hartmann's operation Colostomy Appendicectomy Drainage of ano-rectal sepsis Laparotomy for abdominal injury Laparotomy for post operative complications Urethral catheterisation Suprapubic cystostomy Exploration of scrotum Reduction of paraphimosis Embolectomy Fasciotomy Organ retrieval for transplantation

CRITICAL CARE	
Hypotension Haemorrhage Haemorrhagic and thrombotic disorders Blood transfusion and blood component therapy Septicaemia and the sepsis syndrome Antibiotic therapy and the management of opportunist infection Gastro-intestinal fluid losses and fluid balance, including in children Nutritional failure and nutritional support Respiratory failure Renal failure and principles of dialysis Fluid overload and cardiac failure Myocardial ischaemia Cardiac arrythmias Multiple organ failure Pain control Cardiac arrest, respiratory arrest and brain death Organ donation Hypo and hyperthermia Diagnosis of brain death Legal & ethical aspect of transplantation	Cardio-pulmonary resuscitation Chest drain insertion Central venous line insertion Insertion of peritoneal dialysis catheter Primary vascular access for haemodialysis A detailed knowledge of the methods and results of invasive monitoring will *not* be required

ABDOMEN	
Neoplasms of large bowel Inflammatory bowel disease (inc medical management) Diverticular disease Irritable bowel syndrome Haemorrhoids Anal fissure Rectal prolapse Fistula in ano Diverticular disease/fistula Colostomy complications Ileostomy complications Pathology of the scrotum and its contents Male sterilization, including counselling and informed consent	Proctoscopy/rigid sigmoidoscopy Flexible sigmoidoscopy & colonoscopy, diagnostic and therapeutic Outpatient haemorrhoid treatment Haemorrhoidectomy Procedures for fistula in ano Right hemicolectomy Left hemicolectomy Sub-total colectomy Resections for rectal cancer, restorative and excisional Illeorectal anastomosis Panproctocolectomy Closure of Hartmann's procedure Rectal injuries Operations for hydrocoele, epididymal cyst and varicocoele Adult circumcision Vasectomy
VASCULAR	
Atherosclerosis Ischaemic limb Aneurysmal disease Venous thrombosis & embolism Hyper-hypo coagulable state Chronic venous insufficiency Arteriography Vascular CT scanning Magnetic Resonance Angiography Vascular ultrasound Varicose veins Mesenteric ischaemia Critical appraisal of the surgical literature Scientific method & statistics as applied to surgery Informed consent Ethical aspects of surgical practice Genetic aspects of surgical disease	Vascular suture/anastomosis Approach to/control of infra-renal aortic, iliac and femoral arteries Control of venous bleeding Balloon thrombo-embolectomy Amputations of the lower limb Fasciotomy Primary operation for varicose veins Abdominal aortic aneurysm repair, elective and ruptured Femoro-popliteal bypass Femoro-femoral bypass

Sub-Specialist Curricula in General Surgery

ENDOCRINE SURGERY	
TOPICS	PROCEDURES
Pituitary The gut as an endocrine organ Endocrine pancreas Counselling and screening in familial disease Radio-immuno assays	Re-operative thyroid surgery including nodal dissection Parathyroidectomy Re-operative parathyroidectomy Endocrine pancreatic tumours Adrenalectomy (inc. laparoscopic) Total thyroidectomy Prophylactic thyroidectomy Excision of gut endocrine tumours

BREAST SURGERY	
TOPICS	PROCEDURES
Genetics related to surgery Immunocyto-chemistry Clinical trials Neo-adjuvant therapy and related surgery Epidemiology Screening programme Stereotaxis	Needle localisation biopsy Mammary duct fistula Breast duct excision Microdochectomy <u>Reconstruction</u> Myocutaneous flaps Tissue expanders Complications and re-operation Breast reduction

UPPER GI SURGERY

OESOPHAGO-GASTRIC SURGERY

TOPICS	PROCEDURES
Epidemiology and aetiology of oesophago-gastric, pancreato-biliary and liver cancer Principles of screening for cancer The use and limitations of multimodality treatment for upper GI cancer Oesophageal motility disorders Imaging and endoluminal ultrasound	Oesophageal dilatation Oesophageal stenting Laser recanalisation Mucosal resection Staging laparoscopy & laparoscopic ultrasound scanning Oesophagectomy Total and subtotal gastrectomy Extended lymphadenectomy for gastric cancer Laparoscopic anti-reflux surgery Open anti-reflux surgery Repair of para-oesophageal hiatus hernia Re-do gastric surgery Re-do anti-reflux surgery Heller's myotomy, open and laparoscopic Long oesophageal myotomy Pharyngeal pouch Laparoscopic splenectomy Operations for morbid obesity Endoscopic control of of upper GI bleeding Variceal banding/sclerotherapy

HEPATO-PANCREATICO-BILIARY SURGERY

TOPICS	PROCEDURES
Chronic pancreatitis Complex liver injuries Hydatid disease Management of primary & secondary hepatic and choledochal neoplasms Other conditions of the liver and biliary tract Pancreatic neoplasms Chronic liver disease Liver failure Pancreatic insufficiency Imaging & endoluminal ultrasound Hepatitis	ERCP and endoscopic sphincterotomy Biliary stenting Pancreatic stenting Biliary reconstruction Pancreatectomy all types Treatment of pancreatic necrosis Drainage of pancreatic pseudo-cyst Porto-systemic shunt Liver resection Laparoscopic exploration of bile duct Staging laparoscopy & laparoscopic ultrasound scanning

COLOPROCTOLOGY	
TOPICS	PROCEDURES
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 Complex intestinal fistulae Colonic bleeding Radiation enterocolitis Other small bowel conditions	Anterior resection of rectum AP resection Prolapse surgery Laparoscopic rectopexy Incontinence surgery Recto-vaginal fistula Ileo-anal and colonic pouch Colo-anal anastomosis Laparoscopic large bowel resection Re-operation for pelvic malignancy Re-operation for inflammatory bowel disease Operation for intestinal fistula Complex fistula in ano Posterior approach to rectum Transanal resection Transanal microsurgery Posterior pelvic clearance Laparoscopic colectomy Block dissection of groin

ENDOSCOPIC SURGERY	
TOPICS	PROCEDURES (also appear in appropriate anatomical subspecialty lists)
Theory and practice of choledochoscopy 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 Minilaparoscopy Ultrasound interpretation, internal and external techniques	Laparoscopic repair of all types of hernia Laparoscopic anti-reflux procedures Laparoscopic splenectomy Laparoscopic large bowel resection Laparoscopic rectopexy Laparoscopic exploration of CBD Laparoscopic closure of perforated duodenal ulcer Laparoscopic adrenalectomy Laparoscopic operations for morbid obesity Laparoscopic abdominal lymphadenectomy Other major laparoscopic and laparoscopically assisted procedures

VASCULAR SURGERY

TOPICS	PROCEDURES
Angioplasty/stenting	Abdominal aortic aneurysm repair : elective
Thrombolysis	Abdominal aortic aneurysm repair : emergency
Reno-vascular disease	Supra renal aortic aneurysm
Raynaud's/vasopastic disorders	Procedures for peripheral aortic dissection
Lymphoedema	Aorto-bifemoral bypass
Cerebrovascular disease	Ilio-femoral bypass
Vasculitis	Infra-inguinal bypass (all types)
Graft prosthetics	Axillo-femoral bypass
Graft surveillance	Revision surgery
Graft infection	Surgery for infected grafts
Autonomic dysfunction	Carotid endarterectomy
Reperfusion injury	Carotid body tumour
Arterial dissection	Operations for thoracic outlet syndrome
Arterio-venous malformations	Thoracoscopic sympathectomy
Thoracic outlet syndrome	Upper limb arterial reconstruction
Diabetic foot	Recurrent and complex varicose veins
Trophic ulceration	Venous reconstruction
Intimal hyperplasia	Renal/visceral artery reconstruction
Rehabilitation & limb prosthetics	Interventions for arterio venous malformations
Medical management of vascular disease	Procedures for arterial injuries
	Angioplasty,thrombolysis and stenting
	Per-operative angiography and thrombolysis
	Endoluminal grafting
	Reduction surgery for lymphoedema
	Endoscopic vascular procedures
	Lumbar sympathectomy
	Vascular access procedures

TRANSPLANTATION	
TOPICS	PROCEDURES
Pathology of renal and hepatic disease Patho-physiology of renal and hepatic failure Peritoneal and haemo-dialysis Selection of patients for transplantation Post-operative management Immuno-pathology of rejection Management of rejection Immunosuppression Opportunist infections Immunosuppression and cancer Transmission of viral and fungal diseases Tissue typing The HLA system Bladder dysfunction Preservation of organs Legal & ethical aspects of transplantation	Donor nephrectomy Donor hepatectomy Renal transplantation Uretero-neocystostomy Uretero-ureterostomy Renal biopsy Transplant nephrectomy Vascular access Peritoneal access Drainage of intra-and extra-peritoneal collections Live donor transplantation **Renal procedures:-** Work bench preparation of the kidney Ileal and colonic conduits Uretero-pyelostomy Bladder (psoas) hitch Boari flap Partial nephrectomy Bilateral nephrectomy Secondary vascular access Renal artery reconstruction Renal vein reconstruction Parathyroidectomy **Pancreatic procedures:-** Donor pancreatectomy Pancreatic transplantation **Hepatic procedures:-** Liver transplantation

Association of Surgeons of Malta
Certificate of Completion of Basic Surgical Training
(CCBST-Malta)

The Certificate of Completion of Basic Surgical Training (CCBST) is a mandatory requirement for entry into a specialty training programme leading to the award of the Certificate of Completion of Training (CCT). It is an indication of suitability for further training in a specialty but further progress will depend on satisfactory performance in approved training posts.

1 **Eligibility Criteria**

To be eligible to obtain the Certificate of Completion of Basic Surgical Training, all applicants must:

1.1 have a basic medical degree which appears on the World Health Organisation (WHO) list: www.who.int;

1.2 have completed 24 months of house jobs under supervision in a Government hospital or clinic;

1.3 have a warrant and license to practice as a Medical Doctor in Malta, and be currently practicing in the public hospital in Malta;

1.4 have completed 24 months of approved surgical training as detailed in paragraph 2 below;

1.5 have passed all sections of the AFRCS, MRCS or FRCS of the UK colleges, part 1 of the European Board of General Surgery Qualification (EGBSQ) or equivalent;

1.6 have successfully completed a Surgical Skills course approved by the UK surgical colleges or equivalent;

1.7 have successfully completed the Advanced Trauma Life Support (ATLS) course or the European Trauma Course (ETC) or the Care of the Critically Ill Surgical Patient (CCrISP) course, or equivalent;

1.8 hold a training logbook or portfolio which fully reflects their surgical training;

1.9 provide evidence of satisfactory performance and progression of:
six months in a basic surgical training post in General Surgery;
six months in Accident and Emergency and/or Orthopaedics
three months in four surgical specialities from the following list:

- Accident and Emergency (not in addition to above)
- Orthopaedics (not in addition to above)
- Plastic surgery
- Paediatric surgery
- Urology
- Vascular surgery
- Cardiothoracic surgery
- Neurosurgery
- Opthalmic surgery
- Oral and maxillofacial surgery

Otolaryngology (ENT)
Gynaecology
Intensive therapy

2 Approved Surgical training

2.1 Applicants must have completed a minimum of twenty four months of basic surgical training in programmes or posts approved by the Association of Surgeons of Malta.

2.2 During their training applicants must have trained in the above listed posts in which a significant proportion of the work is spent dealing with surgical emergencies and/or the care of the critically ill patient.
This training may be completed in any order.
A maximum of six months of training in each of Accident and Emergency and Orthopaedics will be accepted.

3 Evidence

Applicants must present validated evidence of satisfactory completion of the requirements set out in section A.1 to the Association of Surgeons of Malta.

4 Process for awarding the CCBST

The Association of Surgeons of Malta will confirm the evidence and issue the certificate.

5 Appeal

Applicants who are refused the award of the CCBST will have the right of appeal. The appeal must be delivered in writing to the Secretary of the Association of Surgeons of Malta within two calendar weeks from when the result is issued, documenting the reasons why the applicant feels that the certificate should be awarded. The Council of the Association of Surgeons of Malta will appoint an appeals board of two members of the Association who are not council members, and this board will be chaired by the President ex-ufficio. The decision will be issued within three calendar months of the appeal and the board's decision will be final. If the appeals board decides that the certificate should be granted this will be postdated to the date of the original decision.

Definitions

Approved training
Postgraduate surgical training recognised by the Association of Surgeons of Malta. This must take place in a Government hospital.

Equivalence
Training which is equal in value and results in the same outcome as training that has been identified.

Association of Emergency Physicians of Malta

And

Association of Surgeons of Malta

Structured training for the attainment of Specialist Registration in Emergency Medicine in Malta

Introduction:

The training curriculum will be in two parts:

PART 1:

This is a structured programme which will lead to the Certificate of Completion in Basic Emergency Medicine Training (CCBEMT-Malta). Training may start after registration (that is after the 24 months of House Officer Jobs) and will take a minimum of 20 months.

PART 2:

This is a structured programme which will lead to the Certificate of Completion of Emergency Medicine of Malta.

Persons who qualify for entry into this scheme are successful holders of CCBEMT-Malta or persons who have a recognised post graduate qualification attained before 2007 (MRCS or MFAEM) and who have been working at SHO level or above for at least 2 years in the Emergency Department. The latter group will be considered as already in possession of a CCBEMT and this will be confirmed by a testimonial from an accredited specialist in the same field.

This training will be spread over 4 years and successful trainees will be eligible for the Certificate of Completion of Emergency Medicine of Malta (CCST-Malta). This certificate will be an official document which will be recognised by the Specialist Accreditation Committee (SAC) of Malta for inclusion in their registry.

PART 1: Certificate of Completion of Basic Emergency Medicine Training (CCBEMT-Malta)

The Certificate of Completion of Basic Emergency Medicine Training (CCBEMT) is a mandatory requirement for entry into a specialty training programme leading to the award of the Certificate of Completion of Specialist Training (CCST). It is an indication of suitability for further training in a specialty and further progress will depend on satisfactory performance in approved training posts.

1 **Eligibility Criteria**

To be eligible to obtain the Certificate of Completion of Basic Emergency Medicine Training, all applicants must:

1.1 have a basic medical degree which appears on the World Health Organization (WHO) list: www.who.int;
1.2 have completed 24 months of house jobs under supervision in a recognised training hospital;
1.3 have a warrant and license to practice as a Medical Doctor in Malta, and currently practicing in a recognised training hospital in Malta;
1.4 have completed 20 months of approved training as detailed in paragraph 1.8 below which are pre-requisites for the attainment of the MCEM UK (Member of the College of Emergency Medicine UK). This training may be completed in any order.
1.5 have passed all sections of the MCEM UK (or MRCS or MFAEM pre 2007).
1.6 have successfully completed the Advanced Trauma Life Support (ATLS) course or the European Trauma Course (ETC) and an Advanced Life Support (ALS) course or equivalent;
1.7 hold an approved training logbook or portfolio which fully reflects their training;
1.8 provide evidence of satisfactory performance and progression of:
At least 8 months in the Emergency Department (of which 4 months can be Paediatric A&E)
AND
Three months in four specialities from the following list:

General or acute medicine	General surgery
Anaesthetics	Orthopaedic/trauma surgery
Critical care	Plastic surgery/burns
Paediatrics	Neurosurgery
Neurology	Cardiothoracic surgery
Cardiology	Thoracic surgery
Obstetric & Gynaecology	Urology
Psychiatry	ENT/ophthalmology

2 Approved Emergency Medicine training

2.1 During their training applicants must have trained in the above listed full time posts.

2.2 A minimum of eight months of training in the Emergency Department will be accepted.

2.3 During this time the candidates must acquire the necessary skills and experience as specified in the approved logbook.

3 Evidence

Applicants must present validated evidence of satisfactory completion of the requirements set out in section 1 to the Association of Emergency Medicine of Malta and the Association of Surgeons of Malta.

4 Process for awarding the CCBEMT-Malta

The Association of Emergency Medicine of Malta and the Association of Surgeons of Malta will confirm the evidence and issue the certificate.

5 Appeal

Applicants who are refused the award of the CCBEMT will have the right of appeal. The appeal must be delivered in writing to the Secretary of the Association of Emergency Physicians of Malta and the Secretary of the Association of Surgeons of Malta within two calendar weeks from when the result is issued documenting the reasons why the applicant feels that certificate should be awarded. The Councils of both Associations will appoint an appeals board of three members who are not council members. The decision will be issued within three calendar months of the appeal and the board's decision will be final. The board will give recommendations for the attainment of the certificate. If the appeals board decides that the certificate should be granted this will be post-dated to the date of the original decision.

PART 2: Certificate of Completion of Specialist Training (CCST-Malta) in Emergency Medicine

The Certificate of Completion of Specialist Training (CCST) is a mandatory requirement for entry into the Maltese Specialist Accreditation Committee Register. It is an indication of the end of successful training in the specialty and will therefore be considered as proof of attainment of specialist status.

1. Eligibility criteria

To be eligible to obtain the Certificate of Completion of Specialist Training, all applicants must:

1.1.1 have 'CCBEMT-Malta' if post graduate qualification is the MCEM UK obtained in 2007 or thereafter, OR

1.1.2 have obtained the MRCS or MFAEM before 2007 as post graduate qualification and have worked as an A&E SHO or higher grade for at least 2 consecutive years or more.

1.3 have completed 4 years of specialist training termed ST1-ST4.

1.4 have spent 18 months out of the Emergency Department in the following specialties:

- 6 months Anaesthesia and ITU
- 3 months Acute Medicine (Cardiology / MAU)
- 3 months Orthopaedics (with focus on FTC / Hand Clinic, Trauma Theatre and post take rounds)
- 3 months Paediatrics
- 3 months Radiology

1.5.1 have spent 30 months in the Emergency Department.

1.5.2 during this time the candidates must acquire the necessary skills and experience as specified in the approved log book.

1.5.3 Persons who have obtained the MRCS or MFAEM before 2007 as post graduate qualification and have worked as an A&E SHO or higher grade for more than 2 consecutive years may have part or all of this time deducted if they can produce evidence that they have acquired the necessary skills and experience.

1.6 all training will be logged and continuously assessed by an appointed tutor for the whole length of training. This tutor will be an Emergency Specialist and will also supervise the training time outside the Emergency Department.

2 Evidence

Applicants must present validated evidence of satisfactory completion of the requirements set out in section 1 to the Association of Emergency Physicians of Malta and the Association of Surgeons of Malta.

3 Process for awarding the CCST-Malta in Emergency Medicine

The CCST-Malta Emergency Medicine will be issued by the Specialist Advisory Committee and is subject to its Appeals procedures.

Association of Surgeons of Malta

and

Urology Unit, Department of Surgery,

St. Lukes Hospital and Mater Dei Hospital,

Malta

Structured Training Programme

in Urology in Malta

Introduction

The goal of the training programme in urology is to produce trained surgeons with the knowledge, skills and attitudes required to be a specialist Urologist i.e. furnish trainees with the skills necessary to assume responsibility for the care of urological patients. Included are the realms of diagnosis, investigation, operative and non-operative management for and communication with those in his/her care. In addition, the programme should allow the trainee to develop generic skills that allow effective interaction with other professionals (clinical and non-clinical) involved in the delivery of health care to patients.

The first 2 years of training, for trainees in urology, are to be shared with trainees in the other specialties of surgery, namely; General Surgery, Orthopaedics, Cardiothoracic Surgery, Paediatric Surgery, Plastic and Reconstructive Surgery, Neurosurgery, Ophthalmology, ENT and A&E / IMC. These 2 years of core training may be done locally and should follow the criteria defined within the Charter on Training in General Surgery drawn up by the Association of Surgeons of Malta. This should lead to the award of a Certificate of Completion of Basic Surgical Training (CCBST).

Specialist training in Urology has been changing over the past few years, both in the U.K as well as on mainland Europe. Specialist training in Urology will be designed in line with these changes but will also reflect the local clinical practice and requirements of the Urology unit in Malta. Following completion of Basic Surgical Training, the trainee will undergo 4 years of Core Urology Higher Surgical Training. These will be performed in Malta and will emphasise on expertise in the diagnosis and medical management of urological conditions and the surgical management of common urinary tract problems. During the final year of Core Urological Training the trainee will be eligible to sit for the European Board of Urology (EBU) examination or the FRCS Urol examination or equivalent. Successful completion of these 4 years as well as passing the examination will mean that the trainee has completed the Core Urology Training and that his/her name may be entered in the local Specialist Register.

After these 4 years, the trainee may choose to spend a further 2 years abroad to undergo Speciality Training in the advanced aspects of Urology (such as Oncological Urological Surgery, Complex endo-urology, Incontinence surgery, Laparoscopic Urology). This must be performed in recognised training institutions in member states of the EU or even outside the EU as long as they are considered suitable by the local urology trainers. These training periods have to be approved by the SAC. Completion of this speciality training will lead to the trainee being eligible for a Specialist Urological Surgeon post.

The total number of Urology trainees at any one time must reflect the manpower plan for the foreseeable future according to advice from the Urology Unit.

The training may not be interrupted for more than one year and the training should involve a minimum of 48 hospital hours per week.

The First 2 Years of Common Core Training

- The urology trainees must have a compulsory rotation in the following areas:

  Six months in a basic surgical training post in General Surgery
  Six months in Accident and Emergency and/or Orthopaedics

- The urology trainees must have four rotations of three months each in any of the following areas:

  Accident and Emergency (not in addition to above)
  Orthopaedics (not in addition to above)
  Plastic and Reconstructive Surgery
  Paediatric surgery
  Oncology
  Urology
  Vascular surgery
  Cardiothoracic surgery
  Neurosurgery
  Opthalmic surgery
  Oral and maxillofacial surgery
  Otolaryngology (ENT)
  Gynaecology
  Anaesthesia/ Intensive therapy

During these 2 years, the trainees shall acquire a central core of knowledge embracing anatomy, physiology, metabolism, immunology, nutrition, trauma, and emergency care pathology, wound healing, shock and resuscitation, intensive care and neoplasia. They are expected to have knowledge of cell biology that enables them to understand normal and disordered function of tissues and organs. They should have an understanding of the pathogenesis of the common correctable congenital abnormalities. They are expected to know the actions and toxic effects of drugs commonly used in perioperative and intraoperative care and in the management of critically ill surgical patients. They must also have an understanding of general pathology including the principles of immunology and microbiology in relation to surgical practice.

During this core-training period it is deemed necessary that each candidate undergoes a Basic Surgical Skills course approved by the UK surgical colleges or equivalent. Trainees should also have successfully completed the ATLS or ETC or CCrISP course or equivalent. There should be close co-operation with the University Anatomy and Physiology departments for organised tutorials and practical sessions.

At the end of each year an annual assessment of each trainee is to be carried out by a Board as directed by the SAC. After having passed all sections of the AFRCS, MRCS of the UK surgical colleges, part one of the European Board of General Surgical Qualification or equivalent, a Certificate of Completion of Basic Surgical Training (CCBST) will be awarded. This is a mandatory requirement for entry into a Urology Specialist Training Programme leading to the award of a Certificate of Completion of Training (CCT) – see the ASM Charter on Training in General Surgery.

Urology Higher Training

To build up their experience, the trainees should be involved in the management of a sufficient number of inpatients, day care patients and ambulatory patients. In addition they should be involved in a rota for emergency cover dealing with acute urological emergencies.

Trainees are to acquire the following knowledge and skills:

- Fundamental surgical techniques, including minimal invasive techniques
- Initial management of acute surgical diseases
- Prevention and treatment of general complications, e.g. infection
- Different types of anaesthesia and pain control
- Establishing a free airway, including tracheotomy
- Intensive care including shock and fluid therapy

Facilities for research and access to a medical library and a wide range of journal publications must be in part or wholly funded by the university. Regular publications in peer reviewed international journals are mandatory.

There must be regularly scheduled conferences dealing with urological pathology and urological radiology.

Attendance to international meetings should occur at least once every two years during the training period.

Operative experience should be documented in adequate logbooks (see Appendix 1) coded as follows:

S = as Surgeon
A = as Assistant to Senior Surgeon

Credit as surgeon can only be claimed when the trainee has actively participated in all phases of treatment; has made or confirmed the diagnosis, participated in the selection of the appropriate procedure, has either performed or been responsibly involved in performing the surgical procedure and has been a responsible participant in both pre- and postoperative care.

The Curriculum for Core Urology Training

Trainees in Core Urology must perform practical procedures appropriate to their year of training and the present practice within the Urology unit in Malta. Trainees will work under supervision and unsupervised according to their capabilities and level of training. There should be regular dedicated lists where the trainee is assisted by the consultant. These lists should include operations of increasing complexity that reflect the year of training and competence of the trainee.

In order to be eligible for the exit examination in Urology the trainee must have documentary evidence of performance as the primary surgeon, or under supervision, of certain procedures spread across the different fields of the syllabus as indicated below.

Core Urology Training Level 1 - Years 1 and 2

Theoretical and Practical Clinical Skills

Theoretical

- Management of septicaemia
- Cardio-respiratory resuscitation
- Fitness for anaesthesia
- Pain control
- Fluid balance
- Deep vein thrombosis prophylaxis
- Management of common associated medical conditions, e.g. diabetes, hypertension, anticoagulants, immunosuppressants, respiratory disease, chronic renal failure
- Nutritional support

Clinical Skills

- Insertion of urethral and suprapubic catheters
- Penile injection and aspiration
- Transrectal ultrasound scanning
- Basic urodynamics
- Timing of images and position of patients undergoing intravenous urography
- Urethrography
- Urinalysis

Surgical skills and manual dexterity

- Skin preparation
- Suture materials
- Diathermy
- Tissue handling

Dextrous skills - endoscopic

- Flexible cystoscopy
- Rigid endoscopy
- Retrograde pyelography
- Stent removal
- Bladder biopsy
- Cystodiathermy
- Bladder neck incision
- Transurethral resection under supervision completing small resections
- Optical urethrotomy

Dextrous skills - open

- Circumcision.
- Hydrocoele.
- Epididymal cysts.
- Scrotal exploration for torsion.
- Inguinal orchidectomy.
- Vasectomy.
- Under supervision: laparotomy, small bowel resection and anastomosis, simple nephrectomy, cystolithotomy, suprapubic approaches to the bladder and prostate, opening and closing standard abdominal loin and suprapubic incisions

Postoperative Management

- Pain control
- Recognition and treatment of TUR syndrome
- Respiratory failure; recognition and treatment
- Assessment and maintenance of fluid balance
- Blood transfusion
- Postoperative monitoring
- Surgical sepsis

Core Urology Training Level 2 - Years 3 and 4

Clinical skills

- Transrectal ultrasound and biopsy
- Uses and dangers and complications of ionising radiation including radiation protection of patients and users
- More advanced urodynamics

Surgical skills and manual dexterity

Paediatric cystoscopy
Ureteroscopy
Bladder neck incision
Transurethral resection of tumours and prostate
Insertion of JJ stent
Urethrotomy

Open procedures

Orchidopexy
Ligation of varicocoele
Vasovasotomy
Colposuspension / TVT
Retropubic prostatectomy
Ileal conduit diversion
Pyeloplasty
Insertion of peritoneal dialysis catheter
Under supervision: simple and radical nephrectomy

Postoperative Management

Indications for ITU, HDU
Blood product usage
Antibiotic usage
Sterilisation

Minimal requirements for each of the above-mentioned fields in Core Urology Training are set as follows. This list is not meant to be exhaustive but only to be used as a guideline.

TURP	50
TURBT	50
NEPHRECTOMY	10
PCNL	20
ESWL	20
PYELOPLASTY	5
FLEXIBLE CYSTOSCOPY	300
FLEXIBLE/RIGID URETEROSCOPY+ INSITU LITHOTRIPSY	30
URODYNAMIC STUDIES	20

Level 3: Advanced Training in More Complex Urology.
Years 5 and 6
Specialist Urology Training

The trainee will continue to consolidate their skills in general urology, but will be attached the two years to a training attachment that can provide exposure to more complex urology. These areas may include:

1. Andrology
2. Endourology
3. Female urology
4. Laparoscopic urology
5. Oncology
6. Paediatric urology
7. Reconstruction
8. Transplantation

There should be close liaison with the urology trainers and documentary evidence of regular six monthly appraisals. Feedback from trainees as to the quality of the programme is essential. The assessments should be submitted to the SAC on a yearly basis. If the trainee's performance is unsatisfactory, attempts are made to correct this and if necessary the trainee is not promoted to the next year of training. If the performance remains unsatisfactory the head of training may recommend to the SAC that the trainee lose his training position.

It is important to note that the contents of this Training Programme may be amended as required in order to reflect any changes in the syllabi, curricula and requirements which are made from time to time by the major international examining bodies.

ASSOCIATION OF ORTHOPAEDIC & TRAUMA SURGEONS OF MALTA

PO BOX 46
MSIDA MSD 01
MALTA

Tel: (356) 21241251
e-mail:
ivan.esposito@gov.mt

Proposal for a Post-graduate Training programme in Orthopaedics & Trauma in Malta.

1 Introduction

The following guidelines are intended to give the views of the Association of Orthopaedic & Trauma Surgeons of Malta regarding the training of Trauma & Orthopaedic specialists in Malta. Due consideration being given to the unique circumstances prevailing in our medical profession over the past 30 years and to meet the future challenges. This proposal is modified from a previous proposal which was presented in 2003.

Terms of reference

To propose a programme of training and post-graduate education in Trauma & Orthopedic Surgery, for those in Specialist training in Malta.

To offer post-graduate training in Trauma & Orthopaedic Surgery to Maltese, EU and non-EU citizens.

Objectives of the programme

This is to ensure that the training programme produces Trauma & Orthopaedic Surgeons of the highest quality and able to practice at the level of Consultant within the Health Service of Malta. At the completion of the programme, Maltese-trained specialists should be recognized within the European Union.

2. Basic Surgical Training

2.1 Basic Surgical training precedes Specialist training in Trauma & Orthopaedic Surgery. This may begin at any time after registration, which normally follows two years of pre-registration work experience. It is the opinion of the AOTSM that the current two years of pre-registration offer a good preparation for Basic Surgical training.

2.2 The aim of BST should be the preparation of the trainee for membership of the Royal Colleges of Surgeons and/or equivalent. The Colleges publish separate regulations for eligibility to the Collegiate Examinations in Surgery.

2.3 Training takes place in posts which are approved by the Royal Colleges of Surgeons and requires a minimum of three years practical experience in different surgical specialties.

2.4 After three years the BST is eligible to sit for the membership collegiate examination of any of the four Colleges.

2.5 It is also proposed that during BST the trainees are encouraged to prepare for a MPhil degree in order to promote research and prepare for a higher degree.

2.6 It is proposed that selection into different specialties should start at the end of the second year.

2.7 A mentor or tutor should be appointed to each BST at the beginning of their Basic Surgical Training.

3. Specialist training in Trauma and Orthopaedic Surgery

3.1 The Association of Orthopaedic & Trauma Surgeons of Malta will supervise the training of Trauma and Orthopaedics in Malta.
3.2 After obtaining a Specialist training post, the trainee will register with the AOTSM and after inspection of his curriculum vitae will be given a provisional date of accreditation. This date may need to be reviewed on recommendation of the head of training.
3.3 The duration of specialist training should be six years. There will be an exit examination for which the trainee can sit at the completion of the fifth year of specialist training. The AOTSM will issue a certificate of accreditation to the trainee on completion of the full six years of specialist training and once they have fulfilled all the criteria, including passing the exit examination.
3.4 The training programme should ensure that the trainee is prepared to sit for either the local exit examination in Malta or the equivalent in the EU.
3.5 A minimum of three years of Specialist training are to be done in Malta. It is recommended that all Specialist trainees gain a minimum of two years experience in recognized training posts abroad.
3.6 The AOTSM may retrospectively recognize Specialist training in individual cases allowing a certain degree of flexibility. Not more than one year will be recognized retrospectively.
3.7 Accreditation of a maximum period of 12 months full time research will be given to the trainee. This approval should be given prospectively.
3.8 An annual assessment of each trainee should be carried out under the chairmanship of the head of training. A trainee will only be allowed to progress to the next year of training if they fulfill the criteria at the annual assessment.
3.9 At the end of the six year programme the AOTSM record will be completed and signed by the head of training. This depends on the successful completion of all the requirements.
3.10 Log book.

i. this offers a detailed record of the operative experience during training.
ii. It is recommended that the trainee utilizes currently available electronic log books.
iii. The trainee is responsible for their log book and ensuring that it is signed by the trainer.
iv. The log book is presented at the annual assessment.
v. The log book is presented at the exit examination.
vi. The log book is presented at the time of accreditation.
vii. The log book is registered as required by the Data Protection Act.

3.11 On satisfactory completion of the training programme and exit examination, the AOTSM will recommend accreditation to the SAC.

4. Guidelines for the content of a Specialist training Programme in Trauma and Orthopaedic Surgery

4.1 Academic programme. This is the responsibility of the Head of Training. Each programme should have a regular cycle of formal teaching at the highest level. A session each week should be set aside for the formal teaching programme. The teachi8ng should aim at preparing the Trainee for the exit examination as well as instruction in the art of Trauma and Orthopaedic Surgery.
4.2 Regular teaching is important. This can take the form of Teaching ward rounds, out-patient teaching or in clinical conferences.
4.3 Knowledge of the literature is part of the teaching and time should be set aside for journal clubs.
4.4 Multidisciplinary conferences are considered to be part of the teaching programme.
4.5 Facilities should be made available to the Trainer and Trainee in order to be able to carry out the teaching sessions. It is advisable to have a departmental teaching room and library. This should have computer facilities to allow research work and clinical audit. Access to the internet is important to allow quick access to clinical information.
4.6 Surgical training.

i. The log book gives a record of the operative experience.

ii. The programme gives a balance between operations performed by the trainee alone, those with assistance and those in which the trainee assists the trainer.

iii. It is hoped that there will be at least two lists a week that are done and/or supervised by the trainer.

4.7 Clinical audit. This should be a compulsory requirement of training.
4.8. Research.

i. Every trainer and trainee is allowed one session a week for research/audit.

ii. A period of full-time research by the trainee is desirable. The maximum period of accreditation for research is 12 months.

iii. The necessary facilities for research should be made available for the trainer and trainee.

5. The Head of Training.

5.1 The Head of Training should be appointed after local consultation. A university post may be made available for such a position.
5.2 The Head of Training is responsible for the organization, running and supervision of the training programme.
5.3 The Head of Training appoints the relevant trainers.
5.4 Arrange an annual assessment.
5.5 Supervise the enrolment of Specialist Trainees.
5.6 Sign the training certificate at completion of training.
5.7 Be responsible for the counseling of trainees as necessary.

6. A model working week for a Specialist Trainee.

Suggested working week:

Ward rounds	2 sessions
Clinics	2 sessions
Research	1 session
Operating lists	2 – 3 sessions
Core teaching	1 session
Teaching/administration/audit/other	1 session

7. Conclusion.

The introduction of a National post-graduate training programme in Orthopaedics and Trauma is a challenge that needs to be met with urgency. The current complement of six consultants in Malta and one consultant in Gozo falls short of the European recommendation of at least one consultant per 40000 population. This fact is further aggravated by the fact that five consultants will reach retirement age within the next six years.

This programme depends on the necessary commitment of the Health Department, University of Malta, AOTSM and medical professionals in the specialty. In order for it to succeed it is necessary to increase the current consultant complement in Orthopaedics and Trauma by at least two new posts. The fact that working practices may need to change should be incorporated into the new collective agreement. Recognition and adequate compensation for the Trainers is important so as to allow full commitment towards the success of this programme.

It is currently envisaged that the introduction of the training programme should be linked with the start of the University academic year. It is proposed that in the initial enrolment, three Specialist Trainees are enrolled. Subsequently it is proposed that one Trainee is enrolled every other year.

In order for the AOTSM to be able to run this programme it will require adequate training facilities and a yearly budget. It is also important that secretarial assistance is made available.

Applied Clinical Knowledge Syllabus (T&O)

A trainee must be able to apply the knowledge listed below in the relevant clinical situations. They should demonstrate their competence by the ability to verbalise the knowledge and justify any action or decision.

Competence Levels	
1 = Knows of	**3 = Knows generally**
2 = Knows basic concepts	**4 = Knows specifically and broadly**
4s = Subspeciality interest only	

TOPIC	ST 1/2	ST 3/6	ST 7/8
Basic Science			
Anatomy:			
Clinical and functional anatomy with pathological and operative relevance	**3**	**4**	**4**
Anatomy(and embryology) of nervous and vascular systems	**3**	**4**	**4**
Surgical approaches to the limbs and axial skeleton	**2**	**4**	**4**
Anatomy(and embryology) of the musculoskeletal system	**3**	**4**	**4**
Tissues			
Bone-Structure and Function	**3**	**4**	**4**
Cartilage-articular,meniscal-Structure and Function	**3**	**4**	**4**
Muscle and Tendon-Structure and Function	**3**	**4**	**4**
Synovium-Structure and Function	**3**	**4**	**4**
Ligament-Structure and Function	**3**	**4**	**4**
Nerve-Structure and Function	**3**	**4**	**4**
Intervertebral Disc-Structure and Function	**2**	**3**	**3**
Physiology, Biochemistry & Genetics			
Structure and function of connective tissues	**2**	**3**	**3**
Application/relevance of modern genetics to ortho disease and treatment	**2**	**3**	**3**
Shock-types,physiology,recognition and treatment	**3**	**4**	**4**
Metabolism and hormonal regulation	**3**	**4**	**4**
Metabolic and immunological response to trauma	**3**	**4**	**4**
Blood loss in trauma, fluid balance and blood transfusion	**4**	**4**	**4**
Bone grafts, bone banking and tissue transplantation	**3**	**4**	**4**
Biomechanics and Bioengineering			
Biomechanics of musculoskeletal tissues	**2**	**3**	**3**
Biomechanics of fracture fixation	**3**	**4**	**4**
Tribology of natural and artificial joints	**1**	**3**	**3**
Design of implants and factors associated with implant failure (wear, loosening)	**1**	**3**	**4s**
Kinematics and gait analysis	**1**	**2**	**3s**
Biomaterials	**1**	**2**	**3s**
Bone and Joint Disease			
Orthopaedic Oncology			
Presentation ,radiological features, pathological features, treatment and outcome for common benign and malignant tumours	**2**	**4**	**4**
Metastatic bone disease	**2**	**4**	**4**
Soft tissue swellings including sarcomas	**1**	**3**	**4s**

TOPIC	ST 1/2	ST 3/6	ST 7/8
General			
Ostreoarthritis	**2**	**4**	**4**
Osteoporosis	**2**	**4**	**4**
Metabolic bone disease	**2**	**4**	**4**
Rheumatoid arthritis and other arthropaties (inflammatory, Crystal etc)	**2**	**4**	**4**
Haemophilia	**1**	**2**	**4s**
Inherited musculoskeletal disorders	**1**	**3**	**4s**
Neuromuscular disorders-inherited and acquired	**1**	**3**	**3**
Osteonecrosis	**2**	**4**	**4**
Osteochondritides	**2**	**3**	**3**
Heterotopic ossification	**2**	**3**	**3**
Metastases	**2**	**4**	**4**
Investigations			
Blood tests	**3**	**4**	**4**
X-ray,contrast studies,CT,MR,ultrasound,radioisotope studies	**2**	**4**	**4**
Effects of Radiation	**3**	**3**	**3**
Bone densitometry	**2**	**3**	**3**
Electrophysiological investigations	**2**	**3**	**3**
Operative Topics			
Tourniquets	**3**	**4**	**4**
Design of theatres	**2**	**3**	**3**
Anaesthesia	**2**	**2**	**2**
Infection, Thromboembolism & Pain			
Infection of bone,joint,soft tissue,inc TB and their prophylaxis	**2**	**4**	**4**
Sterilisation	**2**	**3**	**3**
Thromboembolism and prophylaxis	**2**	**4**	**4**
Behavioural dysfunction and somatization	**2**	**3**	**3**
AIDS and surgery in high risk patients	**2**	**4**	**4**
Pain and pain relief	**3**	**3**	**3**
Skin preparation	**4**	**4**	**4**
CRPS	**2**	**3**	**3**
Prosthetics & Orthotics			
Principles of design	**1**	**3**	**3**
Prescription and fitting of standard prosthesis	**1**	**3**	**3**
Principles of orthotic bracing for control of disease, deformity and instability	**1**	**3**	**3**
Research & Audit			
Design and conduct of clinical trials	**1**	**3**	**3**
Data analysis and statistics-principles and applications	**1**	**2**	**2**
Principles of Epidemiology	**1**	**2**	**2**
Audit	**3**	**4**	**4**
Medical Ethics			
Duties of care	**3**	**4**	**4**
Informed Consent	**3**	**4**	**4**
Medical negligence	**3**	**4**	**4**

Hand Surgery	ST 1/2	ST 3/6	ST 7/8
Basic Science			
Anatomy of:			
Wrist/MCP/PIP/DIP joints and CMC joint of the thumb	**3**	**3**	**4s**
Flexor and extensor mechanism of fingers inc interaction between ext and int mechanism	**3**	**3**	**4s**
Posture of thumb in pinch, power and key grip	**3**	**3**	**4s**
Nerve supply to the hand	**3**	**3**	**4s**
Close compartments of forearm and hand	**2**	**4**	**4**
Pathology			
Swelling and effects of rising pressure in a closed compartment secondary To infection and injury	**3**	**4**	**4**
Oedoma and fibrosis and permanent stiffness	**3**	**4**	**4**
Tendon injury and healing	**3**	**4**	**4**
Nerve injury and healing	**3**	**4**	**4**
Inflammatory arthritis	**1**	**3**	**4s**
Classification for congenital hand disorders	**n/a**	**2**	**4s**
Langers lines	**3**	**4**	**4**
Hand tumours (eg ganglion, enchondroma)	**1**	**3**	**4s**
Dupuytren's disease	**1**	**3**	**4s**
Clinical Assessment			
History and examination of hand and wrist in assessment of tendons, DRUJ and Radiocarpal joints	**3**	**3**	**4s**
Ability to elicit median, ulnar and radial nerve function and disorders	**3**	**3**	**4s**
Common compressive neuropathies and brachial neuralgia	**3**	**4**	**4**
Intrinsic and extrinsic motors in digits and recognition of common deformities and deficiencies	**2**	**3**	**4s**
Work related hand disorders	**2**	**3**	**4s**
Common rheumatoid hand deformities	**1**	**3**	**4s**
Focal hand swellings	**2**	**4**	**4**
Investigations			
Plain and stress X-Rays of the wrist	**2**	**3**	**4s**
Awareness of role of MRI/bone scan/arthrography/arthroscopy	**1**	**4**	**4s**
Nerve conduction studies	**1**	**4**	**4s**
Treatment			
Management of the osteo arthritic rheumatoid hand. Soft tissue recon, Joint fusion, interposition and excision arthroplasty	**1**	**3**	**4s**
Management of stenosing tenovaginitis	**1**	**3**	**4s**
Treatment of tendon injuries and surgical approaches	**3**	**3**	**4s**
Fractures of metacarpals and phalanges	**3**	**3**	**4s**
Surgical treatment of Dupuytren's disease	**1**	**3**	**4s**
Tendon transfers for recon of median, ulnar and radial Nerve palsy	**1**	**2**	**4s**
Splinting techniques and rehab principles	**3**	**4**	**4s**
Finger tip injuries	**3**	**4**	**4s**
Surgical approach to digits with particular regard to the restoration of function and prevention of stiffness	**3**	**4**	**4s**
Levels for digital amputation	**2**	**4**	**4s**
Injuries of ulnar collateral ligament of thumb	**2**	**3**	**4s**
Carpal dislocations and carpal instability	**2**	**4**	**4s**
Treatment for fractures of distal radius and common carpal injuries including scaphoid non-union	**4**	**4**	**4s**
Surgery for common compressive neuropathy	**3**	**3**	**4s**
Ability to manage common hand infections	**3**	**4**	**4s**

Knee	ST 1/2	ST 3/6	ST 7/8
Basic Science			
Anatomy:			
Regional anatomy of the knee including:	**3**	**4**	**4**
Surface anatomy	**3**	**4**	**4**
Standard anterior and posterior surgical approaches	**3**	**4**	**4**
Bones and joints	**3**	**4**	**4**
Anatomy of ligaments and supporting muscles	**3**	**4**	**4**
Innervation of the knee	**3**	**4**	**4**
Extent and function of synovium of knee and bursae	**3**	**4**	**4**
Structure and function of menisci and art cartilage	**3**	**4**	**4**
Biomechanics			
Mechanics of patello-femoral mechanism	**1**	**3**	**4s**
Medial and lateral weight bearing joints	**2**	**4**	**4s**
Cruciate and collateral ligaments	**2**	**4**	**4s**
Menisci and articular cartilage	**3**	**4**	**4**
Pathology			
Mechanism of ligamentous, bony and combined trauma to knee	**3**	**4**	**4**
Arthrides, including degenerate wear, ageing changes and traumatic damage	**2**	**4**	**4**
Inflammatory disease and infection affecting knee	**2**	**4**	**4**
Response of synovium to debris	**2**	**3**	**4s**
Benign and malignant conditions in the knee	**2**	**3**	**4s**
Clinical Assessment			
History and examination of the knee	**3**	**4**	**4**
Standard clinical signs of the knee	**3**	**4**	**4**
Rating and outcome measures in common use	**1**	**3**	**4s**
Investigations			
Radiographs	**1**	**3**	**4s**
Blood investigations	**2**	**4**	**4**
Aspiration	**3**	**4**	**4**
CT, MRI, Radioisotope scanning	**3**	**4**	**4**
Arthroscopy	**2**	**3**	**4s**
Biomechanical testing	**1**	**2**	**4s**
Treatment			
Paediatric disorders, including deformity, dislocations, epiphyseal Disorders, osteochondritis and discoid meniscus	**2**	**3**	**4s**
Adolescent disorders including patello-femoral and meniscal dysfunction, osteochondritis dissecans	**2**	**3**	**4s**
Young adult disorders including poatello femoral and meniscal injuries, instability and ligament deficiency, Synovial disorders, benign and malignant tumours.	**2**	**4**	**4**
Degenerative and inflammatory arthritis including conservative and surgical options including osteotomy, arthrodesis and arthroplasty	**2**	**4**	**4**
Traumatic disorders, fractures and dislocations of patella, tibia and Femoral components, ligament ruptures and internal derangement of the knee. Conservative and surgical indications. Outcomes.	**3**	**4**	**4**
Infections, intra-articular sepsis, prevention and management of sepsis in Implant surgery.	**3**	**4**	**4**
Working knowledge of the range of arthroplasties for primary and revision surgery for patellofemoral, unicompartmental and total replacement of the Knee with particular reference to secure bone anchorage, alignment,	**2**	**4**	**4**

Ligament stability and optimizing range of movement.			
Indications and techniques of revision surgery particularly aseptic and Septic loosening	**n/a**	**3**	**4s**
Simple arthroscopic surgery including meniscectomy, trimming and shaving	**2**	**4**	**4**
An appreciation of complex arthroscopic procedures	**1**	**3**	**4s**
Medical and surgical techniques to repair and replace articular cartilage	**1**	**3**	**4s**
Ankle and Foot Surgery			
Anatomy	**3**	**4**	**4**
Bones and articulatons	**3**	**4**	**4**
Ligamentous structures-ankle/hindfoot/midfoot	**3**	**4**	**4**
Plantar fascia and MTP anatomy	**3**	**4**	**4**
Surface markings of neural and vascular structures	**3**	**4**	**4**
Tendon anatomy	**3**	**4**	**4**
Muscle compartments of the foot	**3**	**4**	**4**
Biomechanics			
Function of the lower limb and foot in gait	**2**	**4**	**4**
Ankle and subtalar joint	**2**	**4**	**4**
Plantar fascia mechanisms	**2**	**4**	**4**
Tendon function	**2**	**4**	**4**
Orthoses and footwear	**2**	**4**	**4**
Pathology			
Degenerative joint disease	**2**	**4**	**4**
Rheumatoid foot disease	**1**	**4**	**4**
Neuropathic joint and skin changes	**1**	**3**	**4s**
Tumours eg osteod osteoma and plantar fibroma	**1**	**3**	**4s**
Clinical Assessment			
History and clinical examination of the foot and ankle in order to assess pain, Joint function, deformity, nerve, muscle and tendon function.	**3**	**4**	**4**
Ability to recognize and assess these diseases:			
Charcot joint	**1**	**3**	**4s**
Morton's neuroma	**2**	**3**	**4s**
Nerve entrapment	**2**	**3**	**4s**
Neurological foot deformity	**2**	**3**	**4s**
Skin and soft tissue injury	**4**	**4**	**4**
Compartment syndrome	**4**	**4**	**4**
Fractures and dislocations	**3**	**4**	**4**
Hindfoot pain	**1**	**3**	**4s**
Ankle instability	**1**	**3**	**4s**
Heel pain	**1**	**4**	**4**
Degenerative disease of the ankle	**1**	**3**	**4s**
Rheumatoid arthritis	**1**	**3**	**4s**
Osteochondritis dissecans of the talus		**4**	**4**
Hallux Valgus	**1**	**4**	**4s**
Hallux Rigidus	**1**	**4**	**4s**
Lesser toe deformities	**1**	**4**	**4s**
Metatarsalgia	**1**	**4**	**4s**
Inflammatory arthritis	**2**	**3**	**4s**
Local foot swellings	**1**	**4**	**4**
Diabetic Foot	**2**	**4**	**4**
Flatfoot deformity-mobile and rigid	**1**	**3**	**4s**
Cavus Deformity	**1**	**3**	**4s**
Residual congenital foot deformity	**1**	**3**	**4s**
Investigations			
Standard foot and ankle X-Rays	**4**	**4**	**4**

CT, MRI,and Scintigraphy and their role in certain conditions eg. Infection, Tumour,tibialis posterior rupture, osteonecrosis	**2**	**4**	**4**
EMG	**1**	**3**	**4s**
Treatment			
Non-Operative			
Knowledge of rational basis for the use of footwear modifications, orthoses And total contact casting	**1**	**3**	**4s**
Operative			
Detailed knowledge of closed and operative wmethods for management of Fractures and dislocations of ankle, hindfoot and forefoot, including knowledge Of common reconstructive surgical procedures for foot deformity including Hallux valgus, lesser toe deformity, acquired flat foot to include arthrodesis, osteotomy and soft tissue reconstruction	**3**	**4**	**4**
Knowledge of common amputations through foot and ankle	**3**	**4**	**4**
Knowledge of common reconstructive procedures for degenerative and Inflammatory disorders of ankle and foot including arthrodesis,arthroplasty, Excision arthroplasty procedures to first ray both proximal and distally for Management of hallux valgus and rigidus.	**1**	**3**	**4s**
Hip			
Anatomy			
Basic knowledge of regional anatomy of the hip including:	**3**	**4**	**4**
Development of the hip joint	**3**	**4**	**4**
Relationship of bony elements	**3**	**4**	**4**
Blood supply of the femoral head	**3**	**4**	**4**
Anatomical course of all major regional vessels and nerves	**3**	**4**	**4**
The capsule, labrum and related ligaments	**3**	**4**	**4**
Action, anatomy and innervation of regional musculature	**3**	**4**	**4**
Applied anatomy of common surgical approaches to the hip (medial, Lateral,anterior and posterior)	**3**	**4**	**4**
Biomechanics			
An understanding of the lever arms,muscles and body weight forces that Produce the joint reaction force in both normal and abnormal hips	**2**	**3**	**4s**
An understanding of the application of these principles to the rationale of both pelvic and femoral osteotomies, and replacement arthroplasty	**1**	**3**	**4s**
Knowledge of the tribological properties of materials used for articulating surfaces	**1**	**3**	**4s**
Knowledge of the biocompatibility and mechanical properties in common use in total hip arthroplasty	**1**	**3**	**4s**
Pathology			
Basic knowledge of the pathology of pyogenic and non-pyogenic arthritis, SUFE, Perthes' disease and hip dysplasia	**2**	**4**	**4**
Mechanism of pattern of common fractures and fracture dislocations around The hip (intracapsular, extracapsular, acetabular and periacetabular, femoral Head etc.	**3**	**4**	**4**
Knowledge of the pathology of osteoarthritis, rheumatoid arthritis and the	**2**	**4**	**4**

Seronegative arthrides at the hip and of osteonecrosis of the femoral head			
Familiarity with current theories of the aetiopathogenesis of OA	**1**	**4**	**4**
An understanding of the microbiological rationale for the prevention of sepsis In total hip arthroplasty	**3**	**4**	**4**
Clinical Assessment			
A sound knowledge of clinical assessment of the hip, LS spine and knee. Partiicular reference should be paid to gait, Trandelenberg sign, limb length, Loss of movement and joint deformity	**3**	**4**	**4**
The trainee should be well informed of current opinion regarding Aetiopathogenesis,clinical presentation and apropriate investigation of:	**2**	**3**	**4s**
Proximal femoral fractures (intracapsular,extracapsular) and simple fracture dislocations of the hip.	**4**	**4**	**4**
Osteoarthritis and the inflammatory arthropathies	**2**	**4**	**4**
Perthes' disease	**2**	**3**	**4s**
Slipped upper femoral epiphysis	**2**	**3**	**4s**
Septic arthritis	**3**	**4**	**4**
Osteonecrosis	**3**	**4**	**4**
Soft tissue conditions around the hip (snapping hip, gluteus medius tendonitis etc)	**2**	**4**	**4**
A working knowledge of the clinical presentations and investigations of:			
The sequelae of DDH and hip dysplasia	**1**	**3**	**4s**
The sequelae of SUFE	**3**	**3**	**4s**
Juvenile chronic arthiritis	**1**	**3**	**4s**
Non pyogenic arthiritis	**2**	**3**	**4s**
The painful total hip replacement	**1**	**3**	**4s**
Investigation			
A working knowledge of the interpretation of plain radiographs, dynamic arthrography, CT, bone scintigraphy and MRI of the hip region	**2**	**4**	**4s**
A working classification of proximal femoral and periacetabular fractures. Also, mechanisms and classification of failure of joint replacement and of periprosthetic fractures	**3**	**4**	**4**
Treatment			
Non-Operative			
An understanding of the principles of traction, bracing and spica mobilization	**3**	**3**	**4s**
An understanding of the non-operative aspects of the management of hip pathology	**3**	**4**	**4**
Operative			
A thorough knowledge of soft tissue surgery, osteotomy, arthrodesis and arthroplasty. A sound knowledge of anterior, anterolateral, lateral and posterior approaches to the hip and complications associated with each.	**3**	**4**	**4**
A sound knowledge of: internal fixation of proximal femoral neck fractures, hemiarthroplasty for intracapsular fractures, primary THR for OA and inflammatory arthropathiesin the elderly, simple proximal femoral osteotomies. Familiarity with potential complications and be aware of the current opinion on the prevention and treatment of these complications.	**3**	**4**	**4**
A knowledge of the indications for, and principles of complex proximal femoral osteotomies, hip arthroscopy, reconstruction of the hip in young adults (JCA and hip dysplasia etc), complex hip revision surgery	**1**	**3**	**4s**
An appreciation of complex acetabular and pelvic fractures, complex	**3**	**3**	**4s**

periacetabular osteotomies.			
An understanding of the place of modern technologies such as joint resurfacing procedures, minimally invasive hip replacements and computer assisted implantation in the management of hip pathology and the attendant risks and complications.	**2**	**3**	**4s**
Spine			
Anatomy			
Development of the spine, spinal cord and nerve roots	**3**	**3**	**4s**
Surgical anatomy of the cervical, dorsal and lumbosacral spine	**3**	**4**	**4**
Anterior and posterior surgical approaches to the spine at each level	**3**	**4**	**4**
Biomechanics			
Basic knowledge of the biomechanics of cervical and lumbosacral spines	**2**	**3**	**4s**
An understanding of the biomechanics of spinal instability as applied to trauma, tumour, infection and spondylolysis/listhesis	**1**	**3**	**4s**
Biomechanics of spinal deformity	**1**	**2**	**4s**
A knowledge of the basic mechanics of spinal instrumentation	**1**	**2**	**4s**
Pathology			
Pathophysiology of the ageing spine and degenerative disc disease	**3**	**4**	**4**
Acute and chronic infections of the spine	**1**	**3**	**4s**
Pathology of spinal deformity	**1**	**3**	**4s**
Pathology of the acutely prolapsed cervical and lumbar disc	**2**		**4**
Recognition of patterns of spinal injury and associated cord and nerve root damage	**3**	**3**	**4s**
Tumours of the spine	**1**	**3**	**4s**
Clinical Assessment			
Thorough knowledge of general and orthopaedic history taking and examination	**3**	**4**	**4**
A knowledge of the assessment of spinal deformity	**1**	**3**	**4s**
An understanding of the assessment of thoracic pain	**1**	**3**	**4s**
A sound knowledge of clinical assessment of the spine for low back pain, sciatica,spinal claudication, neck pain, radiating arm pain, spinal injury and incipient myelopathy	**2**	**4**	**4**
A knowledge of the assessment of spinal tumour	**2**	**3**	**4s**
A basic knowledge of the assessment of a patient after failed spinal surgery	**1**	**2**	**4s**
Investigations			
A thorough knowledge of the basic investigations required in spinal surgery,specifically: blood tests, plain radiographs, bone scintigraphy, discography, electrophysiological studies (including cord monitoring), CT scanning, MRI scanning.	**2**	**3**	**4s**
A thorough knowledge of how each of these investigations contributes to the diagnosis and management of each of the major areas of spinal disease	**2**	**3**	**4s**
Treatment			
Non-Operative			
A knowledge of the non-surgical methods available for the treatment of low back pain, sciatica,claudication,neck pain, spinal deformity, instability,tumour, infection and fracture to include:	**2**	**4**	**4**
Analgesics and NSAIDs, physiotherapeutic regimes, pain clinic techniques,bracing,use of radiotherapy and chemotherapy, non-operative management of spinal injuries.	**1**	**3**	**4s**
Operative			
A sound knowledge of the indications for and operative surgical management of the acutely prolapsed lumbar disc, spinal stenosis, lumbar spinal instability due to spondylolysis/listhesis	**2**	**4**	**4**
A knowledge of the indications for and operative management of the acutely prolapsed cervical disc, cervical stenosis, spinal injury and the surgery of spinal infection	**2**	**3**	**4s**
A basic knowledge of the surgery of spinal deformity and tumours of the	**1**	**3**	**4s**

spine			
Trauma			
Anatomy			
Applied to the diagnosis and surgical treatment of common bone, joint and soft tissue injuries	**4**	**4**	**4**
Knowledge of those anatomical structures particularly at risk from common injuries or in surgical approaches	**4**	**4**	**4**
Physeal anatomy and its application to injury	**3**	**4**	**4**
Biomechanics			
Application to open reduction and internal fixation of fractures and external skeletal fixation	**3**	**4**	**4**
Applied to fracture formation and fracture treatment both operative and non-operative	**3**	**4**	**4**
Biomechanics of implants and fracture fixation systems, including their material properties	**3**	**4**	**4**
Epidemiology and Research Methods			
Research and audit methods including the design of clinical trials	**2**	**3**	**3**
Pathology			
Applied to fracture and soft tissue healing, including skin, muscle, tendon and neurological structures	**4**	**4**	**4**
Classification systems for fractures and dislocations	**3**	**4**	**4**
Pathology of non-union of fractures	**4**	**4**	**4**
Response of the body and local musculoskeletal tissues to infection	**4**	**4**	**4**
Systemic response of body to major injury	**4**	**4**	**4**
Mechanisms underlying ARDS and similar life threatening conditions	**4**	**4**	**4**
Science of fluid replacement therapy in the acutely injured including application to the treatment of burns	**4**	**4**	**4**
Science of treatment of compartment syndrome	**4**	**4**	**4**
Response of infants, children and the elderly to injury	**4**	**4**	**4**
Clinical Assessment			
Initial clinical assessment of the patient with severe injury, including spinal cord injury, soft tissue injury, burns and head injury	**4**	**4**	**4**
Assessment of all types of fracture and dislocation, their complications, early and late	**4**	**4**	**4**
Identification ocf life threatening/limb threatening injuries. Understanding priorities of treatment	**4**	**4**	**4**
Investigations			
Knowledge of the principles, application and side effects of commonly used investigations, including radiographs, CT and MRI scans, radio-isotope imaging, ultrasound scan and electrophysiological investigations	**3**	**4**	**4**
Treatment			
Knowledge of different treatment options for musculoskeletal injury, both non-operative and operative. Ability to analyse the pros and cons for each method	**3**	**4**	**4**
Ability to manage the overall care of the severely injured	**3**	**4**	**4**
Ability to undertake the complete treatment of all types of common fractures and dislocations including the bone and soft tissue treatment of open fractures and the treatment of pathological fractures	**3**	**4**	**4**
Where common injuries are treated by a sub-specialist (eg spinal injury, arterial injury or intra cranial haemorrhage) there should be ability to manage the initial treatment of the patient and know the principles of soft tissue reconstruction	**3**	**4**	**4**
Principles of reconstructive surgery for the injured, including treatment of non-union and mal-union of fractures, bone defects, chronic post-traumatic osteomyelitis and delayed treatment of nerve injury; principles of soft tissue reconstruction	**3**	**4**	**4**
Principles of amputation in the injured and the rehabilitation of such	**3**	**4**	**4**

patients.			
Paediatric Orthopaedic Surgery			
Basic Science			
Detailed knowledge of the growth of bones, physeal anatomy and its application to fracture types and pathological processes and infection in particular	**2**	**4**	**4**
Knowledge of the anatomy of bones and joints in the growing child and its application to growth and deformity	**2**	**4**	**4**
Knowledge of the neurological processes involved in the production of deformity eg spina bifida, cerebral palsy and muscular dystrophy	**2**	**3**	**4s**
Clinical Assessment			
Core knowledge should be at least that of a general orthopaedic textbook	**2**	**4**	**4**
Expert knowledge ie the level of the speciality journal is required for those wishing to persue a career in children's orthopaedics	**2**	**3**	**4s**
The trainee must be able to clinically examine a child competently and to relate effectively with the family	**2**	**4**	**4**
The trainee must be able to make proper management decisions in paediatric practice and to refer appropriately for treatment	**2**	**3**	**4s**
Investigations			
Knowledge of the indications for plain X-Rays, arthrogram,CT,MRI and the ability to interpret the images	**1**	**3**	**4s**
Knowledge of the indications for the use of ultrasound and nuclear imaging	**1**	**3**	**4s**
Awareness of the limitations of certain investigations in paediatric practice	**1**	**3**	**4s**
Treatment			
A sound knowledge of normal variants eg knock knees, bow legs and flat feet	**1**	**3**	**4s**
A detailed knowledge of the treatment for:			
Fractures (including non-accidental injury) and growth plate injuries and recognize their sequelae		**4**	**4**
Bone and joint infection	**3**	**4**	**4**
Common childhood orthopaedic conditions eg irritable hip, anterior knee pain	**1**	**3**	**4s**
A working knowledge of the treatment for:			
Slipped epiphysis	**2**	**3**	**4s**
Perthes' disease	**1**	**3**	**4s**
Developmental Dysplasia of the hip	**1**	**3**	**4s**
Talipes	**1**	**3**	**4s**
Scoliosis	**1**	**3**	**4s**
Simple foot deformities (eg hallux valgus, metatarsus varus)	**1**	**3**	**4s**
Simple congenital hand abnormalities (eg trigger thumb)	**1**	**3**	**4s**
Osteogenesis imperfecta	**2**	**3**	**4s**
Skeletal dysplasias	**1**	**3**	**4s**
Tarsal coalitions	**1**	**3**	**4s**
Torticollis	**1**	**3**	**4s**
Leg length discrepancy	**1**	**3**	**4s**
A knowledge of:	**1**	**3**	**4s**
Screening sevices for congenital abnormalities	**1**	**3**	**4s**
Assessment of physical disability	**1**	**3**	**4s**
Shoulder & Elbow Surgery			
Anatomy			
Basic knowledge of the regional anatomy of the shoulder including:			
Detailed anatomy of the sternoclavicular, acromioclavicular, glenohumeral and elbow joints to include the connecting bones, muscles and tendons acting across them, neurovascular supply, bursae and relationships to local	**3**	**4**	**4**

structures			
Surgical approaches: deltopectoral and posterior approaches to glenohumeral joint; superior (McKenzie) approach to rotator cuff; and surgical approaches to the acromioclavicular and sternoclavicular joints	**2**		**4**
Structure and function of the above joints; a clear understanding of the static and dynamic stabilizers of the glenohumeral and elbow joints	**3**	**4**	**4**
Biomechanics			
Shoulder and elbow	**2**	**3**	**4s**
Knowledge of the various types of shoulder and elbow prosthesis including the factors influencing design, wear and loosening to the level of the currently published specialist journals	**1**	**3**	**4s**
Pathology			
Benign and malignant conditions affecting the shoulder girdle, elbow and surrounding soft tissues	**1**	**3**	**4s**
A basic understanding of the pathology of:			
Impingement and rotator cuff disorders	**2**	**3**	**4s**
Instability of the shoulder and the elbow	**2**	**3**	**4s**
Inflammatory and degenerative conditions affecting the articular cartilage and synovium	**2**	**3**	**4s**
Infection	**2**	**4**	**4**
Adhesive capsulitis of the shoulder	**2**	**3**	**4s**
Pathology of the stiff elbow	**2**	**3**	**4s**
Disorders such as ulnar neuritis and tennis or golfer's elbow	**2**	**3**	**4s**
Clinical Assessment			
Detailed history and examination of the painful, stiff or unstable shoulder or elbow	**3**	**4**	**4**
Knowledge of the clinical tests used specifically to assess instability of the shoulder and elbow, rotator cuff disorders, the stiff shoulder or elbow and the use of local anaesthetic in assessment. Examples are the apprehension test for shoulder instability, impingement signs and tests, Gerber's lift off test, Napoleon's sign, elbow instability tests, ulnar nerve assessment	**2**	**4**	**4**
Knowledge of conditions causing referred symptoms to the shoulder and elbow (eg cervical spine diseases, entrapment neuropathies and thoracic outlet disorders)	**3**	**4**	**4**
Common conditions affecting the shoulder including instability, impingement, rotator cuff tears, adhesive capsulitis, osteoarthritis, rheumatoid disease, avascular necrosis, biceps tendon disorders, fractures of the proximal humerus and clavicle and disorders of the acromioclavicular and sternoclavicular joints and scapula.	**3**	**4**	**4**
Common conditions affecting the elbow including instability, osteoarthritis, rheumatoid arthritis,causes of stiffness, soft tissue problems such as medial and lateral epicondylitis, neuropathies and fractures around the elbow	**3**	**4**	**4**
Investigations			
Knowledge of plain radiographs as used to assess shoulder and elbow disorders. This should include a knowledge of those special views (eg Modified axial, Stryker notch, Supraspinatus Neer outlet and cubital tunnel views) required to assess adequately the conditions which commonly affect the shoulder and elbow. The ability to recognize correctly normal and abnormal abnormalities on plain radiographs	**3**	**4**	**4**
Knowledge of the value of ultrasound, arthrography, CT and MRI as used to assess the shoulder and elbow. An inability to identify straightforward abnormalities on CT and MRI (eg full thickness rotator cuff tears on MRI and the pathological anatomy of fractures around the shoulder and elbow using CT)	**3**	**4**	**4s**
Knowledge of the use and abuse of arthroscopy of the shoulder including a knowledge of normal and abnormal arthroscopic findings	**2**	**3**	**4s**
Non-Operative Treatment			
An ability to supervise the non-operative management of fractures and	**3**	**4**	**4**

dislocations and soft tissue injuries around the shoulder and elbow			
An in-depth knowledge of the management of straight forward fractures of the shoulder girdle and elbow. Knowledge of the treatment options for more complex fractures with an understanding that these might more appropriately be referred to someone with a special interest; examples of these might include four part fracture of the proximal humerus and complex intraarticular fractures of the distal humerus. An ability to recognise upper limb injuries involving injuries to the brachial plexus and refer on as appropriate	**3**	**4**	**4**
A knowledge of injection techniques for both the shoulder and the elbow	**2**	**4**	**4**
Knowledge of both the non-operative and operative treatment of common disorders such ass recurrent anterior traumatic instability of the shoulder, rotator cuff impingement and small rotator cuff tears, adhesive capsulitis, acromioclavicular joint pain	**2**	**3**	**4s**
Operative			
A knowledge of the management of soft tissue elbow disorders such as lateral and medial epicondylitis and ulnar neuropathy	**2**	**3**	**4s**
Knowledge of the indications, options and complications for the prosthetic replacement of the shoulder and elbow	**2**	**3**	**4s**
Knowledge of the indications and benefits of arthroscopy of the shoulder and elbow. An ability to perform an arthroscopic assessment of the shoulder is expected but a knowledge of the techniques of arthroscopic surgery procedures is not required	**1**	**3**	**4s**
Understanding the principles of management of tumours around the shoulder and elbow	**1**	**3**	**4s**

Clinical Procedures Syllabus

Trauma	ST 1/2	ST 3/6	ST 7/8
General			
Free flaps	**1**	**1**	**1**
Full thickness skin graft	**1**	**3**	**4s**
Muscle flap	**1**	**1**	**4s**
Nerve repair	**1**	**2**	**4s**
Pedicle flap	**1**	**1**	**4s**
R/o ex fix or frame	**3**	**4**	**4**
R/o foreign body from skin/sc tissues	**3**	**4**	**4**
Removal of K wires or skeletal traction	**4**	**4**	**4**
Split skin graft	**1**	**3**	**4s**
Transpositional flap	**1**	**1**	**4s**
Wound closure, delayed primary or secondary	**4**	**4**	**4**
Wound Debridement	**3**	**4**	**4**
Axial Skeleton			
Cervical Spine			
Anterior fixation fracture/dislocation cervical spine	**1**	**1**	**3s**
Application halo/tong traction cervical spine	**1**	**2**	**3s**
MUA fracture/dislocation cervical spine	**1**	**2**	**3s**
Posterior fixation fracture/dislocation cervical spine	**1**	**2**	**3s**
Thoracic Spine			
Anterior decompression/fixation thoracic spine	**1**	**2**	**4s**
Posterior decompression/ fixation thoracic spine	**1**	**2**	**4s**
Lumbar Spine			
Anterior decompression/fixation lumbar spine	**1**	**2**	**4s**
Posterior decompression/fixation lumbar spine	**1**	**2**	**4s**
Pelvis			
Acetabular freacture ORIF	**1**	**2**	**4s**
Pelvic fracture:			
• **Pelvic fracture ex-fix application**	**1**	**3**	**4s**
• **Pelvic fracture ORIF**	**1**	**2**	**4s**
Upper LImb			
Brachial Plexus			
Exploration/repair/grafting	**1**	**1**	**3s**
Clavicle			
ORIF clavicle fracture	**1**	**3**	**4s**
ORIF non-union clavicle fracture	**1**	**2**	**4s**
Shoulder			
Anterior dislocation shoulder	**3**	**4**	**4**
• **Closed reduction**	**1**	**2**	**4s**
• **Open reduction +/- fixation**	**1**	**2**	**4s**
Acromioclavicular joint dislocation acute ORIF	**1**	**3**	**4s**
ORIF fracture proximal humerus	**2**	**3**	**4s**
ORIF glenoid fracture	**1**	**2**	**4s**
Posterior dislocation shoulder closed reduction	**3**	**4**	**4**
Humerus			
Fracture diaphysis humerus non-op:	**4**	**4**	**4**
• **Non-union ORIF +/- bone grafting**	**1**	**2**	**4s**
• **Fracture diaphysis humerus IM nailing**	**1**	**3**	**4s**
• **Fracture diaphysis humerus MUA +/- POP**	**2**	**4**	**4**
• **Fracture diaphysis humerus ORIF plating**	**2**	**4**	**4**

Elbow			
Dislocated elbow +/- fracture:			
• **Closed Reduction**	**3**	**4**	**4**
• **Open reduction +/- fixation**	**2**	**3**	**4s**
Intraarticular distal humerus fracture ORIF	**2**	**3**	**4s**
Lateral condyle fracture ORIF	**2**	**3**	**4**
Medial condyle/epicondyle fracture MUA/K wire/ORIF	**2**	**4**	**4**
Olecranon fracture ORIF	**2**	**4**	**4**
Dislocated elbow +/- fracture:			
• **Radial head / neck fracture MUA +/- K wire**	**3**	**4**	**4**
• **Radial head / neck fracture ORIF**	**2**	**4**	**4**
• **Radial head replacement for fracture**	**1**	**3**	**4**
Supracondylar fracture:			
• **MUA +/- K wires**	**2**	**3**	**4**
• **ORIF**	**1**	**3**	**4**
Forearm			
Fasciotomy for compartment syndrome	**1**	**4**	**4**
Fracture distal radius:			
• **Closed reduction**	**1**	**4**	**4**
• **External fixation**	**2**	**3**	**4s**
• **MUA & percutaneous K wires**	**2**	**3**	**4**
• **MUA & POP**	**3**	**4**	**4**
• **ORIF**	**2**	**3**	**4s**
Fracture shaft radius/ulna:			
• **IM nailing**	**1**	**3**	**4s**
• **MUA & Percutaneous K wires**	**2**	**4**	**4**
• **MUA & POP**	**2**	**4**	**4**
• **ORIF**	**2**		**4**
Wrist			
Carpal fracture/ dislocation:			
• **MUA & percutaneous wires**	**2**	**3**	**4s**
• **MUA & POP**	**2**	**4**	**4**
• **ORIF**	**1**	**2**	**4s**
Scaphoid fracture non-op	**3**	**4**	**4**
Scaphoid fracture ORIF	**1**	**3**	**4s**
Scaphoid fracture MUA & percutaneous wires	**1**	**3**	**4s**
Scaphoid fracture non-union ORIF +/- graft	**1**	**2**	**4s**
Hand			
Carpal fracture/dislocation:			
5th metacarpal fracture/dislocation non-op	**3**	**4**	**4**
5th metacarpal fracture/dislocation MUA & percutaneous wires	**3**	**4**	**4**
5th metacarpal fracture/dislocation MUA & POP	**2**	**4**	**4**
5th metacarpal fracture/dislocation ORIF	**2**	**4**	**4**
Finger tip reconstruction	**2**	**4**	**4**
Infection:			
• **Infection hand drainage(not tendon sheath)**	**2**	**4**	
IPJ fracture/dislocation			
• **MUA & K wires**	**2**	**4**	**4**
• **MUA +/- POP**	**2**	**4**	**4**
• **ORIF**	**2**	**4**	**4**
Ligament repair hand	**2**	**3**	**4s**
Metacarpal fracture (not 1st or 5th):			
• **Non-op**	**3**	**4**	**4**
• **MUA & K wires**	**2**	**4**	**4**
• **MUA+/- POP**	**2**	**4**	**4**

• **ORIF**	**2**	**4**	**4**
Phalangeal fractures:			
• **Non-op**	**3**	**4**	**4**
• **MUA & K wires**	**2**	**4**	**4**
• **MUA +/- POP**	**2**	**4**	**4**
• **ORIF**	**2**	**3**	**4s**
Tendon repair			
• **Extensor**	**3**	**4**	**4**
• **Flexor**	**2**	**4**	**4**
MCPJ fracture/dislocation:			
• **MUA & K wires**	**2**	**3**	**4s**
• **MUA +/- POP**	**2**	**3**	**4s**
• **ORIF**	**2**	**3**	**4s**
Lower Limb			
Hip			
Dislocated hip			
• **Closed reduction**	**2**	**4**	**4**
• **Open reduction +/- fixation**	**1**	**2**	**4s**
Extracapsular fracture			
• **CHS/DHS**	**3**	**4**	**4**
• **Intramedullary fixation**	**3**	**4**	**4**
• **Other fixation**	**3**	**4**	**4**
Intracapsular fracture:			
• **Hemiarthroplasty**	**2**	**4**	**4**
• **Internal fixation**	**3**	**4**	**4**
• **THR**	**2**	**3**	**4**
Femur			
Diaphyseal fracture closed:			
• **Traction or spica in child**	**1**	**3**	**4s**
• **Intramedullary nailing**	**2**	**4**	**4**
• **Plate/screw fixation**	**2**	**4**	**4**
Supracondylar fracture (not intraarticular):			
DCS/blade plate	**2**	**3**	**4s**
Intramedullary fixation	**2**	**3**	**4s**
KNEE			
Acute haemarthrosis arthroscopy	**1**	**3**	**4s**
Acute ligament repair	**1**	**2**	**4s**
Intraarticular fracture distal femur ORIF	**1**	**2**	**4s**
Patella dislocation closed reduction +/- open repair	**2**	**4**	**4**
Patella fracture ORIF	**2**	**4**	**4**
Patella tendon repair	**2**	**4**	**4**
Quadriceps tendon repair	**2**	**4**	**4**
Tibial plateau fracture	**1**	**3**	**4s**
Tibial plateau fracture arthroscopically assisted fixation	**1**	**3**	**4s**
Tibial plateau fracture ORIF with plate and screws	**1**	**3**	**4s**
Tibial plateau fracture treatment with circular frame	**1**	**3**	**4s**
Tibia & Fibula			
Diaphyseal tibial fracture external fixation	**2**	**3**	**4s**
Diaphyseal tibial fracture intramedullary nailing	**2**	**4**	**4**
Diaphyseal tibial fracture MUA & POP	**3**	**4**	**4**
Tibial shaft plating	**2**	**3**	**4**
Fasciotomy for compartment syndrome	**1**	**3**	**4**
Tibial non-union:			
• **Circular frame**	**1**	**2**	**4s**
• **Intra-medullary nailing +/- bone grafting**	**1**	**3**	**4s**

Ankle			
Ankle fracture/dislocation:			
• **MUA & POP**	**3**	**4**	**4**
• **ORIF**	**3**	**4**	**4**
Pilon fracture			
• **ORIF**	**1**	**2**	**4s**
• **Circular Frame**	**1**	**4**	**4s**
Tendoachilles repair	**2**	**2**	**4**
Foot			
Amputation toe/ray for trauma	**2**	**4**	**4**
CAlcaneal fracture ORIF	**1**	**2**	**4s**
Metatarsal fracture ORIF	**1**	**4**	**4**
Phalangeal fracture MUA +/-K wire +/- Orif	**2**	**4**	**4**
Talar , subtalar or midtarsal fracture/dislocation:			
• **MUA +/-POP+/- K wires**	**1**	**3**	**4s**
• **ORIF**	**1**	**3**	**4s**
Achilles Tendon Repair	**1**	**3**	**4**
Elective			
Elective site non-specific			
Aspiration/injection joint	**3**	**4**	**4**
Benign tumour excision (not exostoses)	**2**	**4**	**4**
Bone biopsy -needle	**1**	**4**	**4**
Bone biopsy-open	**1**	**4**	**4**
Bursa excision	**3**	**4**	**4**
Cyst bone curettage +/- bone graft	**1**	**4**	**4**
Epiphysiodesis	**n/a**	**3**	**4s**
Malignant tumour excision	**1**	**2**	**3s**
Cervical Spine			
Anterior decompression +/- fixation/fusion (C2-C7)	**n/a**	**1**	**3s**
Atlantoaxial fixation +/- fusion	**n/a**	**1**	**3s**
Biopsy cervical spine	**n/a**	**2**	**4s**
Excision cervical / 1st rib	**n/a**	**1**	**3s**
Nerve root / facet joint injection cervical spine	**n/a**	**1**	**4s**
Occipito-Cervical Fusion +/- fixation	**n/a**	**1**	**3s**
Posterior decompression +/- fixation/ fusion (C2-C7)	**n/a**	**1**	**3s**
Thoracic Spine			
Anterior decompression +/- fixation/ fusion	**n/a**	**1**	**3s**
Biopsy thoracic spine	**n/a**	**1**	**3s**
Posterior decompression +/- fixation/fusion	**n/a**	**2**	**4s**
Scoliosis correction-anterior release +/- inst	**n/a**	**1**	**3s**
Scoliosis correction-posterior fusion	**n/a**	**1**	**3s**
Lumbar Spine			
Caudal Epidural injection	**n/a**	**2**	**4s**
Decompression lumbar spine with fusion+/-fixation	**n/a**	**2**	**4s**
Decompression lumbar spine without fusion	**n/a**	**2**	**4s**
Discectomy open/micro	**1**	**3**	**4s**
Nerve root/facet joint injection lumbar spine	**1**	**2**	**4s**
Brachial Plexus			
Exploration, repair and grafting	**1**	**1**	**3s**
Shoulder			
ACJ excision-arthroscopic/open/lateral clavicle	**n/a**	**3**	**4s**
ACJ reconstruction (eg Weaver Dunn)	**n/a**	**2**	**4s**
Acromioplasty-open	**n/a**	**2**	**4s**
Anterior repair for instability arthroscopic	**n/a**	**2**	**4s**
Anterior repair for instability open including capsular shift	**n/a**	**4**	**4**

Arthroscopic subacromial decompression	**n/a**	**3**	**4s**
Arthroscopy diagnostic	**1**	**4**	**4s**
Rotator Cuff Repair	**n/a**	**2**	**4s**
Total Shoulder Replacement	**1**	**2**	**4s**
Elbow			
Arthrolysis (open/arthroscopic)	**n/a**	**2**	**4s**
Arthroscopy diagnostic	**n/a**	**2**	**4s**
Arthroscopy therapeutic	**1**	**2**	**4s**
Arthrotomy	**2**	**4**	**4**
Excision radial head+/- synovectomy	**1**	**2**	**4s**
Radial head replacement	**1**	**3**	**4s**
Tennis/golfer elbow release	**1**	**3**	**4s**
Total elbow replacement	**1**	**2**	**4s**
Ulnar nerve decompression/transposition	**1**	**4**	**4**
Wrist			
Arthrodesis	**n/a**	**3**	**4s**
Arthroscopy	**n/a**	**1**	**3s**
Carpal tunnel decompression	**1**	**4**	**4**
De Quervain's Decompression	**1**	**4**	**4**
Excision distal ulna	**1**	**3**	**4s**
Ganglion excision at wrist	**3**	**4**	**4**
Ulna shortening	**1**	**2**	**4s**
Ulnar nerve decompression at wrist	**1**	**4**	**4**
Hand			
Dupuytren's contracture operation	**1**	**3**	**4**
Excision synovial cyst	**1**	**4**	**4**
Fusion of MCPJ or IPJ	**1**	**3**	**4s**
MCPJ replacement	**n/a**	**2**	**4s**
Soft tissue reconstruction hand	**1**	**3**	**4s**
Tendon transfers	**1**	**2**	**4s**
Trapezium excision or replacement	**n/a**	**2**	**4s**
Trigger finger release	**1**	**4**	**4**
Trigger thumb release	**1**	**4**	**4**
Hip			
Arthrodesis	**n/a**	**1**	**3s**
Arthrogram	**n/a**	**1**	**4s**
Arthroscopy diagnostic	**n/a**	**1**	**4s**
Arthroscopy therapeutic	**n/a**	**1**	**4s**
Arthrotomy	**2**	**4**	**4**
Excision arthroplasty eg Girdlestone	**n/a**	**3**	**4s**
Open reduction for DDH	**n/a**	**2**	**4s**
Osteotomy hip-pelvic for DDH	**n/a**	**2**	**4s**
Osteotomy hip-proximal femoral for DDH	**n/a**	**2**	**4s**
Osteotomy pelvis – not for DDH	**n/a**	**2**	**4s**
Revision THR	**n/a**	**3**	**4s**
Revision THR acetabular component	**n/a**	**3**	**4s**
Revision THR both components	**n/a**	**3**	**4s**
Revision THR femoral component	**n/a**	**3**	**4s**
SUFE:			
• **Open reduction**	**n/a**	**2**	**3s**
• **Pinning**	**n/a**	**3**	**4s**
THR			
• **Cemented**	**1**	**4**	**4**
• **Hybrid**	**1**	**4**	**4**
• **Surface Replacement**	**1**	**2**	**4s**
• **Uncemented**	**1**	**3**	**4s**

Femur			
Above knee amputation	**1**	**4**	**4**
Femoral lengthening	**n/a**	**2**	**4s**
Corrective Osteotomy (not for DDH)	**n/a**	**2**	**4s**
Knee			
ACL reconstruction	**1**	**2**	**4s**
Arthroscopic lateral release	**1**	**3**	**4s**
Arthroscopic partial meniscectomy	**1**	**3**	**4s**
Arthroscopic removal loose bodies knee	**1**	**3**	**4s**
Arthroscopic synovectomy	**1**	**2**	**4s**
Arthroscopic knee diagnostic	**2**	**4**	**4**
Osteotomy distal femoral	**n/a**	**2**	**4s**
Osteotomy proximal tibial	**n/a**	**2**	**4s**
Patella realignmaent	**n/a**	**3**	**4s**
Patella resurfacing alone	**n/a**	**3**	**4s**
Revision TKR	**n/a**	**3**	**4s**
TKR	**n/a**	**4**	**4**
Unicompartmental knee replacement	**n/a**	**3**	**4s**
Tibia & Fibula			
Below knee amputation	**1**	**4**	**4**
Tibial lengthening	**n/a**	**2**	**4s**
Ankle			
Arthrodesis	**1**	**2**	**4s**
Arthroplasty	**n/a**	**2**	**4s**
Arthroscopy diagnostic	**n/a**	**2**	**4s**
Arthroscopy therapeutic	**n/a**	**2**	**4s**
Arthrotomy	**n/a**	**4**	**4**
Decompression tendons at ankle	**n/a**	**4**	**4**
Tendoachilles lengthening	**n/a**	**4**	**4**
Foot			
Toe/ray amputation	**1**	**4**	**4**
Calcaneal osteotomy	**n/a**	**2**	**4s**
CTEV correction	**n/a**	**2**	**4s**
5th toe soft tissue correction	**n/a**	**3**	**4s**
Ist metatarsal osteotomy	**n/a**	**4**	**4**
Ist MTPJ arthrodesis	**n/a**	**4**	**4**
1st MTPJ excision arthroplasty	**n/a**	**4**	**4**
1st MTPJ soft tissue correction	**n/a**	**4**	**4**
Hindfoot arthrodesis	**n/a**	**3**	**4s**
Ingrowing toe nail operation	**3**	**4**	**4**
Lesser metatarsal osteotomy	**n/a**	**3**	**4s**
Lesser toe arthrodesis	**n/a**	**4**	**4**
Lesser toe excision part/all phalanx	**n/a**	**4**	**4**
Lesser toe tenotomy	**n/a**	**4**	**4**
Tendon decompression or repair	**n/a**	**4**	**4**
Tendon transfer foot	**n/a**	**2**	**4s**
Wedge tarsectomy	**n/a**	**2**	**4s**

Higher specialist training in Otolaryngology
Curriculum

1. Objectives

The formulation of a 6 year post-graduate intensive and structured programme for trainees to enter independent otorhinolaryngological (ORL/HNS) practice and achieve a standard of quality acceptable to Malta and the EEA.

To produce ORL/HNS consultants capable of fulfilling their duties within the Health Department to a standard acceptable to the Association of Surgeons of Malta (ASM) and the Specialist Accreditation Committee (SAC).

To identify those specialists in otorhinolaryngology and head and neck surgery who have special skills in teaching, research or those who are suitable for advanced training.

To develop attitudes during training which will encourage Continuing Medical Education (CME).

To review curriculum periodically to adapt it to local situation and regarding new evidence based updates

2. Introduction

The six year programme must provide adequate diagnostic, investigative and operative experience in all aspects of the speciality on patients of all ages and in adequate numbers. The trainee must also acquire a thorough experience in the management of emergencies. The trainee is also expected to understand the principles of Health Service management and audit. The training programme, besides providing comprehensive clinical experience, should also offer adequate research opportunities as well as library and audio-visual facilities. Opportunities for the dissection and study of both anatomical and pathological material must be made available. The senior staff must be available for the regular discussion of both clinical and academic problems and for advice on the preparation of publications. Trainees must be encouraged to take their study leave to attend clinical meetings, courses and conferences. It is the duty of the trainer to encourage an interest in research and to support the trainee in acquiring time, money and apparatus involved.

The six year programme will normally consist of three sections. During each of the first four years, the trainee will be expected to undertake and have knowledge of all the procedures listed in respective columns (see Appendices). In the fifth and sixth years, the trainee will either reinforce his or her skills in the basic syllabus or, after discussion with the Programme Director, begin training in a sub-speciality as shown in Column 3.

3. Registration with the SAC in Otolaryngology

The trainee must fulfill the necessary requirements to enter HST, including possession of the MRCS/AFRCS (or equivalent).

4. Education Approval of Higher Surgical Training Programmes
5.

Educational approval of the training programmes in the speciality is given by the Joint Committee of Higher Surgical Training on the advice of the SAC. The SAC will be

responsible for inspection and educational approval of training programmes at prescribed intervals.

6. Training Programmes

Each training programme will be constituted so that the trainee will achieve increasing knowledge and clinical responsibility on a graduated basis throughout the six year training programme. A job description of the programme will be agreed with the trainee. The first four years will cover the basic sciences and surgical procedures (as shown in Columns 1 and 2 of the Appendices). The fifth and sixth years of training will be devoted to more advanced ORL/HNS training (Column 3 of the Appendices) or reinforcement of the basic curriculum.

The following principles are used for guidance when planning the training programme:

(a) As training progresses, there should be a clear hierarchy with increasing levels of responsibilities. It is reasonable for trainees to have an operating list of their own in the latter part of training, appropriate to their level of competence. The trainees' timetable should be sufficiently flexible to allow access to any work of importance by the trainer.

(b) The trainee should be involved in the management and organization of the whole department. This should include organization of tutorials for junior staff and inter-departmental meetings such as ENT-Pathology and ENT-radiology meetings.

(c) Daily business ward rounds, with all junior staff, led by the most senior trainee should be a feature of the timetable.

(d) Appropriate annual study leave should be agreed with the Programme Director. This may be used to attend courses/conferences abroad and to obtain further post-graduate qualifications (such as DOHNS and M.Phil).

(e) There should be regular educational activities, departmental audit and collaboration with other departments. There should be access to audio-visual and secretarial facilities for research work and teaching. Trainees should, at some period, be involved in undergraduate and postgraduate teaching of otorhinolaryngology and its basic sciences. The trainees should have access to office space of their own.

7. Log books

In order to ensure the acquisition of comprehensive experience in all aspects of the speciality, the trainee will be required to keep a personal register of operations performed during his or her period of training and this will be kept as a permanent record of the trainee's activity. All operations are to be entered into the log book provided by the SAC and this register of operative experience is to be signed by the trainer supervising the programme. The trainee must be given the opportunity to follow-up patients and to maintain an adequate record of this. The log book will be made available for the annual or SAC assessment.

8. Interviews

Trainees will undergo yearly departmental interviews, in which the various facets of training being offered will be thoroughly reviewed and any deficiencies in the trainee's progress identified and discussed.

9. Courses

Trainees should be encouraged to take established courses on rhinoplasty, endoscopic sinus surgery, head and neck surgery including rehabilitation, paedicatrics, temporal bone surgery, advanced surgical otology, audiology and ORS research methodology.

10. A period of training outside clinical training in Malta

Trainees should be encouraged to spend time abroad for further training in established centres. These programmes should be approved prospectively by the SAC. Such leave may not be taken during the first year of HST. Trainees are asked to note that it is imperative to notify the SAC, in advcance, of any changes to their training programme involving a move to another training centre outside Malta, a period of secondment overseas or a move into a research post. Recognition of the periods may be denied unless the trainee notifies the SAC of his or her intentions before taking up the post.

11. Research

Not all candidates will necessarily benefit from undertaking research. However, all trainees have to understand research methodology and basic statistics so that they are able to evaluate the literature as part of their continuing medical eduation. Training in literature evaluation is best achieved initially by attending lectures or courses, followed up by regular meetings to discuss scientific articles (Journal Clubs) which are trainer led.

Facilities to undertake research or audit should be available throughout the entire training period for each trainee. Not all trainees will require this time allocation and clinical duties would be substituted.

Research projects should be supervised by a distinguished trainer to whom the trainees will be accountable for these sessions in these periods. Each project should have clearly documented aims and methods. The supervisor will be required to report the progress of each project at regular intervals to the local training committee.

A trainee who wishes to undertake basic laboratory research (i.e. genetics, molecular biology or electrophysiology) could learn these techniques either before entering HST or during the 'flexible' year in all but the first year of HST.

The number and type of papers published by a trainee is likely to materially affect their competitiveness for consultant appointments. However, it is expected for training purposes, that all trainees should, in their six year training period:

(a) Carry out, under supervision, at least three audit projects where the outcomes of patient management are assessed. These should have been presented at least to a hospital meeting.
(b) Carry out, under supervision, at least one research project, planned prospectively, have presented it to a regional or national professional meeting and have it accepted for publication.

12. General Management Training

This should take place as a continuum over the six year training period and the trainee should have the opportunity of taking part in management courses for clinicians and also should be exposed to, and involved in, the day to day management of his or her unit.

CURRICULUM

The training period will be divided into three segments.

1. Year 1

Basic training in ORL/HNS. The trainee must have gained experience in all the listed techniques.

2. Years 2, 3 & 4

These procedures are grouped together because of training rotations. Experience may be gained at different times. All trainees will be required to have gained sufficient exposure in a majority of the listed techniques.

3. Years 5 & 6

At this stage, trainees may:

(a) Refine the skills learnt in the first four years with increasing personal responsibility.
(b) If considered suitable by their Programme Director, begin specialist training. At this stage the trainee may be required to go to another centre overseas to gain the necessary experience.

General Principles

Good medical practice and care in otolaryngology
General principles of clinical practice
    Clinical issues
    Managing oneself and working with others
The patient-doctor relationship, including communication and consulting skills
Population, preventive and societal issues
Professional ethical and legal obligations
Risk and resource management
Appraisal, monitoring of quality performance, audit and clinical governance
Information management and technology
Continuing professional development (CPD), learning, teaching and training
Understanding the importance of probity

Basic Sciences

General anatomy, physiology and pathology will have been learnt as part of Basic Surgical Training with the relevant critical care component. Trainees should know the anatomy and embryology of the ear, nose, paranasal sinuses, pharynx, larynx, trachea, oesophagus, head and neck. They should also be familiar with the gross anatomy of the brain and intracranial contents, eyes, thorax, spine and related areas. They should have a detailed knowledge of the physiology of balance, hearing, olfaction, nasal function, speech, swallowing, endocrine glandular function (particularly thyroid, parathyroid and pituitary glands) and exocrine glandular function (particularly salivary glands). Teaching of these subjects may, in future, be aided by distance learning courses or reading lists.

Clinical Knowledge

Further clinical knowledge should also be acquired in the following areas:

Applied Microbiology

- Common and important infections
- HIV
- TB and Syphilis
- Control of transmission
- Consent for testing
- Notifiable diseases
- Indications for and interpretation of results of common tests

Imaging

- Ultrasound
- Plain radiographs
- Contrast imaging
- Computerized tomography
- Magnetic resonance imaging

Pharmaco-therapeutics

- Pharmacology of drugs used in otolaryngology
- Drug interactions
- Common side effects
- Iatrogenic disorders

Acoustics

Applied Pathology

- Indications for and interpretation of results of common biochemical tests
- Indications for and interpretation of results of common haematological tests
- Macroscopic and microscopic appearances of common or important diseases found in otolaryngology

Applied Psychology

- Presentation of common psychiatric disorders including anxiety, depression, obsessive compulsive disorder, and somatisation disorder as they effect otolaryngological practice
- Functional disorders in otolaryngology

Epidemiology

Medico legal Issues

Clinical Practice

Taking a History and Clinical Examination

Conditions affecting the Ear, Nose and Throat

The following areas should be considered for each of the disorders listed below:

- The natural history of the untreated condition, including whether acute or chronic
- An accurate idea of the prevalence and incidence across age range and ethnic group including any changes over time
- Typical presentation
- Risk factors
- Diagnostic features
- Recognition of features that would indicate extra concern
- Treatment including initial, emergency and continuing care
- Prognosis

Disorders of the Ear and Petrous Temproal Bone
Disorders of Balance
Disorders of Hearing
Disorders of Smell
Disorders of the Nose and Paranasal Sinuses
Disorders of the Mouth
Disorders of Swallowing
Disorders of the Larynx and Pharynx
Disorders of the Voice
Disorders of the Neck

These disorders will include congenital and genetic conditions, infections, inflammations, trauma, tumours, iatrogenic conditions, degenerative conditions, endocrine and metabolic diseases.

A detailed knowledge of the teeth and cervical spine will not be expected, but trainees will be expected to know when to seek opinion from an appropriate specialist dealing in neurosurgery or maxillofacial surgery.

Clinical Competencies

Trainees will be expected to develop knowledge and experience of the areas and procedures listed below:

General Competencies

Use of antibiotics in the surgical patient
Use of blood and its products
Role and complications of diathermy
Pain relief in surgery
Thrombo-embolic prevention and management
Wound care and nosocomial infection
Suture techniques and materials
Initial assessment and management of airway problems
Initial management of facial fractures

Radiology

Plain films of the head, neck, sinuses and chest
CT scans of the sinuses, petrous bone, head, neck and chest
MRI scans of the sinuses, brain, head, neck and chest
Contrast radiology of swallowing
Sialography
Ultrasound of the neck
Common scintigraphy used in otolaryngology

Neurology

Clinical neurological examination
Ophthalmoscopy
Lumbar puncture
Electromyograph
Electroneuronograph
Electroencephalograph

Medical Statistics

Concepts used in evidence-based medicine including: specificity, sensitivity, absolute risk, absolute risk increase and reduction, hazard ratio, negative predictive value, number needed to harm, number needed to treat, odds, odds ratio and relative risk.

Basic statistical concepts, sampling, inclusion and exclusion criteria, bias, confidence intervals, pevalence, incidence, probability and interpretation of results of common statistical tests of parametric and non-parametric data.

Reseach design, limitations and strengths of methodologies including case control, cohort and pilot studies. Questionnaire design. Quantitative studies and randomized controlled trials.

Meta-analysis and systematic reviews.

Research results – reliability, validity and generalisability.

Systemativ appraisal of research papers.

Application of results in the clinical context.

APPENDIX 1 – RHINOLOGY

YEAR 1	YEARS 2, 3 & 4	YEARS 5 & 6
Clinical examination fo the nose and paranasal sinuses	Sinus endoscopy	Revision rhinoplasty
Nasal cautery	Endoscopic polypectomy	Revision septoplasty
Nasal packing	Endoscopic antrostomy	Complicated rhinoplasty
Control of epistaxis	Endoscopic ethmoidectomy	Lateral rhinotomy
Drainage of septal haematoma	Fronto-ethmoidectomy	Osteoplastic flap
Basic spetal surgery	Frontal sinus trephine	Angiofibroma removal
Antral lavage	External ethmoidectomy	Septal dermoplasty
Turbinate surgery	Radical antrostomy	Hypophysectomy
Foreign body removal	Reduction rhinoplasty	Young's operation
Nasal manipulation	Augmentation rhinoplasty	Rhinophyma
Nasal polypectomy	Septo-rhinplasty	Extended application of endoscopic surgery (orbital decompression, dacryocystrhinstomy, cerebro-spinal fluid leakage, mucocoeles)
Inferior meatal antrostomy	Ligation ethmoid artery	
Assessment of nasal symptoms	Ligation maxillary artery	
Diagnostic nasal endoscopy	Olfaction and taste testing	
Evaluation of sinus imaging	Rhinometry (inlc. aoustic)	
	Respiratory function tests	
	Nasal smears	
	Immunology and skin tests	

APPENDIX 2– OTOLOGY

YEAR 1	YEARS 2, 3 & 4	YEARS 5 & 6
Clinical examination of the ear – auriscope and microscope	Myringoplasty	Repair of meatal stenosis
Ear cleaning and suctioning	Cortical mastoidectomy	Revision middle ear and mastoid surgery
Ear packing and wick insertion	Modified radical mastoidectomy	Ossicular reconstruction
Myringotomy and ventilation tube insertion	Radical mastoidectomy	Stapedectomy
Foreign body removal	Meatoplasty	Combined approach tympanoplasty
Clinical examination of hearing and vestibular function	Otoplasty	Saccus decompression
Pure Tone Audiometry	Removal of osteomas	Vestibular nerve section
Tympanography	Basic assessment of childhood deafness	Acoustic neuroma surgery
Loudness discomfort levels	Rehabilitation of the severely deaf adult	Facial nerve grafting
Basic vestibular tests	Tinnitus tests	Congenital ear surgery
Impedance audiometry	Diagnosis and assessment of disorders of balance	Specialised vestibular testing
	Electronystagmography	Specialised paediatric/adult audiometry
	Hearing aids and technique of mould impression	Petrosectomy
	Brainstem response evoked audiometry	Cochlear implants
	Cortical evoked audiometry	Rehabilitation of facial palsy
	Otoacoustic emissions	
	Electronystagmography	
	Equitest	
	Rotating chair test	

APPENDIX 3 – MOUTH, PHARYNX AND OESOPHAGUS

YEAR 1	YEARS 2, 3 & 4	YEARS 5 & 6
Adenoidectomy Tonsillectomy Arrest of adenotonsillar haemorrhage Incision and drainage of peritonsillar abscess	Excision of benign tongue lesions Biopsy nasopharynx Uvulopalatopharyngoplasty Pharyngeal cryosurgery Diagnostic endoscopy Swallowing assessment and rehabilitation Common diseases of the oral cavity Basic dental pathology Assessment and therapy of swallowing disorders Oesophageal and pharyngeal manometry	Excision pharyngeal pouch Endoscopic treatment of pharyngeal pouch

APPENDIX 4 – ENDOSCOPY

YEAR 1	YEARS 2, 3 & 4
Direct endoscopic technique in adults	Diagnostic, Therapeutic and Paediatric Oesophagoscopy Adult and paediatric bronchoscopy

APPENDIX 5 – LARYNGOLOGY

YEAR 1	YEARS 2, 3 & 4	YEARS 5 & 6
Indirect laryngoscopy Direct laryngoscopy and removal of foreign bodies Flexible laryngoscopy Principles of speech therapy	Adult tracheostomy Child tracheostomy Cord lateralization Cord medialization Thyroplasties Microlaryngoscopic surgery and laser skills Excision laryngocoele Rehabilitation of speech Video stroboscopy Speech disorders in children Speech and hearing problems in cleft palate	Repair of laryngo-tracheal stenosis Advanced assessment of voice – laryngography and spectography

APPENDIX 6 – THE NECK

YEAR 1	YEARS 2, 3 & 4
Clinical examination of the neck FNAC Drainage of neck abscess Excision lesions of skin appendages	Gland biopsy Removal of branchial and thyroglossal cysts Fistula care Management of wound breakdown Management of open neck wounds Thyroidectomy - partial and total

APPENDIX 7 – HEAD AND NECK ONCOLOGY

YEAR 1	YEARS 2, 3 & 4	YEARS 5 & 6
Combined clinic experience Assessment of upper aero-digestive tract symptoms Principles and complications of radiotherapy Principles and complications of chemotherapy	Excision of skin tumours Sking grafting Stomal revision Tracheo-oesophageal puncture Swallowing rehabilitation Speech rehabilitation	Radical neck dissection Modified neck dissection Repair of fistula Replacement of neck skin Myocutaneous flaps Free flaps Hemilaryngectomy Supraglottic laryngectomy Near total laryngectomy Total laryngectomy Laryngopharyngectomy (total and partial) Laryngopharyngo-oesophagectomy Stomach pull-up Maxillectomy (partial, medial and craniofacial) Approaches to the infratemporal fossa Glossectomy (total and partial) Commando operation Lateral neck surgery of neurogenous tumours

APPENDIX 8 – SALIVARY GLANDS

YEAR 1	YEARS 2, 3 & 4	YEARS 5 & 6
Assessment of salivary gland disease Salivary gland imaging and ultrasound	Minor salivary gland biopsy Major salivary gland biopsy Duct surgery Intra-oral stone removal Excision of submandibular gland	Superficial parotidectomy Total parotidectomy

APPENDIX 9 – SUBSPECIALTY TRAINING

Sub-specialty training is encouraged and should begin in earnest in the fifth and sixth years of training. The sub-specialty interests are listed in the column under the heading of the fifth and sixth years of surgical procedures. Trainees should be encouraged to spend time in another recognized centre abroad for further advancement or sub-specialty training. Where trainees have a special interest in research, they may decide to take a longer period out of training if they wish to pursue an academic career or seek to obtain a higher degree. The application for approval should be made to the SAC before taking up the post.

Outline for training in other subspecialties

Advanced Otology

Advanced Rhinology

Head and Neck and Recontructive Surgery

Paediatric Otorhinolaryngology

Management of routine ORL disease in the child with developmental, immunologic and other systemic disease.

Congenital ear surgery

Special paediatric audiology

Bone anchored hearing aids

Cochlear implants

Assessment and management of chronic airways disease

Paediatric endoscopy (bronchoscopy, oesophagoscopy, microlaryngoscopy)

Choanal atresia repair

Management of congenital and developmental malformations of the head and neck

Skull Base Surgery

Those intending to specialize in skull base surgery will have to seek a post where they can work within a combined skull base group in conjunction with neurosurgeons, maxillofacial and plastic surgeons both pre and post operatively. It will be essential to learn the basic fundamentals of care of the neurosurgical patient.

There should be access to all modern imaging techniques.

There should be adequate number of referrals for the trainee to acquire proficiency in anterior, middle and posterior skull base surgery, both in benign and malignant disease.

Regional Plastic Surgery

Those who are interested in acquiring expertise in facial surgery other than otoplasty and rhinoplasty which are taught in the basic syllabus must seek a trainer with an adequate case load both in the private and NHS areas to give adequate training both in assessment and performance of the operations.

Phoniatrics

Trainees wishing to learn this largely European specialty must train in a centre where the trainer routinely uses videostroboscopy, glottography, spectrography and air flow measurements. Experience in subjective assessment from speech pathologists should be available. There should also be a particular interest in phonosurgical procedures.

REQUIREMENTS FOR HIGHER SPECIALIST TRAINING IN PLASTIC SURGERY

INTRODUCTION

In a small specialty covering such a wide spectrum as Plastic Surgery rotations are essential.

Because of the small number of trainees and trainers, Plastic Surgery trainees will need to attend more international courses and meetings than trainees in larger specialties. Specific recommendations for study leave are attached (Appendix 1).

It is desirable that a trainee in Plastic Surgery should have attended an ATLS course or its equivalent before obtaining the CCST.

1.0 RECOMMENDATIONS

1.1 **Higher Specialist Training will be a five-year continuum in approved posts, of which at least four years will be clinical.**

There should be some flexibility in how this is arranged. After successful completion of training the trainee will be awarded a Certificate of Completion of Surgical Training (CCST). Sub-specialty training can start during the fifth year and can continue thereafter.

1.2 **Entry into Higher Specialist Training**

This will be after satisfactory completion of basic surgical training (or equivalent) and possession of MRCS / AFRCS (or equivalent).

It is important for basic surgical trainees to have the opportunity of experience in the specialty as part of the "common trunk".

It should be possible to enter HST immediately after completion of BST. However, the demand for training posts may exceed supply, so that trainees will have to enter a holding post. This would be an appropriate opportunity for trainees to gain experience in Plastic Surgery or a related specialty.

1.3 Annual Assessments

After entry into HST the first six months must be recognised as probationary, and be followed by a rigorous assessment interview. The trainee must be aware that his appointment can be terminated after this or after any of the subsequent annual assessments.

If a trainee is dismissed after six months or a year another first year trainee should fill his place. The filling of vacancies later in training needs consideration, as locums are difficult to find. Such vacancies may provide good opportunities to offer periods of training to HSTs from other programmes.

1.4 **Log Books**

The trainee will keep a record of his experience in a logbook. He is required to produce this at his annual assessments and to the accrediting authority before the granting of a CCST.

1.5 **Completion of Training**

After award of the CCST the trainee will be eligible to enter into independent practice. He may, however, opt for further sub-specialty training, a research post or a visit overseas.

2.0 TRAINING PROGRAMMES

2.1 The trainee must train in more than one Unit and be exposed to the work of at least six Consultants. During training he should assume increasing responsibility, under appropriate supervision, for conditions of progressively increasing complexity. The Units should have organised teaching programmes, instruction in basic sciences, administration and management, and audit meetings. Two sessions must be allocated for research or private study within the working week.

2.2 Trainees must participate in direct exchanges with colleagues in other approved programmes. A minimum of two years of overseas training will be required to obtain the CCST. Such moves should be arranged between the programme directors concerned, with the approval of the SAC. This period overseas equates to Years 3 – 5.

A detailed syllabus will be found as Appendix 2.

2.3 In summary, training will be progressive and will be divided into Years 1 & 2, Years 3 & 4, and Year 5. The programme for the first two years of Higher Specialist Training should cover the whole spectrum of the specialty at a basic level, concentrating mainly on principles of management. This may be carried out in Malta. It should include:

- Management of and relationships with the Plastic Surgery outpatient and inpatient
- Principles of Reconstructive Surgery
- Principles of Aesthetic Surgery
- Management of Acute Trauma
- Malignant Skin Tumours
- Benign Skin Conditions
- Administration
- Level 1 (basic) sub-specialty training in:
  - Burns 1
  - Paediatric Plastic Surgery
  - Head & Neck Tumours 1
  - Elective Hand Surgery 1

The trainee should be involved in each of these sub-specialties for a minimum of six months, but it is recognised that in almost all cases he will be working in several at the same time. Clinical experience should be graded and should progress from assisting at operations, through supervised operating of simpler procedures to independent operating on simpler procedures. Sub-specialty Surgery at this stage should largely be confined to assisting. Outpatient attendance should progress from "sitting in" to seeing returned patients under Consultant supervision.

2.4 During Years 3 & 4 the trainee should proceed overseas and continue the progression towards increasing responsibility. He should have further experience at a higher level (Level 2) in Reconstructive and Aesthetic Surgery of the face, breasts, trunk and limbs; surgical management of metastatic malignant disease; and in the following sub-specialties:

- Burns 2
- Hands 2
- Head and Neck Tumours 2
- Cleft Lip and Palate
- Reconstruction of Genitalia
- Oculoplastic Surgery
- Limb Trauma

Training must take place in an approved Unit or Units. Training in the complete spectrum of Aesthetic Surgery is unlikely to be possible in NHS hospitals, and arrangements should be made for trainees to accompany Consultants in their private practice to gain this experience. Alternatively, secondment for a period of whole time experience should be arranged.

2.5 In the fifth year the trainee may continue general specialty training at a more advanced level or have the opportunity to enter advanced sub-specialty training for all or **part of the time**. This could be either within the rotation in defined posts or he could seek posts elsewhere.

RESEARCH

2.6 A period of up to one year in supervised research previously approved by the accrediting authority will be encouraged, but four years of clinical training will be required before the award of the CCST. Therefore, if a period of full-time non-clinical research is carried out during the first four years, or more than one year during the 5th year, clinical training will have to be extended by an equivalent time.

2.7 Temporary vacancies should be filled with locum appointments from other specialties or by secondment of trainees from other programmes.

3.0 IMPLEMENTATION OF TRAINING PROGRAMMES

3.1 The local Unit should set up rotations with others overseas and develop programmes to meet the requirements set out above. In planning these rotations it should be remembered that:

- Units should link up which can complement each other's training
- Programmes need not be the same for every trainee
- consideration should be given to whether the programme can provide sub-specialty training for 6 months or a year (in the 5th year) without compromising the training of more junior trainees.
- plans for rotations must be submitted to the SAC for approval.

3.2 **The role of the SAC in setting up rotations**:

- the SAC will not enforce programmes, but will approve or disapprove of those submitted to it
- the SAC can offer advice

APPENDIX 1

Recommendations for the Minimum Number of Courses and Meetings to be attended by Trainees in the Specialty

These recommendations are linked to the modular training syllabus outlined in Appendix 2.

Part I - Years 1 and 2

Successful completion of BST should ensure that trainees at this grade have attained basic surgical skills. There are further skills required in Plastic Surgery, particularly microsurgical expertise and the management of trauma.

a) A microsurgical training course
b) An ATLS course
c) One international meeting per year

Part 2 - Years 3 and 4

Training at this level will develop clinical skills with increasing responsibility in Plastic Surgery. More advanced teaching courses are required at this level in preparation for the final FRCS in Plastic Surgery / the European Board Exam.

a) At least two advanced courses in Plastic Surgery per year
b) One general Plastic Surgical scientific meeting per year
c) One sub-specialty meeting per year

Part 3 - Year 5

More advanced general Plastic Surgery training with the possibility of sub-specialty training and/or research.

a) At least two advanced courses per year
b) One general Plastic Surgical scientific meeting per year
c) Two sub-specialty meetings per year

Special consideration should be given if the trainee is presenting a paper, whatever the grade.

APPENDIX 2

Syllabus of Training in Plastic Surgery Leading to Certification, with recommendations for Modules of Training

INTRODUCTION

The syllabus is divided into a series of modules. During each module the trainee should learn the following:

- relevant anatomy, embryology, physiology, biochemistry and pharmacology
- relevant pathology
- relevant associated diseases and conditions
- appropriate pre-operative investigations and patient assessment
- range, indications and principles of relevant operations
- post-operative complications and their management
- recent advances
- relevant ancillary interventions, e.g. radiotherapy, psychological support, physio/occupational/speech therapy, etc.

Training in modules should include: selected reading, tutorials, attendance at appropriate Meetings/Courses, attachment to Consultants with special interests, attendance at special clinics and attachment to inter-facing specialities where appropriate.

Modules for Part 1 (Years 1 and 2) relate mainly to principles of management. Those for Parts 2 and 3 imply increasing experience in practical techniques and in patient management.

TRAINING IN OPERATIVE AND CLINICAL PRACTICE

This will be undertaken throughout the continuum of training. Where possible during Part 2 of the continuum, operative training should be organised to coincide with related modules. It is expected that part of the clinical and operative training in Aesthetic Surgery that is necessary for competent independent practice may need to be conducted in the private sector. Trainees should be enabled to attend Consultants' private operating lists and consulting rooms.

The Programme Director should be responsible for timetabling modules, of which two or more could run concurrently, e.g. "Principles of Reconstructive Surgery" could well run throughout the period of core training. At the end of each year the trainee will be formally assessed.

PART 1 (Years 1 and 2): INTRODUCTORY TRAINING MODULES

1.1 Principles of Reconstructive Surgery

a) wound healing and wound repair
b) transfer of tissues by free graft
c) transfer of tissues by vascular pedicle
d) transfer of tissues by microanastamosis
e) use of non-autogenous grafts/implants
f) tissue expansion

1.2 Principles of Aesthetic Surgery

a) patient selection
b) scars: cosmesis; behaviour; hypertrophic / keloid; pathological; management
c) treatment of benign skin conditions (tattoos, naevi, etc)
d) laser therapy

1.3 Management of Acute Trauma

a) injuries of the hands, including tendons, nerves, blood vessels and bones; hand infections
b) soft tissue injuries of the face, fractures of the nose, malars and principles of management of maxillary and mandibular fractures
c) injuries of the limbs, including compound fractures

1.4 Burns 1

a) resuscitation of major burns, including nutrition and infection
b) primary treatment of burn wounds
c) types and sites of burns
d) management of post-burn scarring

1.5 Paediatric Plastic Surgery

a) general principles of cleft lip and palate management
b) general principles of craniofacial surgery
c) general principles of hypospadias management
d) general principles of congenital hand surgery
e) prominent ears

1.6 Malignant Skin Tumours

a) melanoma, including surgical management of metastatic spread to regional lymph nodes; management of other metasteses
b) squamous and basal cell carcinomas
c) soft tissue sarcomas of skin and other tissues
d) non-surgical methods of treatment

1.7 Head and Neck Tumours 1

a) principles of management

1.8 Elective Hand Surgery 1

a) Dupuytren's contracture
b) carpal tunnel
c) simple post-traumatic rehabilitation

1.9 Administration and Management

NHS, private sector, medico-legal, preparation of medical reports, audit, ethics.

PART 2 (Years 3 and 4)

Trainees should learn the theory of all the following modules, and develop practical experience of most of the operations described.

A: APPLIED RECONSTRUCTIVE AND AESTHETIC PLASTIC SURGERY

2.1 Reconstructive and Aesthetic Surgery of the Face and Lips
Repair and reconstruction of facial defects, reconstruction of upper and lower lips, face lifts, treatment of rhytides.

2.2 Reconstructive and Aesthetic Surgery of the Nose
Reconstruction of skin defects, SMR, turbinectomy, reconstructive rhinoplasties, aesthetic rhinoplasties, augmentation rhinoplasty.

2.3 Reconstructive and Aesthetic Surgery of the Eyelids

Tumours, reconstruction of skin defects, reconstruction of the upper and lower eyelids, reconstruction of the eyebrow, ectopion, blepharoplasty including reduction of skin, muscle and fat, brow lifts.

2.4 Reconstructive and Aesthetic Surgery of the Ears

Tumours of the ear, otitis externa, partial and total pinnectomies, principles of reconstruction for microtia and anotia, prosthetics including osseo-integration, slit earlobe, keloid scars.

2.5 Reconstructive and Aesthetic Surgery of the Breasts

Benign and malignant tumours of the breast, gynaecomastia, Polands syndrome, reconstruction of the breast and nipple after mastectomy and lumpectomy, subcutaneous mastectomy, reduction and augmentation mammaplasties, mastopexy.

2.6 Reconstructive and Aesthetic Surgery of the Trunk and Limbs

Reconstruction of defects of the chest and abdominal walls, pectus excavatum, abdominoplasties including adjuvant liposuction, surgery of pressure sores and ulcers. Treatment of lipotrophies by suction-assisted liposculpture and dermolipectomies.

2.7 Surgical Management of Metastatic Malignant Disease of Skin and Soft Tissues

Including radical lymph node dissection of groin, axilla and neck.

B. SUBSPECIALTY MODULES

Part 2 trainees will be required to become familiar with the following modules but will not necessarily be expected to have operative training beyond that of assisting.

Burns 2

Management of major burns, resuscitation, nutritional support, infection, skin cover, surgical rehabilitation o post-burn scar contractures, ulcers etc, reconstruction of the burned face, psychological support.

Cleft Lip and Palate

Indications, principles and practice of primary and secondary soft tissue reconstructions, alveolar bone grafting, rhinoplastic techniques, principles of orthodontics and orthognathic reconstruction, principles of speech development and investigation of speech disorders, pharyngoplasties.

Reconstructive Surgery of the Genitalia

Hypospadias, epispadias, vaginaplasty, gender reassignment.

Hand Surgery 2

Congenital malformations, complex post-traumatic surgical rehabilitation, rheumatoid arthritis, tumours.

Oculoplastic Surgery

Ptosis, entropion and ectropion, blepharophimosis, anophthalmia, exophthalmos, reconstruction for lacrymal drainage.

Head and Neck Surgery

Carcinoma of the floor of the mouth, palate, nose and maxillary antrum; surgical resections, functional and radical neck dissections, functional and aesthetic reconstructions, mandibular reconstructions, prosthetics, parotidectomies, reconstruction for facial palsy.

Aesthetic Surgery

Limb Trauma

Primary repair and reconstruction of major soft tissue and skeletal injuries in conjunction with interfacing specialties; surgical rehabilitation; amputations; prosthetics.

At the completion of Part 2 the trainee should be ready to pass the Intercollegiate Specialty Examination.

PART 3 (Year 5)

The trainee may opt to spend **part or all of year 5 in more advanced general plastic surgical training, or in sub-specialty training** in one or more of the sub-specialties listed in the Sub-specialty Modules for Part 2 above, or in Craniofacial Surgery. This training must be in a Unit approved for Part 3 Sub-Specialty training, and can be outside the main training rotation. Further training in sub-specialty modules during the 5th year, leading to proficient independent practice, will require the following training beyond that required for the Specialist Assessment:

3.1 Familiarity with relevant texts and scientific publications and detailed knowledge of recent advances.

3.2 Detailed knowledge of the investigation and management of relevant clinical and syndromic diagnoses.

3.3 Wide experience in the indications for and practice of relevant operations to the level of performance without trainer assistance.

3.4 Where appropriate, attachment to interfacing specialty(ies) for extended training.