PLASTIC SURGERY TRAINING PROGRAM
UNIVERSITY OF MANITOBA

ROTATION GOALS & OBJECTIVES

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UNIVERSITY OF MANITOBA PLASTIC SURGERY

Program Structure:
The program is a five-year integrated program, with two to three residents recruited per year from medical schools. For the first two years of the program, the residents are part of the Surgical Foundation Curriculum rotating through general surgery, other surgical specialties, and fields allied to plastic surgery. In their last three years the residents will spend full time in plastic surgery rotating in the five major teaching sites (Health Sciences Centre, St. Boniface Hospital, Children’s Hospital, Victoria General Hospital, and The PanAm Clinic). These rotations and their duration are compliant with The Royal College of Physicians and Surgeons of Canada, as stated in the Objectives of Training in Plastic Surgery, General Standards Applicable to All Residency Programs, Specialty Training Requirement in Plastic Surgery (2011), and Specific Standards of Accreditation for Residency Programs in Plastic Surgery.

There are 12 fulltime and 2 part-time faculty members, providing a faculty-to-resident ratio of about two-to-one during their senior years. All the faculty members are Royal College Certified in Plastic Surgery and 12 of the 14 have completed fellowships in subspecialties of plastic surgery. One full time faculty member is Royal College certified in General Surgery and has completed fellowship training in burn surgery. All of the full time faculty members are active academic reconstructive surgeons with high moral and ethical standards, who already have excellent past track records, and have declared an ongoing commitment to teaching and training residents. Each member of the faculty has different, subspecialized clinical and research interests; this variety is a valuable resource, in and out of the operating room, for the comprehensive training of residents in the full breadth of plastic and reconstructive surgery.

Description of the Program:
The residents are selected out of medical school through the CaRMS process. Two to three residents are taken each year and the curriculum for the present teaching model follows a 2 and 3 outline. The first two years will be spent in prerequisite training, performing surgery-in-general and rotating through general surgery and other surgical specialties and allied fields as prescribed by the Royal College Surgical Foundations and Specialty Training Requirements in Plastic Surgery.

Thus, as well as spending a significant time in general surgery, in the first two years, the residents will also rotate through Breast/Surgical oncology, pediatric surgery, ICU/Critical Care, Trauma, Vascular Surgery, Oral and Maxillofacial Surgery, Orthopedic Surgery, Otolaryngology, and Dermatology; and possible rotations in either Ophthalmology, Anesthesia, Radiology, Emergency Medicine, or ICU. All of these rotations, both general surgical and specialty rotations, have been approved by appropriate department chiefs/PGME and are under the directorship of the Program Director. The residents will also rotate through the Plastic Surgery Program, and be involved in core curriculum teachings of the Plastic Surgery Residency Program, as well as the individual teaching sessions within each of the rotations on which they participate. These rotations are important so that the residents become exposed to the many facets of plastic surgery early to become aware of the thought processes needed to solve
reconstructive problems and maintain an interest and enthusiasm for plastic surgery and to feel part of the plastic surgery “family”.

The residents participate in all the conferences and teaching rounds pertinent to their particular rotation. They are subjectively evaluated by the faculty that they encounter and these evaluations are carefully reviewed by the program director. They are also evaluated objectively by the annual in-service examinations and random written examinations.

Once they have completed their two years of prerequisite training, they graduate to their 3 years of intensive plastic surgery training. The rotations take place through all teaching hospitals and the residents work with all faculty. A full spectrum of experience is obtained.

Whereas pediatric problems are covered mainly at Children’s Hospital, other categories and types of reconstruction are covered comprehensively at each of the participating institutions.
University of Manitoba Plastic Surgery

Goals and Objectives

I: COMPETENCIES AND CanMEDS DOMAINS

The defining goal of the University of Manitoba Plastic Surgery Residency Training Program is to prepare the residents to function as a qualified practitioner of plastic and reconstructive surgery at the high level of performance expected of a specialist. This level of performance implies competence in all areas of CanMEDS domains including medical expert, communicator, collaborator, manager, health advocate, scholar, and professional. The Program prepares the graduate either for further specialty education and training and/or practice in plastic and reconstructive surgery, and/or a career in academic plastic surgery training and investigation. We believe that one of our goals is to train not only competent plastic and reconstructive surgeons, but also the future leaders of the field.

The scope of the Program includes comprehensive training in the principal components of plastic and reconstructive surgery. It will cover the following core areas:

- Wound healing
- Integument
- Flaps and grafts
- Microsurgery
- Implants/biomaterials

And the following domains as set out by the RCPSC (will include applied anatomy/physiology/embryology, techniques pre and post-operative management and outcomes):

- Burns
- Upper Extremity (Hand)
- Lower Extremity
- Aesthetic Surgery
- Head and Neck/Craniofacial Trauma
- Breast Surgery/Oncological Reconstruction
- Trunk/Genital Reconstruction
- Head & Neck Reconstruction
- Pediatric Plastic Surgery

Also included throughout the course of the residency will be:

- Medico legal and psychiatric aspects of plastic surgery
- Pharmacology and therapeutics
- Practice and office management
The objectives of the Program relate these goals to the seven required CanMEDS competencies. Specifically, in the context of the defined scope of the Program, residents should become competent in:

**Patient Care**

- **Requirements**: Residents must become competent in providing preoperative, operative and postoperative care that is compassionate, appropriate, and effective for the treatment of surgical problems. Plastic Surgery residents must demonstrate manual dexterity appropriate for their training level, and be able to develop and execute patient care plans. They are expected to communicate effectively, and demonstrate caring and respectful behaviors when interacting with their patients and families. They should gather essential and accurate information about their patients, and make informed decisions about diagnostic and therapeutic interventions based on patient information, preferences, scientific evidence and clinical judgment. They should develop and carry out patient management plans, counsel and educate patients and families, and use information technology to support patient care decisions and education. They need to be able to work with other health care professionals to provide patient-focused care.

- **Teaching Approach**: This has been the predominant formal focus of training in plastic surgery. The residents acquire technical skills, and the ability to apply their knowledge to the development of patient care plans. The system is one of graduated responsibility in the operating room, and for patient care and decision making. Residents participate in the preoperative, intraoperative and postoperative care of patients with problems encompassing the entire breadth of plastic and reconstructive surgery.

- **Assessment**: The surgical skill and patient care of the resident is directly supervised, observed, and evaluated on a daily basis by faculty, senior residents, physician assistants, nurses, and allied health members. A written evaluation is provided at the end of each rotation, gathering information from each of these sources.

**Medical Knowledge**

- **Requirements**: Residents must acquire a body of medical knowledge about established and evolving biomedical, clinical and cognate (e.g. epidemiological and social behavior) sciences, and be able to apply this knowledge to patient care. Residents are expected to learn not only clinical surgery, but also the fundamentals of basic science as applied to plastic surgery, including but not limited to, wound healing, systems and surgical anatomy and physiology, biomechanics, and pathology. They are expected to evaluate critically and demonstrate knowledge of scientific information.

- **Teaching Approach**: This knowledge is acquired through a range of activities including teaching at the bedside and in the operating room, individual reading and study, and through a variety of didactic conferences offered by the University of Manitoba Program. These include but are not limited to Grand Rounds, Morbidity and Mortality Rounds, Interesting Cases, Core Curriculum Sessions, Journal Club, and Hand Conferences. During both the clinical rotations and didactic sessions, residents learn to interpret the literature and evaluate new scientific developments (especially at Journal Club).
v **Assessment:** Residents are required to take the Canadian and American Plastic Surgery In-Service Exam annually, and the Program is also judged by the number of residents passing the Royal College of Physicians and Surgeons of Canada Examination in Plastic Surgery. The resident’s medical knowledge is also evaluated by the faculty on a daily basis, and a written evaluation is provided at the end of each rotation.

**Scholarly Activities**

v **Requirements:** Residents must be competent in the investigation and evaluation of their own patient care, in the appraisal and assimilation of scientific evidence, and in improvements of patient care. Specifically, plastic surgeons are expected to critique personal practice outcomes, and demonstrate recognition of the importance of life-long learning in practice. They should facilitate the learning of students and other health care professionals.

v **Teaching Approach:** A variety of approaches throughout the residency promotes such competence. Residents are exposed to many different surgeons at the several institutions in the Program; each taking a unique approach to the same problems, giving the residents the opportunity to learn from a variety of practice patterns. The Morbidity and Mortality Rounds and Photo-Rounds Cases give residents the opportunity to review their own care and that of others, developing concrete plans to prevent adverse outcomes in the future.

v **Assessment:** The residents’ ability to learn from previous experience and mistakes is continuously evaluated, and the teaching staff clearly has the opportunity to observe the resident’s maturation as s/he passes through the various institutions on multiple occasions during training. This competency is addressed on the evaluation forms. Residents are made well aware that teaching their more junior colleagues and medical students is an important part of their duty.

**Collaborator, Communicator, and Advocacy:**

v **Requirements:** Residents are expected to develop skills that result in effective information exchange and teaming with patients, their families, and other health care professionals. Specifically, residents are expected to learn to communicate effectively with other health care professionals, counsel and educate patients and their families, and effectively document practice activities.

v **Teaching Approach:** These are skills that are, in fact, part of resident selection process, although informally, and are refined as the residents progress through training by interacting with faculty, patients and each other and receiving feedback.

v **Assessment:** Observation and evaluation by faculty and more senior residents, as well as other health care professionals on the teams. This competency is also addressed on the evaluation forms.
**Professionalism**

- **Requirements:** Residents should develop a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diverse patient populations. They are expected to maintain high standards of ethical behavior, and demonstrate a commitment to continuity of patient care, and sensitivity to age, gender, ethnicity and culture of patients and other health professionals. They should demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices.

- **Teaching Approach:** Some of this is accomplished through observation of teaching faculty and more senior residents, and some through the experience of interacting with patients, families, and other health professionals. Topics in ethics and professionalism are addressed directly in the PGME Core Topic Sessions and through selected Grand Rounds topics and discussions.

- **Assessment:** These skills are evaluated by faculty, other residents and other members of the health care team.

**Manager**

- **Requirements:** Residents will demonstrate an awareness of and response to the larger system of health care, and effectively call on system resources to provide optimal care. They are expected to practice high quality, cost-effective patient care, demonstrate knowledge of risk-benefit analysis, and demonstrate an understanding of the role of different specialists, and other health care professionals in overall patient management.

- **Teaching Approach:** This requirement is learned throughout the residency though a variety of venues. Residents are exposed to faculty at the participating institutions, who practice in both academic and private settings. They work with surgeons involved in the care of both private practice and indigent patients. This subject is discussed throughout the residency as well as being part of Grand Rounds presentations. In their final year during their elective and cosmetic/clinic blocks they get the opportunity to visit multiple surgeons, and centers to become aware of multiple different approaches to the practice of plastic surgery.

- **Assessment:** These skills are evaluated by faculty, other residents and other members of the health care team.
II. SPECIFIC GOALS AND OBJECTIVES FOR PGY 3-5 PLASTIC SURGERY PROGRAM

Plastic Surgery is responsible for the care of patients with a wide range of congenital and acquired defects requiring reconstruction. In addition, there are patients undergoing cosmetic procedures for a variety of indications. Plastic Surgery is divided into several categories. There are the areas of: (I) Core Knowledge/General Plastic Surgical Principles And Techniques which includes wound repair, integument, flaps and grafts, microsurgery, implants and biomaterials, and (II) Specific Knowledge/Subspecialty Plastic Surgery Principles and Techniques in the domains of:

- Breast
- Burns
- Cosmetic/Aesthetic
- Head and neck/Craniofacial Trauma
- Reconstruction of:
  - Upper extremity
  - Lower extremity
  - Trunk and genitalia
  - Head and Neck Oncology
- Pediatric surgery

The Plastic Surgery Training Program’s overall goal is to provide comprehensive training in all these areas. In addition to the Goals and Objectives listed below, for each rotation, the resident should be able to demonstrate that s/he can do the following with increasing skill and independence through the residency:

- Perform history and physical examination, and share information with the senior resident, fellow, and/or attending.
- Use available information, in combination with the interpretation of basic laboratory and radiographic data, to develop a plan for the preoperative preparation of the patient and discuss this with the senior resident/fellow/attending.
- Understand the basic pathophysiologic disease process and its surgical implications.
- Understand the surgical procedure performed.
- Develop a plan for the postoperative care of the patient with the senior resident/fellow/attending.
- Provide the day-to-day care of patients on the service.
- Teach and help supervise medical students and more junior residents on the service.
- Develop interpersonal skills for dealing with patients and other members of the healthcare team.
- Master the basic science principles impacting the care of patients on the service.
CORE KNOWLEDGE/GENERAL PLASTIC SURGICAL PRINCIPLES (PGY 3-5)

General Objectives:

- Learn the physiology of wound healing, and be able to manage complex wounds with a variety of techniques to achieve complete healing and maximum aesthetic benefit.
- Learn the physiology of the skin and be able to manage a variety of skin conditions surgically and non-surgically.
- Learn the physiology of flaps and grafts, be familiar with surgery in all types of flaps and grafts, and use flaps effectively for reconstruction in the full spectrum of plastic surgery.
- Learn the principles of microsurgery and master basic microsurgery techniques, including microneural repair and microsurgical anastomosis.
- Know the biology and surgical use of the various implant materials, including bone, cartilage and alloplasts.

Specific Objectives:

For each rotation, the resident should be able to demonstrate that s/he can do the following with increasing competency and independence as they progress from PGY3 to PGY5:

- Wound Repair
  - Be familiar with physiology and biochemistry of normal wound healing.
  - Understand the physiology and biochemistry of abnormal wound healing, including hypertrophic scars and keloids.
  - Be familiar with common agents and processes which result in abnormal healing.
  - Be familiar with pharmacologic agents and other nonsurgical methods of treatment of abnormal healing.
  - Manage dressing, splints and other devices.
  - Understand principles of healing of bone, tendon, cartilage, nerve, skin, muscle.
  - Recognize differences in healing of cortical and cancellous bone, membranous and endochondral bone.
  - Be familiar with principles and techniques for achieving optimal healing of bone, tendon, cartilage, nerve, skin, muscle.
  - Apply, plan and perform of techniques to alter scar (e.g. Z-plasty, W-plasty).
  - Recognize skin lines and their importance in placement of incisions for maximum aesthetic benefit and applies that knowledge to surgery.
  - Understand the role of nutrition in wound healing, and be familiar with methods of diagnosis of nutritional deficiency.
  - Understand pathological processes in keloid formation and methods to treat keloids.
  - Perform surgical and pharmacologic treatment of hypertrophic scars and keloids.
  - Recognize techniques for preservation of skin, bone, cartilage, tendon, nerve.
  - Understand different suture materials and indications for use.
• Treat complex wound problems such as dehiscence, delayed healing.
• Evaluate patients with scar problems and revise scars to achieve maximum functional and aesthetic benefit.
• Uses splints, casts, dressing, and topical agents etc. to optimize wound healing.
• Repairs surgically tendon and nerve injuries.
• Use biological and artificial skin substitutes in wound management.

Integument

• Demonstrate knowledge of the structure and function of the epidermis.
• Demonstrate knowledge of the structure and function of the dermis.
• Demonstrate knowledge of the structure and function of the skin appendages.
• Demonstrate knowledge of the structure and function of the subcutaneous tissues and fascial layers.
• Know the embryologic origin of the skin and at which gestational age the various components of the skin appear.
• Understand the differentiation of the stratum germinativum into surface cells and appendages and the differentiation of the dermis.
• Demonstrate knowledge of the structure and function of the nails.
• Recognize common inflammatory disorders of the skin such as impetigo, cellulitis, lymphangitis, hidradenitissuppurativa, necrotizing fasciitis, as well as common congenital disorders of skin, including xerodermapigmentosa, Ehlers Danlos Syndrome, basal cell nevus syndrome, albinism etc.
• Demonstrate knowledge of common generalized dermatologic disorders, such as scleroderma, lupus erythematosis, dermatomyositis, and is familiar with their treatment.
• Be familiar with the clinical presentation of benign and malignant cutaneous lesions and generalized skin disorders.
• Understand the natural history of treated and untreated benign and malignant skin lesions and generalized skin disorders.
• Comprehend current histologic grading and clinical staging systems for malignant and premalignant skin tumors.
• Evaluate provisionally simple and complex cutaneous lesions and proceed with diagnostic steps necessary to secure a definitive diagnosis.
• Formulate treatment plan choosing surgical or non-surgical treatment modality which best suits the lesion (based on size, anatomic location, and physical condition of the patient).
• Be familiar with other treatment modalities, including (but not limited to) x-ray therapy, Mohs surgery, cryotherapy, laser therapy and topical chemotherapy.
• Explain to patients the nature of the lesion, its extent, treatment options and long-term results.
• Formulate treatment plan for regional or distant spread of malignant cutaneous tumors.
• Be familiar with the histology of benign and malignant lesions.
• Evaluate a variety of lesions, recommend therapy.
• Perform invasive diagnostic studies including (but not limited to) direct incisional and excisional biopsy, needle biopsy, punch biopsy, and recognize when each should be used.
• Execute extirpative surgery of a variety of benign and malignant cutaneous lesions and associated locoregional disease, choosing the optimal surgical incision or excision.
• Execute complex procedures for reconstruction of surgically created wounds (including skin grafts, local or distant flaps, or free tissue transfer) resulting from skin tumor extirpation.
• Prescribe pharmacologic agents for cutaneous lesions not deemed appropriate for surgical extirpation.

❖ Flaps and Grafts:
  • Understand flap terminology (e.g. advancement flap, rotation flap, etc.).
  • Understand terminology of flap vascular supply including random flap, axial flap, island flap, free flap etc.
  • Understand variations in flap anatomy, including cutaneous, fasciocutaneous, musculocutaneous etc. Recognize physiology of normal and ischemic flaps, and the “delay” phenomenon.
  • Know the physiology and microbiology of acute, intermediate and chronic wounds, and the impact this has for timing and techniques of wound closure surgery; knows factors influencing choice of flap vs. graft for wound closure.
  • Understand physiology of split and full thickness skin, dermal, cartilage, bone, tendon, nerve, fascial and composite grafts.
  • Know specific grafting techniques, including the operation of dermatomes, management of donor sites, and care of recipient sites.
  • Understand principles and applications for special grafting techniques, including dermabrasion and overgrafting, the crane principle, xenografts, cadaver grafts.
  • Understand technological, pharmacological and physiological monitor, including fluorescence, capillary refill, thermal monitoring, laser flow probes, oxygen saturation, pH monitoring etc.
  • Perform operations using the full spectrum of flaps and grafts.
  • Treat patients with complications of flaps and grafts, including skin graft loss, flap necrosis, wound dehiscence, wound infection etc.

❖ Microsurgery:
  • Be familiar with use of the operating microscope and technical aspects of microvascular anastomosis and microneural repair and perform them.
  • Understand the indications for, contraindications to, and techniques for replantation of amputated parts and methods of monitoring success.
  • Conduct preoperative evaluations and participate in replantation surgery and conducts postoperative management.
  • Manage long-term aspects, including rehabilitation, of patients who have undergone replantation and revascularization procedures.
  • Understand blood supply to discrete units.
  • Familiar with terms and types of free tissue flaps.
  • Know anatomy for harvesting most common free flaps (e.g. latissimus dorsi, rectus abdominus).
  • Recognize indications for harvesting various flaps and matching donor and recipient site.
  • Is familiar with radiologic techniques for evaluation of donor and recipient sites.
• Recognizes the mechanisms and consequences of the no-reflow phenomenon, and knows how to treat a failing flap.
• Understand technologic, pharmacologic and physiologic principles of post-operative monitoring of free flaps.
• Conducts preoperative evaluation and postoperative management of patients undergoing free tissue transfer; manages long-term aspects, including donor site problems of patients who have undergone free tissue transfer.
• Know the basic physiology of nerve injury and healing; diagnosis and treatment of nerve injuries using microsurgery and nerve grafts where appropriate.
• Understand intra-neural anatomy and anatomic relationships to surrounding structures of the major peripheral nerves.
• Understands the principles of repair of nerve injury, including need for nerve grafting, anatomy of nerve graft donor sites, and the physiology, timing and techniques of primary, delayed primary, and late nerve repair.
• Understand the principles and techniques of hematological manipulation of normal and abnormal vascular flow characteristics.
• Participate in surgery for free tissue harvest, harvest flaps and manage donor sites; when competent perform vascular anastomosis for free tissue transfer.
• Participates in surgery for replantation of amputated parts.

 Implants/Biomaterials:
• Know the local wound factors which influence bone graft survival.
• Recognize the biologic differences between vascularized and non-vascularized bone grafts.
• Understand the influence of perichondrium and “balanced cross sectional area” on the warping of cartilage grafts.
• Recognize various types of breast implants and factors involved in choice.
• Recognize various injectable materials for subcutaneous filling and principles of use.
• Understand processes of bone repair: incorporation, osteoconduction, osteoinduction.
• Recognize the difference in incorporation between cortical and cancellous bone grafts and membranous and endochondral autografts.
• Is familiar with the immunology of bone and cartilage transplantation.
• Understand comparative characteristics of bone and cartilage autografts, allografts and xenografts.
• Know the chemistry and biocompatibility of commonly implanted materials (e.g. silicone, methyl methacrylate, hydroxyapatite, tricalcium phosphate and proplast).
• Understand the factors involved in the choice of implant material for various reconstructions.
• Perform surgical procedures using solid implant materials including cranioplasty; silicone implants to breast, orbital floor, malar area, chin or joint; bone substitution; non vascularized bone grafts for a variety of defect; vascularized bone grafts; carving procedures (e.g. nasal grafts, ear reconstruction) using rib cartilage or other alloplastic material.
• Perform soft tissue augmentation using injectable material.
ROTATION SPECIFIC GOALS AND OBJECTIVES (PGY3-5)

The clinical rotations during the PGY3 to PGY5 years of training are arranged in 3 block periods each. The majority of these rotations, except for St. Boniface Hospital Rotation and RR4 Ambulatory Care rotation, are preceptorship or mentorship based rotations in which the resident spends the entire duration of the block with one faculty member in a subspecialty(s) of Plastic Surgery. It is the Programs belief that such a model allows the resident to gain competency and independence in a subspecialty of plastic surgery in a short period of time due to the immersion of the resident into the field and the one-on-one, competition free, teaching environment.

Core competencies are expected to be taught and learned during every rotation regardless of site.

Therefore, when reviewing rotations please keep in mind the following Goals and Objectives are specific to the rotation.

**Health Sciences Centre Rotations:**

- **Microsurgery (Dr. Buchel and Dr. Hayakawa supervisors)**
  - Breast
  - Head and neck oncology reconstruction
  - Lower extremity reconstruction
  - Upper extremity reconstruction
  - Trunk/Genital reconstruction
  - Aesthetic/Cosmetic

- **Plastics Trauma (Dr. Petropolis, Dr. Sigurdson and Dr. Logsetty supervisors)**
  - Head and Neck Trauma/Craniofacial Surgery
  - Breast
  - Upper extremity reconstruction
  - Burns

- **Plastics Float (Dr. Islur and Dr. Petropolis supervisors):**
  - Breast
  - Upper extremity reconstruction
  - Lower extremity reconstruction
  - Aesthetic Surgery
  - Head and Neck Oncology Reconstruction

**Children’s Hospital Rotation**

- **Dr. Ross and Dr. McGregor (Dr. Ross supervisor)**
  - Pediatric Plastic Surgery
  - Head and Neck Trauma/Craniofacial
St. Boniface Hospital Rotation

- Dr. Islur, Dr. Murray, Dr. Dolynchuk and Dr. Mitchell (supervisor Dr. Islur)
  - Breast
  - Upper extremity reconstruction
  - Lower extremity reconstruction
  - Aesthetic Surgery
  - Head and Neck Oncology Reconstruction

Victoria Hospital Rotation

- Dr. Turner, Dr. Giuffre and Dr. Singh (supervisor Dr. Giuffre)
  - Upper extremity reconstruction (incl. congenital hand)
  - Breast
  - Aesthetic Surgery

Aesthetic Surgery Rotation (Supervisor: Dr. Lockwood)

- Dr. Lockwood
  - Aesthetic Surgery
Plastic Surgery Core Rotations (PGY1-2)

Critical Care: Goals and Objectives

*All Residents are expected to have completed the ACLS course prior to the start of your critical care rotation.

Preamble:
Surgical Foundation residents are often involved in the care of patients who may be critically ill or injured and who may require management in the intensive care unit. Therefore the Critical Care rotation provides an excellent opportunity for the Surgical Foundations resident to attain the knowledge and skills necessary for the management of the critically ill surgical patient.

General Objectives:
Upon completion of the Critical Care rotation, the Surgical Foundations resident is expected to:

- Demonstrate knowledge, clinical and technical skills and decision-making capabilities pertinent to the management of critically ill patients
- Demonstrate awareness of the ethical principles pertinent to critically ill patients, including end-of-life care and issues around withdrawing and withholding life support

Specific Objectives:
At the completion of the Critical Care rotation, the Surgical Foundations resident will have acquired the following competencies and will function effectively as:

**MEDICAL EXPERT**

- Establish and maintain knowledge, skills and attitudes appropriate to the Critical Care rotation
- Apply knowledge of the clinical, socio-behavioural and fundamental biomedical sciences relevant to the Critical Care rotation

The resident in Surgical Foundations is required to attain sufficient knowledge as follows:

Airway Management
- Principles of airway management
- Indications for intubation

Respiratory Critical Care
- Interpretation of blood gases
- Assessment of acid-base status
- Basis ventilator modes and settings
ARDS

Cardiac Critical Care
- ACLS principles
- Recognition of common rhythm disturbances
- Interpretation of electrocardiogram/recognition of important life-threatening findings

Shock
Classification of shock, including:
- Hypovolemic shock
- Distributive shock
- Cardiogenic shock
- Obstructive shock
- Outline of hemodynamic patterns specific to different causes of shock
- Appropriate use of inotropes and vasopressors

Sepsis and Critical Care
- Organ failure associated with sepsis

Renal Problems and Critical Care
- Renal failure and basic principles of dialysis/ultrafiltration
- Fluid and electrolyte disorders
- Myoglobinuria

Nutritional Support in Critical Care
- Nutritional assessment in the ICU
- Enteral nutrition
- Parenteral nutrition

Gastrointestinal and Hepatic Critical Care
- Stress gastritis
- Gastrointestinal bleeding
- Hepatic failure
- Perform a complete and appropriate assessment of the critically ill patient
- Elicit a history that is relevant, concise and accurate
- Perform a focused physical examination that is relevant and accurate
- Select medically appropriate investigations in a resource-effective and ethical manner
- Examine and review each of the assigned patients before morning rounds
- Demonstrate effective clinical problem solving and judgment to address the problems, including interpreting available data and integrating information to generate problem lists and to outline management plans
● Use therapeutic interventions effectively
● Implement an effective and prioritized management plan for the critically ill patient
● Demonstrate effective, appropriate and timely application of therapeutic interventions relevant to the Critical Care rotation
● Ensure appropriate informed consent is obtained for therapies
● Demonstrate proficient and appropriate use of procedural skills
● Demonstrate effective, appropriate and timely performance of diagnostic procedures relevant to the Critical Care rotation
● Demonstrate effective, appropriate and timely performance of therapeutic procedures relevant to the Critical Care rotation
● Ensure appropriate informed consent is obtained for procedures

Having completed the Critical Care rotation, the Surgical Foundations resident will be able to demonstrate knowledge and technical competence in performing the following procedures:

● Arterial line placement
● Basic airway management, including:
  ● Bag/mask ventilation
  ● Uncomplicated intubation
  ● Central venous catheter insertion under ultrasound guidance
● Application of ACLS principles in patient resuscitation
● Seek appropriate consultation from other health professionals
● Demonstrate insight into his/her own limitations by self-assessment
● Demonstrate effective, appropriate and timely consultation of another health professional as needed for optimal care of the critically ill patient

COMMUNICATOR

At the completion of the Critical Care rotation, the Surgical Foundations resident will be able to:

● Develop rapport, trust and ethical therapeutic relationships with patients and families
● Establish positive therapeutic relationships with patients and their families that are characterized by understanding, trust, respect, honesty and empathy
● Respect patient confidentiality, privacy and autonomy
● Listen effectively
● Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals
● Seek out and synthesize relevant information from other sources such as the family, caregivers and other professionals
● Accurately convey relevant information and explanations to patients and families, colleagues and other professionals
Deliver information to the patient and family, colleagues and other professionals in a humane and understandable manner, including:

- Informed consent
- Medical condition of the patient
- Treatment plan
- Prognosis
- Primary and secondary prevention
- Adverse events
- Medical uncertainty
- Medical errors
- End-of-life wishes
- Autopsy
- Organ donation
- Keep attending physicians appraised of relevant events
- Convey effective oral and written information
- Maintain clear, accurate, appropriate and timely records of clinical encounters with each assigned patient on a daily basis
- Effectively present verbal reports of clinical encounters and medical information in an organized and concise manner during the Critical Care rotation

COLLABORATOR
At the completion of the Critical Care rotation, the Surgical Foundations resident will be able to:

- Participate effectively and appropriately in an interprofessional healthcare team
- Recognize and respect the diversity of roles, responsibilities and competences of other professionals in the management of the critically ill patient
- Work with nursing colleagues and others to assess, plan, provide and integrate care of the critically ill patient

MANAGER
At the completion of the Critical Care rotation, the Surgical Foundations resident will be able to:

- Manage his/her professional and personal activities effectively
- Set priorities and manage time to balance professional responsibilities, outside activities and personal life
- Employ information technology effectively (e.g. electronic procedure database)
- Demonstrate an understanding of cost-effectiveness in patient management
- Utilize hospital resources wisely when managing patients
- Serve in leadership roles, as appropriate
- Participate effectively at teaching rounds and other meetings
HEALTH ADVOCATE
At the completion of the Critical Care rotation, the Surgical Foundations resident will be able to:

- Respond to the needs of the critically ill patient
- Identify the health needs of an individual patient

SCHOLAR
At the completion of the Critical Care rotation, the Surgical Foundations resident will be able to:

- Maintain and enhance professional activities through ongoing learning
- Pose an appropriate learning question
- Access and interpret the relevant evidence
- Integrate new learning into development as a general surgeon
- Critically evaluate medical information and its sources and apply this appropriately to clinical decisions
- Critically appraise the critical care evidence in order to address a clinical question

PROFESSIONAL
At the completion of the Critical Care rotation, the Surgical Foundations resident will be able to:

- Demonstrate a commitment to patients through ethical practice
- Exhibit appropriate professional behaviours, including honesty, integrity, commitment, compassion, respect and altruism
- Recognize and appropriately respond to ethical issues such as consent, advanced directives, confidentiality, end-of-life care and withdrawing and withholding life support
- Appropriately manage conflicts of interest
- Recognize the principles and limits of patient confidentiality
- Maintain appropriate relations with patients
Dermatology: Goals and Objectives

Preamble/Rationale:

The dermatology service covers patients with a wide variety of dermatology problems and represents one of the non-surgical specialties in which it is helpful for the plastic surgery resident to acquire an understanding and have clinical experience in the care of such patients. The treatment of skin lesions is a large part of the plastic surgeon’s practice and frequently interactions between the dermatologist and plastic surgeon occur in practice. During their rotation, the resident will develop an understanding of the anatomy, physiology, and clinical approaches to cutaneous disorders. An emphasis will be placed on cutaneous neoplasms and vascular disorders commonly encountered by the plastic surgeon including basal cell carcinoma, squamous cell carcinoma, and melanoma. Additionally, diseases of the hair-bearing scalp will be encountered. This experience will provide an excellent foundation for surgical management.

General Objectives:

Upon completion of the dermatology rotation, the junior resident is expected to acquire knowledge, clinical and technical skills and attitudes essential to the CanMEDS roles/competencies pertinent to the Dermatology Service rotation, including gender-related and ethnic perspectives.

Specific Objectives:

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

- Be familiar with the anatomy and history of the skin and wound healing
- Be familiar with the pathology of benign and malignant skin tumors
- Be familiar with the pathophysiology of hair loss

Clinical Skills

- Evaluation, diagnosis, and treatment of dermatological problems, especially cutaneous cancer and melanoma
- Recognize various types of surgical lesions and the treatment of both benign and malignant conditions
- Gain exposure to benign and malignant tumors of the soft tissue including fat, muscle and nerves
- Learn principles of Mohs Micrographic Surgery and post-operative reconstruction
❖ Gain exposure to use of laser for treatment of cutaneous lesions and disorders (vascular)
❖ Gain exposure to photodynamic therapy for the treatment of solar damaged skin

Technical Skills

❖ Perform and assist in procedures including but not limited to:
  o Chemical/freezing techniques
  o Curettage
  o Sampling for mycology and dermoscopy
  o incision/excision biopsy
  o local flap reconstruction
  o skin grafting
  o tumor excision
  o hair transplantation

COMMUNICATOR

❖ Establishes a therapeutic relationship with patients and their families
❖ Communicates effectively with patients and families, providing a thorough explanation of diagnosis, investigation and management
❖ Respects patient confidentiality, privacy, and autonomy
❖ Respects diversity and differences, including impact of gender, religion and cultural beliefs on decision-making in the treatment of various skin conditions

COLLABORATOR

❖ Participates effectively and appropriately in an inter-professional team with nurses, technicians and physicians
❖ Consults effectively with other physicians including but not limited to pathologists, plastic surgeons, oncologists, and infectious disease physicians in the care of dermatology patients with a variety of skin conditions
❖ Understands the inter-professional relationship that exists between the dermatologist and plastic surgeon
❖ Understand when it is indicated to consult a dermatologist to assist in patient care

MANAGER

❖ Employs information technology appropriate for patient care
❖ Works effectively and efficiently in outpatient clinics

HEALTH ADVOCATE

❖ Identifies opportunity for advocacy, health promotion and disease prevention with individuals to whom they care:
  o Diabetic foot ulcers
- Use of compression stocking in venous stasis ulcers
- Skin care promotion and prevention of aging through sun protection modalities

**SCHOLAR**

- Demonstrates a commitment to continuing personal education through reading subspecialty texts and journals
- Critically appraises sources of medical information specially about the treatment of cutaneous malignancies
- Educates patients and other health care professionals on the latest treatments regimens in certain dermatological conditions including rosacea, psoriasis, scars, and cutaneous malignancies.

**PROFESSIONAL**

- Maintains and understands the need for patient confidentiality
- Maintains appropriate relations with patients
- Demonstrates a commitment to delivering the highest quality of care and maintenance of competence.
- Demonstrates a strong work ethic and dependability
- Develops effective professional relationships with health care professionals.
- Duties will be discharged reliably and they will always strive for excellence.
- Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
- Accept constructive criticism with grace.
**ENT (Otolaryngology): Goals and Objectives**

**Preamble/Rationale:**

The ENT service includes a wide range of diseases of the head and neck that may be associated with a general plastic surgery practice. Conditions managed include a variety of diseases of the head and neck, including various malignancies, salivary gland tumors, benign and malignant skin conditions. The plastic surgeon is commonly asked to manage diseases or assist in reconstruction of diseases of the head and neck in practice, and exposure to the unique perspective provided by this rotation strengthens his/her knowledge, experience, and overall competence in this area. The rotation will also emphasize management of the threatened airway.

**General Objectives:**

Upon completion of the ENT rotation, the junior resident is expected to acquire knowledge, clinical and technical skills and attitudes essential to the CanMEDS roles/competencies pertinent to the ENT Service rotation, including gender-related and ethnic perspectives.

**Specific Objectives:**

During their ENT rotation, the resident will develop an understanding of the anatomy and physiology of, and clinical approaches to, head and neck disorders. An emphasis will be placed on head and neck neoplasms and trauma. They will develop an understanding of the complexity of the head and neck region.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

**MEDICAL EXPERT**

**Cognitive skills**

- Review the embryology and anatomy of the head and neck
- Review the physiology, especially as it relates to airway patency, speech, and swallowing
- Become familiar with the clinical presentation, diagnosis, and work-up of head and neck malignancies
- Understand the pathophysiological disease process and its surgical implications
- Understand the surgical procedures performed, including principles, anatomy, and technical consideration as well as the decision making process
- Understand the principles of tumor surgery and adjuvant therapies
- Be exposed to pertinent infections of the head and neck including sinusitis
Develop an understanding of the operative and non-operative treatment of these conditions and the suitability of reconstruction in these patients. Post-operative care and prognosis will be emphasized.

Gain an increased knowledge of facial anatomy and head and neck conditions including nasal fractures, septal deviations, nasopharyngeal hemorrhage and the management of foreign bodies and allergic/vasomotor rhinitis

**Clinical skills**

- Be able to perform a focused head and neck history and examination
- Use available information, in combination with the interpretation of basic laboratory and radiographic data, to develop a plan for the preoperative preparation of the patient and discuss this with the senior resident/attending.
- Perform an examination of the cervical lymph nodes

**Technical Skills**

- Be exposed to, and participate in, multiple surgical procedures, including:
  - Direct and indirect laryngoscopy
  - Nasendoscopy
  - Tracheotomy
  - Cannulation and repair of the parotid duct
  - Dissection of the extra-temporal facial nerve
  - Ablative surgery of the head and neck
  - Septoplasty/Turbinectomy
  - Rhinoplasty

**COMMUNICATOR**

- Perform history and physical examinations, and share information with the senior resident and/or attending
- Develops the ability to establish therapeutic relationships with patients and their families
- Provides patients, families, colleagues and other professionals accurate information about diagnosis, treatment, and prognosis of head and neck malignancies
- Establishes a good relationship with peers and other professionals concerning the care of the head and neck patient
- Conveys effective oral and written information through clear and accurate completion of consultations, progress notes and operative procedures
- Develops the ability to communicate effectively with those patients unable to speak due to tracheostomy or other speech disturbances.
- Develops the ability to deliver “bad news” when communicating to palliative patients with severely progressive head and neck cancer
COLLABORATOR

- Works harmoniously and effectively with other members of the head and neck team including nursing staff, audiologists, speech language pathologists, radiologists, pathologists, oncologists and other surgical professionals
- Consults appropriate services effectively depending on tumor type and therapeutic treatment plan
- Teach and help supervise medical students

MANAGER

- Allocates resources appropriately and considers alternative management options
- Works effectively and efficiently in outpatient clinics and during consultations
- Follows-up on delegated tasks set aside by the senior resident or attending surgeon.
- Begin to use an extensive literature data base, including periodicals and specialty surgical texts

HEALTH ADVOCATE

- Intervenes on behalf of the patient with respect to their care
- Identifies the health needs of the individual patient
- Identifies opportunity for advocacy, health promotion, and disease prevention (i.e. smoking and alcohol cessation, sun-screen promotion)

SCHOLAR

- Demonstrates a commitment to acquire knowledge of head and neck anatomy through continuing personal education
- Critically appraises the literature about treatment options and prognosis of common head and neck malignancies
- Teaches medical students about obtaining an accurate history and performing the head and neck examination

PROFESSIONAL

- Works ethically and with a sense of compassion in providing care to patients and their families
- Recognizes the sense of responsibility to provide the highest quality of care in a moral and ethical fashion
- Seeks advice when necessary, understanding their own limitations in knowledge and surgical skill.
General Surgery (GOLD): Goals and Objectives

Preamble:

The Trauma Acute Care Surgery (Gold) Service is designated to provide the organization necessary to deliver immediate care to the acutely ill and injured patients. This rotation is intended to provide General Surgery residents with the opportunity for concentrated exposure to major trauma and acute general surgery cases beginning with presentation in the emergency department. The rotation emphasizes clinical assessment, physiologic stabilization, diagnostic evaluation and prioritized management along a continuum of care beginning in the emergency department and culminating in hospital discharge and early follow-up.

General Objectives:

Upon completion of the Trauma Acute Care Surgery (Gold) rotation, the Surgical Foundations resident is expected to acquire the knowledge (cognitive), clinical and technical skills (psychomotor) and attitudes (affective) essential to the CanMEDS roles/competencies pertinent to the Trauma Acute Care Surgery Service rotation, including gender-related and ethnic perspectives. This Service challenges the resident to prioritize continually and to coordinate effectively as part of multidisciplinary team acting under the guidance and supervision of the senior resident and attending surgeon.

Specific Objectives:

At the completion of the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical Foundations resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Establish and maintain clinical knowledge, skills and attitudes appropriate to the Trauma Acute Care Surgery rotation

- Apply knowledge of the clinical, socio-behavioural and fundamental biomedical sciences relevant to the Trauma Acute Care Surgery rotation

The resident in Surgical Foundations is required to attain sufficient knowledge as follows:

Trauma

- Biomechanics of injury
- Principles of triage
- Appropriate measures for the disposition and safe transport of the trauma patient
- Initial evaluation of the trauma patient, including:
  - Airway management with cervical spine protection, including:
  - Orotracheal and nasotracheal intubation
  - Cricothyroidotomy for airway obstruction
  - Tracheostomy for airway obstruction
- Breathing and ventilation, including principles of management of life-threatening chest injuries
Principles of circulatory assessment and management, including:

- Recognition, evaluation and management of the common causes of hypoperfusion and shock (hypovolemic/hemorrhagic, septic, neurogenic and cardiogenic) in the trauma patient
- Hemorrhage control
- Principles of vascular/intravenous access
- Principles of fluid resuscitation and use of blood components
- Types, etiology and prevention of coagulopathies typically found in patients with massive hemorrhage

Principles of neurologic assessment, including:

- Glasgow Coma Scale
- Causes of altered mental status in the trauma patient

Principles and conduct of the secondary survey in the trauma patient

Principles and methods of monitoring the trauma patient

Indications for and basic interpretation of diagnostic imaging and other diagnostic studies in the trauma patient, including:

- Plain x-rays
- Contrast x-ray studies
- Ultrasound (FAST/echo)
- CT
- Angiography
- Diagnostic peritoneal lavage (DPL)

Indications for consultation of other surgical disciplines in the management of the trauma patient

Indications for and principles of preparation for immediate/early surgical intervention in the trauma patient

Principles of assessment and management of specific injuries, including:

Head trauma, including:

- Glasgow Coma Scale
- Subdural hematoma
- Extradural hematoma
- Diffuse axonal injury
- Basilar skull fractures/CSF leaks

Spine and spinal cord trauma, including:

- Mechanism of injury
- Level of injury
- Use of steroids
Principles of immobilization
Management of spinal shock

Neck trauma, including:
- Assessment of penetrating injuries to the neck with reference to division into Zones I, II and III and indications for surgical exploration
- Clinical manifestations and principles of management of injuries to neck structures, including:
  - Great vessels
  - Trachea and larynx
  - Pharynx and esophagus
  - Skin and soft tissues

Maxillofacial trauma
Ocular trauma
Thoracic trauma, including:
- Tension pneumothorax
- Open pneumothorax
- Flail chest
- Massive hemothorax/hemothorax, including:
  - Technique of chest tube insertion
  - Indications for thoracotomy
- Cardiac tamponade secondary to penetrating injury, including:
  - Pericardiocentesis
  - Indications for emergency room thoracotomy

Simple pneumothorax
Pulmonary contusion
Tracheobronchial disruption
Blunt cardiac injury
Traumatic aortic disruption
Traumatic diaphragmatic injury
Esophageal trauma
Mediastinal traversing injuries
Abdominal trauma (blunt/penetrating), including:
- Gastric trauma
- Duodenal trauma
- Pancreatic trauma
- Small intestinal trauma
- Colonic/rectal trauma
Liver/biliary tract/gallbladder trauma
Splenic trauma, including:
- Operative versus non-operative management
- Complications, including overwhelming post splenectomy infection
Urinary tract/penetrating flank trauma, including:
- Renal injury
- Ureteral injury
- Intraperitoneal/extraperitoneal bladder injury and associated pelvic fractures
- Urethral trauma and associated pelvic fractures

- Abdominal vascular trauma
- Principles and technique of damage control surgery in the trauma patient with devastating injuries
- Abdominal compartment syndrome, including:
  - Clinical presentation/physiologic consequences
  - Principles of assessment/monitoring
  - Principles of management
- Emergent care of musculoskeletal and soft tissue trauma, including:
  - Major extremity trauma, including:
    - Open versus closed fractures
    - Prevention/assessment/management of compartment syndromes
    - Concepts of immobilization (splinting/internal fixation)
    - Hemorrhage control
    - Commonly associated vascular injury
    - Associated nerve injury
  - Pelvic fractures, including:
    - Associated urinary tract injury
    - Associated vascular injury/hemorrhage control
- Indications for and principles of antibiotic usage in the trauma patient
- Tetanus prophylaxis in the trauma patient
- DVT prophylaxis in the trauma patient
- Management of myoglobinuria in the trauma patient

**Acute Surgical Problems**

- Principles of early assessment and investigation in the acute abdomen, including:
  - Conditions associated with abdominal pain, including:
    - Acute appendicitis
    - Cholecystitis/biliary colic/choledocholithiasis/cholangitis
    - Pancreatitis
    - Peptic ulcer disease (with or without perforation)
    - Gastroesophageal reflux
    - Gastritis/duodenitis
    - Diverticulitis
    - Inflammatory bowel disease
    - Enterocolitis
- Small intestinal obstruction
- Colonic obstruction
- Splenomegaly
- Mesenteric ischemia
- Leaking/ruptured abdominal aortic aneurysm

- **Gynecologic conditions, including:**
  - Ectopic pregnancy
  - Ovarian cyst (torsion; hemorrhage; rupture)
  - Tubo-ovarian abscess
  - Salpingitis
  - Endometritis

- **Genito-urinary conditions, including:**
  - Urosepsis
  - Pyelonephritis
  - Ureterolithiasis
  - Testicular torsion

- **Common non-surgical conditions that can present with abdominal pain, including:**
  - Myocardial infarction
  - Pneumonia
  - Pleuritis
  - Hepatitis
  - Gastroenteritis
  - Mesenteric adenitis
  - Sickle cell crisis
  - Diabetic ketoacidosis
  - Herpes zoster
  - Nerve root compression
  - Myofascial syndrome

- **Conditions causing abdominal pain in the immune-suppressed patient including:**
  - Neutropenicenterocolitis
  - CMV enterocolitis
  - Acute graft rejection

- **Investigations, including:**
  - Blood tests
  - Diagnostic imaging
  - Endoscopy/laparoscopy
    - Early management of patients with acute abdominal pain, including:
      - Operative versus nonoperative approach

- **Presentation, pathophysiology, principles of assessment, diagnostic strategy, specific management, complications of disease and intervention and expected outcomes of common surgical emergencies, including:**
  - Perforations of the upper gastrointestinal tract, including:
    - Esophageal perforation
    - Perforated peptic ulcer
    - Perforated gastric lesions

- **Gastrointestinal hemorrhage, including:**
  - Acute non-variceal upper gastrointestinal bleeding
  - Acute variceal upper gastrointestinal bleeding
- Hematobilia
- Aorto-enteric fistula
- Acute lower gastrointestinal bleeding

- Pancreaticobiliary emergencies, including:
  - Biliary colic/acute cholecystitis/acalculous cholecystitis
  - The acutely jaundiced patient
  - Choledocholithiasis/acute cholangitis
  - Acute pancreatitis

- Hepatic emergencies, including:
  - Abscess
  - Infected cyst

- Small intestinal emergencies, including:
  - Obstruction
  - Mesenteric ischemia
  - Inflammatory conditions, including:
    - Crohn’s disease
    - Radiation enteritis
  - Meckel’s diverticulum
  - Bleeding

- Acute appendicitis/perforation/phlegmon

- Colorectal emergencies, including:
  - Colonic obstruction
  - Intestinal pseudo-obstruction
  - Acute colorectal bleeding
  - Colonic perforation
  - Volvulus, including:
    - Cecal volvulus
    - Sigmoid volvulus
  - Acute diverticulitis
  - Emergencies related to colorectal malignancy
  - Emergencies related to inflammatory bowel disease, including:
    - Ulcerative colitis
    - Crohn’s disease
  - Emergencies related to pseudomembranous colitis
  - Ischemic colitis

- Anorectal emergencies, including:
  - Ischiorectal/perianal abscess
  - Acute anal fissure
  - Acute hemorrhoid emergencies, including:
    - Thrombosis
    - Prolapse/gangrene
    - Bleeding
  - Pilonidal abscess
  - Foreign body
  - Fulminating sepsis/fasciitis/myonecrosis

- Acute conditions related to hernias of the abdominal wall, groin (inguinal/femoral) and obturator foramen, including:
  - Incarceration
Strangulation
Obstruction

Soft tissue infection, including:
- Cellulitis
- Abscess

Fulminating sepsis, including:
- Fasciitis
- Myonecrosis
- Fournier’s gangrene

With respect to the above outline of cognitive objectives:
Surgical Foundations resident will be able to outline the initial management of the listed conditions

- **Perform a complete and appropriate assessment of the trauma/acute care patient**
  - Elicit a history that is relevant, concise and accurate and in the case of the trauma patient includes assessment of mechanism of injury
  - Perform a focused physical examination that is relevant and accurate and in the case of the trauma patient includes initial assessment (primary/secondary survey)
  - Select medically appropriate investigations in a resource-effective and ethical manner
  - Demonstrate effective clinical problem solving and judgment to address the trauma and acute care problems, including interpreting available data and integrating information to generate differential diagnoses and management plans

- **Use preventive and therapeutic interventions effectively**
  - Implement an effective and prioritized management plan for the trauma/acute care patient, including appropriate and expeditious patient disposition
  - Triage and organize care of multiple casualty victims simultaneously
  - Demonstrate effective, appropriate and timely application of therapeutic interventions relevant to the Trauma Acute Care Surgery (Gold) Service rotation, including a thorough and expeditious trauma resuscitation as per ATLS guidelines
  - Ensure appropriate informed consent is obtained for therapies

The Surgical Foundations resident will be able to:

- Perform many of the above clinical skills
- Initiate well thought-out and appropriate management strategies; will require corroboration or modification by a more senior individual

Having completed the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical
Foundations resident will be able to demonstrate technical competence for the following procedures:

- **Initial Assessment and Resuscitation Procedures**
  - Arterial puncture
  - Venipuncture
  - Urinary catheter insertion
  - Nasogastric/orogastric tube insertion
  - Suture of laceration

- **Advanced Airway Management**
  - Cricthyroidotomy (assist)
  - Tracheostomy (assist)

- **Thoracic Trauma**
  - Needle decompression for tension pneumothorax
  - Chest tube insertion for chest trauma

- Seek appropriate consultation from other health professionals
  - Demonstrate insight into his/her own limitations of expertise by self-assessment
  - Demonstrate effective, appropriate and timely consultation of another health professional as needed for optimal care of the trauma/acute care surgical patient
  - Arrange appropriate follow-up care services for the trauma/acute care surgical patient

**COMMUNICATOR**

At the completion of the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical Foundations resident will be able to:

- Develop rapport, trust and ethical therapeutic relationships with patients and families
- Establish positive therapeutic relationships with patients and their families that are characterized by understanding, trust, respect, honesty and empathy
- Respect patient confidentiality, privacy and autonomy
- Listen effectively
- Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals
- Seek out and synthesize relevant information from other sources such as the trauma/acute care surgical patient’s family, caregivers and other professionals
- Accurately convey relevant information and explanations to patients and families, colleagues and other professionals
- Deliver information to the trauma/acute care surgical patient and family, colleagues and other professionals in a humane and understandable manner
- Convey effective oral and written information
Maintain clear, accurate, appropriate and timely records of clinical encounters and operative procedures involving the trauma/acute care surgical patients
Maintain an accurate, complete and up-to-date electronic database (log) of operative procedures performed during the Trauma Acute Care Surgery (Gold) Service rotation
Effectively present verbal reports of clinical encounters and medical information during the Trauma Acute Care Surgery (Gold) Service rotation

COLLABORATOR

At the completion of the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical Foundations resident will be able to:

- Participate effectively and appropriately in an interprofessional healthcare team
- Recognize and respect the diversity of roles, responsibilities and competences of other professionals in the management of the trauma/acute care surgical patient
- Work with others to assess, plan, provide and integrate care of the trauma/acute care surgical patient

MANAGER

At the completion of the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical Foundations resident will be able to:

- Manage his/her professional and personal activities effectively
- Set priorities and manage time to balance professional responsibilities, outside activities and personal life
- Employ information technology effectively (e.g. electronic surgical procedure database)
- Demonstrate an understanding of cost-effectiveness in patient management
- Utilize hospital resources wisely when managing trauma/acute care surgical patients
- Serve in leadership roles, as appropriate
- Participate effectively at teaching rounds and other meetings

HEALTH ADVOCATE

At the completion of the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical Foundations resident will be able to:

- Respond to the needs of the trauma/acute care surgical patient
- Identify the health needs of an individual patient
- Identify opportunities for advocacy, health promotion and disease prevention (e.g. promotion of seat belt and helmet usage/trauma prevention)

SCHOLAR

At the completion of the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical Foundations resident will be able to:

- Maintain and enhance professional activities through ongoing learning
- Pose an appropriate learning question
- Access and interpret the relevant evidence
Integrate new learning into development as a general surgeon
Critically evaluate medical information and its sources and apply this appropriately to clinical decisions
Critically appraise the trauma/acute care evidence in order to address a clinical question
Integrate critical appraisal conclusions into clinical care
Facilitate the learning of students and residents
Demonstrate an effective presentation while assigned to the Trauma Acute Care Surgery (Gold) Service
Provide effective feedback to faculty, residents and students

PROFESSIONAL

At the completion of the Trauma Acute Care Surgery (Gold) Service rotation, the Surgical Foundations resident will be able to:
- Demonstrate a commitment to patients through ethical practice
- Exhibit appropriate professional behaviours, including honesty, integrity, commitment, compassion, respect and altruism
- Appropriately manage conflicts of interest
- Recognize the principles and limits of patient confidentiality
- Maintain appropriate relations with patients
- Demonstrate a commitment to physician health
- Balance personal and professional priorities
- Strive to heighten personal and professional awareness and insight
Ophthalmology: Goals and Objectives

Rationale/Preamble:
Ophthalmology is centered around the study of the eye, its adnexal structures, and bony framework along with the disease processes that affect them. Understanding of these processes and their management is of benefit to the plastic surgeon as the plastic surgeon is often asked to evaluate the globe and manage orbital fractures and aesthetic conditions of the ocular system.

General Objectives:
Upon completion of this rotation, the plastic surgery residents should achieve cognitive, clinical, and technical skills to diagnose and manage common neurosurgery emergencies. The resident should further obtain skills and attitudes necessary to attain the CanMEDS competencies pertinent to care of the cancer patient, including gender and age-related, cultural and ethnic perspectives.

Specific Objectives:
Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills
- Achieve detailed knowledge of the anatomy, physiology, embryology of the eye and periocular structures, and will apply this knowledge to the medical management of disorders and processes in this anatomic area.
- Explain the general principles of embryology of the eye and congenital anomalies.
- Describe the surgical spaces of the orbit and the indications and techniques for orbital decompression
- Demonstrate a working knowledge of the standard postoperative care of the ophthalmologic patient.
- Discuss the potential complications of ophthalmologic surgery.
- Demonstrate familiarity with the mechanisms of traumatic ocular injuries, understand the diagnostic techniques and therapeutic options for such problems
- Describe the priorities involved in treating patients with ocular injuries
- Describe the mechanical and structural properties of the orbital skeleton as they relate to fracture patterns in facial trauma.
- Discuss the advantages and disadvantages of various techniques of treatment of orbital fractures including: non-operative treatment, open reductions with and without fixation, bone grafting.
- Describe the treatment of orbital fractures complications including: secondary deformities, infections and osteomyelitis, enophthalmus, diplopia
- Describe the neuroanatomy, cranial nerve anatomy and soft tissue anatomy pertinent to orbital fractures.
- Obtain knowledge of benign and malignant tumors of the eye and periorbita, understand the biologic basis of treatment options for these lesions, and perform complete management of such lesions including diagnosis, surgery and nonsurgical therapy.
Recognize the clinical presentation of squamous and basal cell carcinoma of the eyelids/periorbita.

Know the lymphatic drainage pattern of the periorbital structures and the relationship to the management of malignant tumors.

Know the methods for diagnosis and the options for treatment of Squamous and basal cell carcinomas of the periorbita.

Describe the general principles and techniques of adjuvant therapy such as radiation therapy and chemotherapy for ocular malignancies.

Describe the anatomy, indications, techniques and complications associated with removal of the eye (e.g. evisceration, enucleation, and exenteration).

Clinical Skills

Perform a complete ocular history and focused physical examination of the eye including:
  - Fluorescein test for foreign bodies
  - Schirmers test I/II
  - Fundoscopic examination
  - Snellen eye chart examination

Perform complete management of traumatic injuries of the eyes/periorbita

Discuss the principles of care and the surgical steps in the treatment of the following:
  - Blepharoptosis
  - Enophthalmos
  - Ectropion/Entropion
  - Lower lid laxity/sclera show
  - Paralysis of eyelid

Technical Skills

Assist and perform common occuloplastic procedures including:
  - Simple eyelid laceration repair
  - Eyelid reconstruction from trauma, or tumor resection
  - Canthopexy/Canthoplasty
  - Cannulation and repair of the lacrimal system/DCR
  - Local flap reconstructions of the lower eyelid
  - Grafts (cartilage, mucosa, skin) of the lower eyelid

Communicator

Establishes a therapeutic relationship with patients and communicating well with families that are characterized by understanding, trust respect, honesty, and empathy

Respects patient confidentiality, privacy, and autonomy

Be aware and responsive to nonverbal cues especially in those patients undergoing procedures of the head and neck who may be unable to communicate verbally

Communicates effectively with families, patients, peers and health care team members involved in the care of the ocular surgery patient
• Conveys effective oral and written information about a medical encounter and provides clear management plans
• Working understanding of diagnosis and treatment of basic diseases of the eye such that he or she can explain the nature of the problem to the patient and address the treatment options and long term outcome.

**Collaborator**
• Works well in the ophthalmologists’ team environment, established harmonious relationships with physicians, nursing staff, technicians, optometrists
• Consults effectively with other physicians and health care professionals

**Manager**
• Uses available resources effectively and considers alternative management options
• Orders invasive and non-invasive tests appropriately
• Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, and in outpatient clinic
• Attentive to details, following up on delegated tasks

**Health Advocate**
• Intervenes on behalf of patients with respect to their care
• Identifies opportunities for health promotion and disease prevention:
  o appropriate eye glass wear and protective eye wear
  o Glaucoma screening
  o Ectropion prevention
• Identifies the determinants of health of the populations, including barriers to access to care and resources

**Scholar**
• Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
• Critically appraises sources of medical information and uses evidence in clinical decision-making
• Teaches medical students and other junior residents
• Participates in the education of patients and other health care professionals including the presentation of cases on rounds

**Professional**
• Delivers the highest quality of care with integrity and honesty
• Demonstrates compassion in proving care to patients and their families
• Demonstrates a strong worth ethic and dependability
• Identify strengths, deficiencies, and limits in one’s knowledge and expertise in regards to the eye.
Oral Surgery (OMFS): Goals and Objectives

Preamble/Rationale:

The OMFS service covers patients with a wide variety of oral maxillofacial problems, and represents one of the surgical specialties in which it is helpful for the plastic surgery resident to acquire an understanding and have clinical experience in the preoperative, operative, and postoperative care of such patients. The practice of oral surgery is complementary to plastic surgery in the head and neck region. A rotation on oral surgery will give the residents a better understanding of occlusions, temperomandibular joint disorders, and the management of problems that are inherent to both specialties including facial fractures and oral lesions.

General Objectives:

Upon completion of the rotation, the junior resident will become familiar with the etiology and medical and surgical treatments of common diseases of the oral cavity and facial skeleton. They are expected to acquire knowledge, clinical and technical skills and attitudes essential to the CanMEDS roles/competencies pertinent to the Dermatology Service rotation, including gender-related and ethnic perspectives.

Specific Objectives:

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive skills:

- Understand the embryology and anatomy of the oral cavity and jaws
- Perform and appropriate history and physical of a patient presenting with common oral/dental surgery condition
- Learn pre- and post-operative management of patients with jaw and maxillary problems including but not limited to:
  - Dentsoskeletal dysplasia
  - Orofacial Pain
  - Dental and Osseous Tumors
  - Cleft Lip and Palate
  - Dental Extraction complications
  - Facial Fractures
- Understand the importance of occlusion in the management of patients with facial fractures
- Learn evaluation, diagnosis, and management of oral surgical lesions and facial trauma
- Learn basis of cephalometric analysis
Learn temporal mandibular joint pathology and pathophysiology of temperomandibular joint disorders

Technical Skills:

- Perform or assist in oral surgical operative procedures including:
  - Application of intra-oral anesthetic blocks
  - Intra-oral wound closure
  - Application of arch bars and interdental fixation/tension band
  - Wisdom teeth extraction
  - Facial fracture plating
  - Osteotomies
  - Harvesting of bone grafts

COMMUNICATOR

- Demonstrate the ability to establish a therapeutic relationship with the patient and family.
- Obtain and share pertinent information with the patient and the health care team.
- Obtains thorough and relevant medical history
- Communication with patients and families (consider age, gender, ethnic cultural socio-economic background.
- Communication with members of the health care team including dental hygienists, dentists, and operating room staff.
- Communication with other specialty physicians involved in the care of the facial trauma patients including neurosurgery, plastic surgery, intensive care physicians, trauma surgeons, and radiologists
- Establishes a therapeutic relationship with patients and communicating well with families that are characterized by understanding, trust respect, honesty, and empathy
- Respects patient confidentiality, privacy, and autonomy
- Be aware and responsive to nonverbal cues especially in those patients undergoing procedures of the oral cavity who may be unable to communicate verbally due to placement of intra-oral devices
- Communicates effectively with families, patients, peers and health care team members involved in the care of the oral surgery patient
- Conveys effective oral and written information about a medical encounter and provides clear management plans

COLLABORATOR

- Demonstrate the ability to work effectively in a team environment, by contributing to interdisciplinary patient care activities and by consulting effectively with other physicians.
- Works well in the oral surgery team environment, established harmonious relationships with physicians, nursing staff, dental hygienists, technicians, and dentists
- Consults effectively with other physicians and health care professionals
MANAGER

- Utilizes health care resources effectively to balance patient care, learning needs and outside activities.
- Able to utilize information technology to optimize patient care and life-long learning.
- Uses available resources effectively and considers alternative management options.
- Orders tests appropriately to determine extent of disease process or trauma (CT scan, panorex, dental views).
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, dental clinic, and on the ward.
- Attentive to details, following up on delegated tasks.

HEALTH ADVOCATE

- Identify the important determinants of health affecting patients.
- Recognize and respond to those patient care issues where patient advocacy is appropriate.
- Intervenes on behalf of patients with respect to their care.
- Identifies opportunities for health promotion and disease prevention:
  - Oral hygiene and proper brushing technique
  - Smoking cessation
- Identifies the determinants of health of the populations, including barriers to access care and resources.

SCHOLAR

- Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles.
- Critically appraises sources of medical information and uses evidence in clinical decision-making especially in management of TMJ disorders.
- Teaches medical students and other junior residents.
- Participates in the education of patients and other health care professionals including the presentation of cases on rounds.
- Delivers the highest quality of care with integrity and honesty.
- Demonstrates compassion in proving care to patients and their families.
- Demonstrates a strong worth ethic and dependability.
- Develops effective professional relationships with health care professionals in oral surgery including dentists, hygienists and technicians.
- The resident’s duties will be discharged reliably and they will always strive for excellence.
- The resident will understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
- The resident will accept constructive criticism with grace.
- The resident will present themselves in a professional manner with respect to conduct, appearance, demeanor and language.
Orthopedics (Hand and Trauma): Goals and Objectives

Rationale/Preamble:

The orthopedic service is responsible for the care of patients with a wide range of orthopedic disease. Plastic surgeons are frequently called upon to treat patients with orthopedic problems with regards to reconstruction. Furthermore many areas of orthopedics overlap with knowledge and skills required by the plastic surgeon including hand surgery, fracture management, osteomyelitis management, and management of the trauma patient.

General Objectives:

Upon completion of the rotation, the junior resident will become familiar with the etiology and medical and surgical treatments of common diseases of the oral cavity and facial skeleton. They are expected to acquire knowledge, clinical and technical skills and attitudes essential to the CanMEDS roles/competencies pertinent to the Dermatology Service rotation, including gender-related and ethnic perspectives.

Specific Objectives:

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

- Understand the anatomy and physiology of the musculo-skeletal systems, especially the upper limb, hand and lower limb.
- Aware of the embryological development of the hands and biomechanics of limb functions.
- Learn the principles and techniques of casting.
- Become familiar with bone substitutes and their composition.
- Develop an understanding of the interrelationships between the soft tissue and bony injuries, and become familiar with the various fixation methods used in fracture management.
- Develop and understanding of the pathophysiology of the amputee, especially the functional relationship to levels of amputation.
- Discuss the basic science component of fracture and soft-tissue injury and healing.
- Discuss the concepts of internal fixation and its influences on fracture healing.
- List the classification and terminology of open and closed fractures.
- Discuss the acute management of open and closed fractures.
- Know the criteria for the diagnosis of compartment syndrome.
- Discuss the soft tissue management in open fractures.
- Discuss the diagnosis and management of malunions, nonunions, and osteomyelitis.
Clinical Skills

- Be able to obtain a focused history and physical examination related to fractures, nerve, and tendon injuries.
- Be able to obtain a focused history and perform a physical examination of the orthopedic trauma patient.
- Know how to triage and involved other services in a polytrauma patient.
- Become familiar with investigational procedures, and be able to interpret x-ray findings of the upper extremity, pelvis, and lower extremity.

Technical Skills

- Participate with graduated surgical independence in the:
  - Application of casts and splints
  - Open reduction and internal fixation of fractures
  - Procurement of bone from the iliac crest or distal radius.
- Participate in the care of acute hand and wrist injuries including:
  - Scaphoid fractures
  - Distal radius fractures
  - Wrist dislocations
  - Tendonopathies
  - Nerve compression
- Participate in the care of elective hand/wrist disorders such as:
  - Ligament instabilities
  - Arthritis
  - Nerve compressions
  - Tendon ruptures
- Perform and participate the following procedures of the lower extremity:
  - Amputation (various levels)
  - Plating of fractures
  - Achilles tendon repair
  - Foot tendon repairs

COMMUNICATOR

- Establishes a therapeutic relationship with patients and communicating well with families that are characterized by understanding, trust, respect, honesty, and empathy.
- Respects patient confidentiality, privacy, and autonomy.
- Be aware and responsive to nonverbal cues especially in those patients undergoing procedures of the spine.
- Communicates effectively with families, patients, peers and health care team members involved in the care of the orthopedic surgery patient.
- Conveys effective oral and written information about a medical encounter and provides clear management plans.
- Educates patients and their families in post-operative and rehabilitative strategies.
- Demonstrates compassion for patients and families afflicted with trauma.
- Provides adequate counseling and informed consent to patients.
COLLABORATOR

- Coordinates all aspects of the rehabilitation of the orthopedic surgery patient.
- Directs the rehabilitation of orthopedic surgery patients by partnering with the following:
  - Physical Therapy
  - Occupational Therapy
  - PRM Physicians
  - Social workers
  - Nutritionists
- Works with paramedical professionals in the pre-hospital care of trauma patients.

MANAGER

- Uses available resources effectively and considers alternative management options
- Orders tests appropriately understanding the risks of radiation to the patient
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, clinic, and on the ward
- Attentive to details, following up on delegated tasks
- Facilitates the timely discharge of orthopedic surgery patients.

HEALTH ADVOCATE

- Intervenes on behalf of patients with respect to their care
- Identifies opportunities for health promotion and disease prevention:
  - Bicycle helmet/protective equipment
  - Seat belt use
  - Diabetic foot care/prevention
  - DVT prophylaxis in the immobile patient
- Identifies the determinants of health of the populations, including barriers to access care and resources

SCHOLAR

- Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
- Critically appraises sources of medical information and uses evidence in clinical decision-making especially in the elder patient
- Teaches medical students and other junior residents
- Participates in the education of patients and other health care professionals including the presentation of cases on rounds

PROFESSIONAL

- Delivers the highest quality of care with integrity and honesty
- Demonstrates compassion in proving care to patients and their families
✓ Is respectful to hand patients and their families especially in times of trauma and stress to the family unit.
✓ Understand the impact of hand injuries on employment
✓ Demonstrates a strong worth ethic and dependability
✓ Develops effective professional relationships with health care professionals in orthopedic surgery including wound care nurses, rehabilitation specialist, therapists, and other surgeons
✓ Duties will be discharged reliably and they will always strive for excellence.
✓ Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
✓ Accept constructive criticism with grace.
✓ Present themselves in a professional manner with respect to conduct, appearance, demeanor and language.
Pediatric General Surgery: Goals and Objectives

Preamble/Rationale:

The pediatric surgery rotation is involved in the management of pediatric patients cared for by the Pediatric General surgery service at Children’s Hospital. Competence in care of pediatric patients is essential for a plastic surgeon who may be faced with either the emergent or elective care of such pediatric patients. The residents will rotate on the pediatric general surgery service at Children’s Hospital and be exposed to the full gamut of pediatric surgical practice from neonates through to adolescents. They will become involved in the initial evaluation, operative management, and post-operative management of the pediatric patient. Depending on the practice setting, it may be important to the plastic surgeon whom will be treating a wide variety of pediatric plastic surgery problems.

General Objectives:

Upon completion of this rotation, the plastic surgery residents should achieve cognitive, clinical, and technical skills to diagnose and manage common pediatric general surgery conditions. The resident should further obtain skills and attitudes necessary to attain the CanMEDS competencies pertinent to care of the cancer patient, including gender and age-related, cultural and ethnic perspectives.

Specific Objectives:

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

- Study the physiology of the pediatric patient, especially the way in which they differ from the adult patient in terms of fluid, electrolyte, and nutritional requirements.
- Develop an understanding of congenital anomalies and their possible systemic health issues
- Develop the knowledge of routine evaluation management of pediatric patients under traumatic and elective conditions

Clinical Skills

- Perform complete histories and physical examinations of the pediatric patient
- Interpret pediatric xrays and CT scans of the chest, abdomen, and limbs
- Develop facility in starting IV access and maintaining nutritional support in these patients
- Learn an approach to pediatric patients with regards to:
  - Polytrauma
  - Fluid and Electrolyte management
  - Medication dosing
  - Use of blood products
  - Common pediatric surgical emergencies
Assessment of the acute abdomen

Technical Skills

- Perform procedures in the operating room consistent with their level of training including:
  - Central line placement
  - Saphenous vein-cut downs
  - Wound closure
  - Excision of simple soft tissue/cutaneous masses
  - Appendectomy
- Become familiar with laparoscopic instrumentation

COMMUNICATOR

- Demonstrate the ability to establish a therapeutic relationship with the child and their family. This includes the ability to obtain and share pertinent information from the patients family and the health care team.
- Obtain thorough and relevant medical history from the patient and family.
- Communication with patients and families considering age, gender, ethnic cultural socio-economic background.
- Communication with members of the health care team including social work, child and family services, and pediatricians.
- Communication with other specialty physicians involved in the care of the pediatric patient.
- Establishes a therapeutic relationship with patients and communicate well with families that are characterized by understanding, trust respect, honesty, and empathy.
- Respects patient confidentiality, privacy, and autonomy.
- Be aware and responsive to nonverbal cues especially in those patients young and unable to communicate verbally (infants).
- Communicates effectively with families, patients, peers and health care team members involved in the care of the patient.
- Conveys effective oral and written information about a medical encounter and provides clear management plans.

COLLABORATOR

- Demonstrate the ability to work effectively in a team environment, by contributing to interdisciplinary patient care activities and by consulting effectively with other physicians.
- Works well in the pediatric surgery team environment, established harmonious relationships with physicians, nursing staff, and nutritionists.
- Consults effectively with other physicians and health care professionals.
**MANAGER**

- Utilize health care resources effectively to balance patient care, learning needs and outside activities.
- The resident will be able to utilize information technology to optimize patient care and life-long learning.
- Uses available resources effectively and considers alternative management options.
- Orders tests appropriately to determine extent of disease process or trauma taking into consideration radiation exposure in the infant or young patient.
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, outpatient clinic, and on the ward.
- Attentive to details, following up on delegated tasks.

**HEALTHADVOCATE**

- The resident will identify the important determinants of health affecting patients.
- The resident will recognize and respond to those patient care issues where patient advocacy is appropriate.
- Intervenes on behalf of patients with respect to their care.
- Identifies opportunities for health promotion and disease prevention:
  - Immunizations
  - Hygiene
- Identify the determinants of health of the populations, including barriers to access care and resources.

**SCHOLAR**

- Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles.
- Critically appraises sources of medical information and uses evidence in clinical decision-making especially in management of congenital anomalies.
- Teaches medical students and other junior residents.
- Participates in the education of child’s family and other health care professionals including the presentation of cases on rounds.
- Delivers the highest quality of care with integrity and honesty.
- Demonstrates compassion in proving care to patients and their families.
- Demonstrates a strong work ethic and dependability.
- Develops effective professional relationships with health care professionals.
- The resident’s duties will be discharged reliably and they will always strive for excellence.
- The resident will understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
- The resident will accept constructive criticism with grace.
- The resident will present themselves in a professional manner with respect to conduct, appearance, demeanor and language.
Plastic Surgery Trauma: Goals and Objectives
(Upper Extremity Trauma/Burns/Craniofacial Surgery)

General Objectives:

Craniofacial
Become competent in the preoperative, operative and postoperative management of all types of head and neck trauma/craniofacial surgery. The resident will learn to appreciate the extensive team required to collaborate in order to treat complex congenital anomalies of the craniofacial region, including otolaryngology, speech pathology, nursing, neurosurgery, dentistry, oral surgery, orthodontics, genetics, psychiatry, psychology, ophthalmology, physiotherapy, audiology, occupational therapy. The resident will be proficient in the description of the anatomy, growth and development of the craniofacial skeleton and both normal and abnormal dentoskeletal relationships. The resident participates in a variety of operations, and the major focus of this rotation should be to begin to become competent in the perioperative care of patients, to begin to understand the principles of head and neck trauma, and to begin to be able to perform head and neck surgery.

Specific Objectives:

Although the residents are exposed to, and have the opportunity to learn about a variety of conditions, the major focus for the PGY3-PGY5s medical knowledge objectives should be to obtain a thorough knowledge of the mechanisms of traumatic injury of head and neck, understand diagnostic techniques and therapeutic options, and perform management of complex soft tissue and bony injuries of the head and neck.

Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY1 to 5.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

❖ The ATLS protocols will be implemented, as necessary, by the resident early in treatment of these patients
❖ Know the priorities involved in treating patients with multiple trauma, the timing and treatment of head and neck injuries, and the indications for endotracheal intubation and tracheostomy in such patients
❖ Become astute in estimating the extent of injury based on history; especially mechanism of injury and physical exam
❖ Know the indications for specific diagnostic studies, including:
  • Conventional radiography
  • Panorex films
  • Tomograms
  • Computer-assisted tomography
• Three-dimensional CT scan imaging
• Magnetic resonance imaging

❖ Become proficient in utilizing the appropriate investigations, conscious of their costs to confirm or rule out the suspicions of fractures and evaluate the exact extent and configuration of fractures
❖ Be familiar with the basic principles and available types of rigid fixation, including resorbable versus nonabsorbable plating systems
❖ Know the biomedical properties of the facial skeleton and patterns of injury associated with facial trauma, including associated cervical and cranial trauma.
❖ Understand the concepts of primary bone healing, malunion, nonunion and osteomyelitis.
❖ Understand the neuro-anatomy, cranial anatomy, and soft tissue relationships pertinent to the facial nerve.
❖ Understand the anatomy of the parotid gland and options for treatment of parotid injuries.
❖ Understand the etiology of enophthalmos, and its treatment options.
❖ Understand the anatomy of the lacrimal apparatus, and options for treatment of lacrimal injuries.

Clinical Skills

❖ Know an orderly, systematic approach to the physical examination of patients with facial trauma.
❖ Understand the management of open facial injuries, including anesthesia, local wound care, principles of debridement, and biological features which distinguish facial injuries from those in other locations.
❖ Recognize the indications for operative treatment of facial fractures.
❖ Assessment of plain films and CT scans, as necessary, will be learnt such that independent evaluation of these examinations will become reliable.
❖ Know the advantages and disadvantages of various techniques for treatment of facial fractures, including non-operative treatment, closed reduction, mandibulo-maxillary fixation, open reduction with and without fixation, wire fixation, compression and non-compression fixation, intro-oral splints, and external fixation (including halo and bi-phasic techniques).
❖ Fracture pattern descriptions and classifications will be known by the resident, along with the naming of craniofacial buttresses in order to allow the planning of surgery and the approaches necessary to rehabilitate the patient.
❖ Understand specific treatment of maxillary, mandibular, orbital, nasoethmoid, frontal, zygoma, and zygomatic arch fractures; the potential complications of such treatment (including malposition, deformity, malocclusion etc.), and the management of these complications.
❖ The options of closed versus open reduction, wire versus ridged fixation and the need for maxillomandibular fixation and early bone grafting, with the advantages and disadvantages of each will be appreciated by the resident.
❖ Be familiar with the operative incisions for the treatment of facial fractures.
❖ Know the pertinent anatomy for each approach to the craniofacial skeleton, the pitfalls and dangers of each approach and when it would be necessary for other subspecialty colleagues to be present for the necessary exposure i.e., frontal sinus, fracture treatment in conjunction with neurosurgery.
❖ Become familiar with the use of dental impressions and splints in the treatment of acute craniofacial trauma and will learn to prevent and treat postoperative complications of these patients.
Specifically, dentoskeletal pathology, enophthalmos, hypertelorism, malar retrusion and ectropion will be thoroughly assessed by history and physical examination with the ability to order appropriate tests to allow the planning of applicable osteotomies and bone grafting techniques.

Become proficient in assessment of post-traumatic craniofacial malunions and soft tissue deformity.

The bone graft harvest sites and placement techniques will form an intricate part of the resident’s treatment plan.

Know how to perform an examination of the facial nerve.

Understand techniques for the treatment of acute injuries to the facial nerve.

Manage patients postoperatively after surgical treatment of facial fractures.

Understand the universal numbering system of teeth and be familiar with primary and secondary dentition

Angle’s classification, overjet, overbite, open bite, crossbite and centric relation versus centric occlusion will be utilized to describe those patients with both normal occlusion and malocclusion patterns.

Perform cephalometric evaluation of the dentoskeletal relationships and common craniofacial landmarks as it relates to the diagnosis and treatment planning of common dentoskeletal dysplasias like mandibular micrognathism, mandibular prognathism, microgenia, macrogenia, vertical maxillary excess, vertical maxillary deficiency and cleft lip and palate dental skeletal patterns associated with maxillary retrusion and transverse maxillary deficiency.

Perform the evaluation of basic cephalometric plain x-rays and panorex films, placements of landmarks and appropriate tracings and execution of the surgery on paper.

Understand distraction osteogenesis and the concept of a latency and consolidation phase and how this process would compare with osteotomies coupled with ridge fixation and bone grafting.

**Technical Skills**

Perform the following procedures:

- Minor and major soft tissue injury closure
- Closed and open nasal bone fracture reduction/splinting
- Gillies elevation of the zygoma
- Maxillomandibular fixation – arch bars, interdental wiring, 4 post techniques
- Tooth removal including wisdom teeth and impacted teeth
- Open reduction and internal fixation of:
  - Mandible fractures
  - Maxillary fractures
  - Zygoma fractures
  - Orbital floor fractures

Assist/Perform or be familiar with:

- Facial nerve repair and grafting
- Facial nerve transfers
- Repair of lacrimal and parotid ducts
- Frontal bone/sinus reconstruction/rehabilitation
- Pericranial flap elevation
- Harvesting of cranial bone grafts
- Approach to common facial osteotomies
- Genioplasty
- Sagittal split osteotomies of the mandible
- Le Fort I, II, and III osteotomies and techniques
- Distraction osteogenesis

**COMMUNICATOR**
- Establishes a therapeutic relationship with patients and communicates well with families that are characterized by understanding, trust, respect, honesty, and empathy
- Respects patient confidentiality, privacy, and autonomy
- Be aware and responsive to nonverbal cues in intubated patients or patients in MMF
- Communicates effectively with families, patients, peers and health care team members involved in the care of the patient
- Elicits and synthesizes information from patients and their families as well as their colleagues and conveys this information to patients and other colleagues in an understandable fashion.
- Conveys effective oral and written information about a medical encounter and provides clear management plans
- Delivers information to the patient and family in a humane manner
- Presents cases at surgical rounds
- Establish trust and rapport and ethical relationships with patients and their families when dealing

**COLLABORATOR**
- The need for collaboration in the treatment of these patients should be identified by the resident early, including Neurosurgical or Ophthalmologic support when associated organ systems appear damaged.
- Orthodontic and dental collaborative efforts in preparations for these surgeries should also be known.
- Works well in the plastic surgery team environment, establishes harmonious relationships with physicians, nursing staff, and dentists
- Consults effectively with other physicians and healthcare professionals to create plans for a multi-disciplinary approach to the care of the head and neck trauma patient
- The resident will able to work in an inter-professional team including the intraoperative team required in treating breast pathology as well as with their colleagues in other disciplines including Oral Surgery, Dentistry, ENT, and Neurosurgery.
- Be able to prevent, negotiate, and resolve inter-professional conflicts that may arise.

**MANAGER**
- Uses available resources effectively and considers alternative management options
- Orders invasive (TMJ joint injection studies) and non-invasive (MRI/CT) tests appropriately
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, emergency room, clinic, and on the ward
Attentive to details, following up on delegated tasks
Understands the difficulty in allocating rare or expensive health care resources, which include newer instrumentation, such as distraction osteogenesis equipment and resorbable plating systems.

HEALTH ADVOCATE
Intervenes on behalf of patients with respect to their care
Identifies opportunities for health promotion and disease prevention:
  - Dental hygiene
  - Appropriate seat belt use/wear
  - Helmet wear in sports
Identifies the determinants of health of the populations, including barriers to access to care and resources

SCHOLAR
Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
Maintain competency through learning from other colleagues, what is available in the literature, and through international meetings.
Critically appraises sources of medical information and uses evidence in clinical decision-making
Teaches medical students and other junior residents
Participates in the education of patients and other health care professionals including the presentation of cases on rounds
Facilitates learning and the dissemination of information to patients and their family with regards to head and neck trauma
Postoperative results should be critically evaluated, such that this can be applied in their own practice.

PROFESSIONAL
Delivers the highest quality of care with integrity and honesty
Demonstrates compassion in providing care to patients and their families
Demonstrates a strong worth ethic and dependability
Develops effective professional relationships with health care professionals in surgery including nurses, radiologists, dentists and other physicians
Duties will be discharged reliably and they will always strive for excellence
Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
Accept constructive criticism with grace.
Dresses and acts in a professional manner in all environments
The resident will commit to ethical practices in craniofacial surgery including the importance of patient confidentiality.
Plastic Surgery Research: Goals and Objectives

Preamble/Rationale:

Familiarity with conducting research is integral to the furthering of the specialty and is considered mandatory by the Section of Plastic Surgery. The research rotation will be completed by all PGY1 residents. Residents in their second year of training may opt to perform a second rotation at the discretion of the program director. The research conducted will be approved by the resident research committee after the research project request form has been completed, but at a minimum after a specific project and project supervisor have been identified.

It is an expectation that residents will have completed one manuscript (submitted to a peer-reviewed publication) by the end of their post graduate training in Plastic Surgery. Residents are also expected during the course of their residency to undertake an original project on an annual basis (PGY1-4) in either clinical or basic science research. It is mandatory that the resident submit the research to at least 2 national/international meetings during the course of their residency.

Specific Objectives:

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

SCHOLAR

- Demonstrate timely and accurate completion of the research electives proposal form.
- Completion of common CV
- Demonstrates the ability to identify an appropriate research question.
- Demonstrates the ability to complete an adequate search of the literature in a defined area.
- Demonstrates critical appraisal skills.
- Demonstrates the ability to complete a research ethics board application.
- Completes Tri council course on medical ethics and provide certification of completion.
- Demonstrates the ability to prepare and present a research proposal in a cohesive and organized fashion.
- Demonstrates a fundamental knowledge of the subject and the methodology utilized in the research project.
- Demonstrates the ability to describe and explain the results obtained and situate these results in the existing literature.
- Demonstrates the ability to write and present an abstract at a national or international meeting.
- Demonstrate the ability to participate in the preparation of a grant.
- Demonstrates a clear understanding of the structure and purpose of scientific writing.
- Demonstrates the ability to participate in the writing, revision and publication of a manuscript.
MANAGER

- Demonstrates the ability to adhere to timeline and complete a research project in the allocated time.
- Demonstrates an ability to recruit patients in a timely manner
- Submits abstracts and manuscripts for supervisor review in a timely manner

COLLABORATOR

- Demonstrates the ability to successfully seek out and participate in collaborations related to like research programs locally, nationally or internationally.
- Demonstrates the ability to collaborate with the supervisor and other members of the research team to complete the project.

PROFESSIONAL

- Receives criticism with grace

Research Project Proposal Form

Requests to complete research should be filed with the research committee members (Dr. T. Hayakawa, Dr. A. Islur, Dr. S. Logsetty, and Dr. L. Sigurdson). A 3-5 page summary should be organized into the following headings. This document is due at least four weeks in advance of the start of the research rotation and must be presented during academic half-days.

A. Name of Faculty Research Supervisor
B. Title of Project
C. Start and End Date of Research Elective
   1. Statement of problem
   2. Background
   3. Research question
   4. Methodology
   5. Expected data elements
   6. Examples of tables for data collection
   7. Timeline for completion of project
   8. Dissemination plan (where you expect this work could be presented or published)
   9. Key references, between 6 and 10
Plastic Surgery Rotations (PGY3-5)

Breast (incl. Breast Oncology) Goals and Objectives

General Objectives:

Become competent in the preoperative, operative, and postoperative management of all types of breast surgery. Major focus of this rotation should be to become competent in the perioperative care of patients, understand the principles of breast surgery, and be able to perform breast surgery.

Specific Objectives:

Although the residents are exposed to and have the opportunity to learn about a variety of conditions, the major focus for the PGY3-5’s medical knowledge objectives should be a thorough knowledge of the anatomy, physiology, and embryology of the breast and to be able to apply this information to the comprehensive management of a variety of problems in the breast.

Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY3, 4, and 5.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

- Anatomy/Physiology/Embryology
  o Demonstrate knowledge of the anatomy musculature, blood supply, lymphatic drainage and innervation of the breast.
  o Demonstrate knowledge of the glandular structure and function of the breast, and understands hormonal influence on breast development and function.
  o Recognize the differences in breast structure and function in adolescence, the reproductive years, pregnancy, lactation and menopause.
  o Understand the relationships between breast disease and breast physiology.
  o Understand the embryonic development of the breast.
  o Understand the structure and function of the male, as well as female breast.

- Congenital Disorders
  o Know normal male and female breast growth and development.
  o Understand principles and techniques of surgical treatment of common developmental breast anomalies (e.g. amastia, Poland’s syndrome etc.).

- Benign and Malignant Tumors
  o Understand the biological behavior, histology and clinical manifestations of breast malignancies.
- Is familiar with plastic surgical options for management of the opposite breast after mastectomy for carcinoma, and the principles of long-term management of patients with breast carcinoma.
- Is familiar with diagnostic techniques and treatment methods (surgical and nonsurgical) for management of premalignant disease and other pathologic processes of the breasts.
- Understand the etiology of gynecomastia and surgical options for treatment.
- Know treatment protocols (including surgery, radiation, and chemotherapy plus combinations) for management of breast carcinoma.
- The resident will understand the principles of mammography and breast ultrasound technique as well as core biopsy.
- They will understand the indications for a breast MRI.
- The resident will understand the implications that implantation of the breast has on imaging of the breast and be familiar with the Eckland views.

### Trauma and Reconstruction
- Understand the basic principles of medical and surgical management of common breast injuries.
- Knows surgical aspects of breast reconstruction, including the rationale for choice of treatment.
- Is familiar with prosthetic devices used in breast reconstruction, including implants and expanders.
- Understand the psychosocial aspects of post-mastectomy reconstruction.

### Clinical Skills
- Perform a detailed and structured history and physical exam with respect to an approach to problems of the breast in both male and female patients with congenital or acquired deformities including:
  - Hypermastia/Gigantomastia
  - Amastia/Hypomastia
  - Tuberous breast deformity
  - Gynecomastia
  - Post-mastectomy or lumpectomy
- Discuss the principles of breast reconstruction including the indications and contraindications, advantages and disadvantages of immediate versus delayed reconstruction
- Discuss the implications and effect of pre or postoperative radiotherapy.
- Be familiar with all techniques available for breast reconstruction including the TRAM flap, muscle-sparing TRAM flap, pedicle TRAM flap, DIEP flap, SIEA flap, S-GAP flap, TUG flap, latissimus dorsi implant, and implant/expander.

### Technical Skills
- Perform aesthetic and reconstructive surgery on the breast including:
- Breast lesion biopsy
- Reduction Mammoplasty
- Augmentation mammoplasty
- Mastopexy
- Breast reconstruction with tissue-expanders/implants
- Breast reconstruction with implant/dermal substitute
- Breast reconstruction with pedicled latissimus dorsi flap
- Perform or assist in microvascular breast reconstruction with free flaps:
  - DIEP/SIEA
  - TUG
  - SGAP/IGAP
- Performs reconstructive surgery after breast carcinoma, including procedures on the opposite breast and participate in long-term management of these patients.
- Perform nipple reconstruction.

COMMUNICATOR

- Establishes a therapeutic relationship with patients and communicates well with families that are characterized by understanding, trust, respect, honesty, and empathy
- Respects patient confidentiality, privacy, and autonomy
- Be aware and responsive to nonverbal cues
- Communicates effectively with families, patients, peers and health care team members involved in the care of the patient
- Elicit and synthesize information from patients and their families as well as their colleagues and convey this information to patients and other colleagues in an understandable fashion.
- Conveys effective oral and written information about a medical encounter and provides clear management plans
- Delivers information to the patient and family in a humane manner
- Presents cases at surgical rounds
- Establish trust and rapport and ethical relationships with patients and their families when dealing with all types of breast pathology.

COLLABORATOR

- Works well in the plastic surgery team environment, establishes harmonious relationships with physicians, nursing staff, and therapists
- Consults effectively with other physicians and health care professionals to create plans for a multi-disciplinary approach to the care of the breast oncology patient
- The resident will able to work in an inter-professional team including the intraoperative team required in treating breast pathology as well as with their colleagues in other disciplines including Surgical Oncology and Endocrinology.
- The resident will be able to prevent, negotiate, and resolve inter-professional conflicts that may arise.
MANAGER
- Uses available resources effectively and considers alternative management options
- Orders invasive (breast biopsy) and non-invasive (MRI/mammography) tests appropriately
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, clinic, and on the ward
- Attentive to details, following up on delegated tasks
- Uses hospital resources appropriately
- Understand the administrative and leadership roles that are required to effectively treat the patients with breast pathology
- Organize interdisciplinary communication and conferences when approaching patients with breast abnormalities.

HEALTH ADVOCATE
- Intervenes on behalf of patients with respect to their care
- Identifies opportunities for health promotion and disease prevention:
  - Breast cancer screening
  - Breast self-exams
  - Mammograms and timing of the at risk population
  - BRCA1/2 screening
- Identifies the determinants of health of the populations, including barriers to access to care and resources
- Understand the health needs of the communities including the incidents of congenital anomalies of the breast as well as breast cancer.
- Understand the determinants of health in the population including breast cancer, mammography screening, its indications
- Understand the genetic implications for breast cancer and the role of prophylactic mastectomy.

SCHOLAR
- Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
- Maintain competency through learning from other colleagues, what is available in the literature, and through international meetings.
- Critically appraises sources of medical information and uses evidence in clinical decision-making
- Teaches medical students and other junior residents
- Participates in the education of patients and other health care professionals including the presentation of cases on rounds
- Understand how to monitor outcomes with regards to breast surgery in their own practice.
- Facilitates learning and the dissemination of information to patients and their family with regards to certain breast pathology.
PROFESSIONAL

- Delivers the highest quality of care with integrity and honesty
- Demonstrates compassion in providing care to patients and their families
- Demonstrates a strong work ethic and dependability
- Develops effective professional relationships with health care professionals in surgery including nurses, oncologists, radiologists, therapists and other physicians
- Duties will be discharged reliably and they will always strive for excellence
- Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
- Accept constructive criticism with grace.
- Dresses and acts in a professional manner in all environments
- The resident will commit to ethical practices in breast surgery including the importance of patient confidentiality.
Burns: Goals and Objectives

General Objectives:

Become increasingly competent in the preoperative, operative, and postoperative management of all types of burns. The resident participates in a variety of operations, and the major focus of this rotation should be to continue to understand the physiology of burns, the principles of burn resuscitation, and the techniques of burn wound repair and reconstruction, as well as to provide comprehensive, long term management of burn injuries.

Specific Objectives:

Although the residents are exposed to and have the opportunity to learn about a variety of conditions, the major focus for the residents’ medical knowledge objectives for this subject should be to obtain a thorough knowledge of the anatomy and physiology of the skin, and to be able to apply this information to the comprehensive management of burns. In addition, there is increased focus on burns surgery in adults and, especially, in children, and pre, intra, and post-operative management of acute and chronic injury. As the resident progresses from a PGY1 to PGY5 resident, they will participate in more complex procedures and become more competent.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

Medical Expert

Cognitive Skills

❖ Understand the normal skin anatomy and circulation.
❖ Understand the physiologic changes which occur with thermal injury including the:
  o relationship between duration of exposure and temperature,
  o specific changes which occur in the zone of coagulation, stasis and hyperemia.
❖ Recognize the Rules of Nine, the use of more detailed body surface charts, and the difference in relative body surface area comparing children to adults.
❖ Define the parameters which define major, moderate and minor burns.
❖ Define the various factors, in addition to body surface area, which affect prognosis of a patient with thermal injury.
❖ Understand the pathophysiology and treatment of inhalation injuries and carbon monoxide poisoning.
❖ Demonstrate an understanding of the principles and techniques of fluid resuscitation, including isotonic and hypertonic techniques, and the principles of monitoring resuscitation.
❖ Understand the pathophysiological changes unique to chemical burns, including acid burns, alkali burns, chemotherapy extrusions, hydrofluoric acid burns etc.
❖ Recognize injuries and sequelae associated with electrical injuries, including cardiac dysrhythmias, central nervous system damage, intra-abdominal injury, vascular injury, cataracts etc.
❖ Know the anatomy and physiology pertinent to the excisional treatment of burns and treatment by split thickness skin grafting.
❖ Demonstrate understanding of principles pertinent to burn rehabilitation and reconstruction, including aesthetic units of the face, tissue expansion, hair transplantation, hand splinting etc.
❖ Understand the pharmacology and utilization of topical antibacterial agents, analgesics and antibiotics in the treatment of burns.

❖ Understand the basic theories pertaining to current flow, energy disposition, and location and extent of injury associated with conductive and arc injuries from electrical current.

❖ Understand the pathophysiology of acute and chronic radiation damage.

❖ Understand the pathophysiology of frostbite and its natural history.

❖ Understand the pathophysiology of burn wound sepsis - prevention & treatment.

❖ Understand the Principles of nutritional support.

❖ Know standard burn wound care, dressings and local antimicrobial therapy.

❖ Know the principles of skin substitutes, artificial skin, homografts and cultured skin.

❖ Understand the rationale behind the different methods and techniques of primary excision and resurfacing.

❖ Know the different types of scar formation - conservative treatment including all modalities offered by Occupational Therapy.

❖ Understand Paediatric burns and their special requirements.

Clinical Skills

❖ Evaluate patients with minor, moderate and major burns of chemical, electrical and thermal origin.

❖ Manage outpatient burns operatively and non-operatively.

❖ Manage inpatients with major burns, including resuscitation, treatment of inhalation injury and rehabilitation.

❖ Manages patients with chemical burns, including intravenous infusion injuries.

❖ Manage patients with frostbite injuries.

❖ Demonstrate knowledge of the management of acute burn injury, including evaluation, resuscitation and intensive care.

❖ Develop knowledge and understanding of the principles underlying the surgical management of acute burn injuries, and the timing of surgical intervention.

❖ Learn the post-acute management of burn patients, including discharge planning, outpatient follow up, physical and occupational therapy.

❖ Participates in the evaluation and surgical management of post-traumatic deformities.

❖ Manage patients with burns of the hand, including operative treatment, postoperative therapy and late reconstructive surgery.

❖ Evaluate and treat patients with acute and chronic radiation injuries.

Technical Skills

❖ Perform surgical treatment of acute burns, including:
  o Escharotomies
  o Fasciotomies
  o Tangential excision
Harvesting and application of skin grafts to various anatomic areas
Defatting full thickness skin grafts

- Perform emergency echarotomies understanding the indications and site applications
- Identify, analyze and appropriately perform reconstructive surgery on burn patients, including functional and aesthetic procedures including:
  - Z-plasty
  - Local flaps
  - Contracture releases

Communicator

- The resident will be able to effectively communicate with the patient, the family and the multidisciplinary team members regarding the prognosis, operative plan and rehabilitation plan for the patient.
- Understand the patient’s directives for care, explaining the overall plan for care including the need for adjuncts to care, such as isolation, limiting number of visitors, nutritional support etc.
- The resident will be able to convey the procedure performed and the consequences to the rest of the team, such as which joints may need restrictions for range of motion to prevent graft loss.
- The resident will be able to discuss with the team the needs for post discharge rehabilitation and wound care, and evaluate with the team and family the best plan for achieving those goals.
- Perform history and physical examinations, and share information with the senior resident and/or attending
- Develops the ability to establish therapeutic relationships with patients and their families
- Establishes a good relationship with peers and other professionals concerning the care of the burn patient
- Conveys effective oral and written information through clear and accurate completion of consultations, progress notes and operative procedures
- Develops the ability to communicate effectively with those patients unable to speak due to tracheostomy or in the intubated patient
- Develops the ability to deliver “bad news” when communicating to patients family members in patients with severe burns with poor prognosis

Collaborator

- The resident will understand what it is to work in an inter-professional team and the close relationship that exists between a surgeon and other members of the burn team.
- The resident will participate in weekly multidisciplinary burn rounds, and burn journal club.
- They will understand when it is indicated to consult another health care provider to assist in patient care.
- The resident will be able to prevent, negotiate, and resolve inter-professional conflicts and understand how these may arise between the disciplines.
- Teach and help supervise medical students

Manager
❖ The resident should understand what is required to maintain a sustainable practice in career as a burn surgeon.
❖ They should understand the difficulty in allocating healthcare resources, which may include lack of access to OR, manpower deficiencies and therapists.
❖ The resident should demonstrate an understanding of the costs of equipment and procedures and be able to choose cost effective solutions when possible.
❖ The resident should understand the various administrative and leadership roles that are taken in the subspecialty.
❖ Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, emergency department, clinic, and on the ward
❖ Follows-up on delegated tasks set aside by the senior resident or attending surgeon.
❖ Begin to use an extensive literature data base, including periodicals and specialty surgical texts

Health Advocate
❖ Identifies opportunities for health promotion and disease prevention:
  o Lifestyle choices in sun exposure and need for sunscreen and burn prevention
  o Tetanus prophylaxis
  o Pressure sore prevention in the bedridden patient
  o Fire safety
  o Alcohol abstinence
❖ Identifies the determinants of health of the populations, including barriers to access to care and resources

Scholar
❖ The resident will understand the continuous medical education and learning requirements that are required to maintain competency in their specialty.
❖ The resident will be able to critically evaluate the literature as it pertains to the treatment and outcomes of burns or thermal injury.
❖ The resident will be able to critically evaluate the surgical outcomes in their own practices by following the guidelines set by colleagues in their field.
❖ They will facilitate learning about burns by patients and families by providing them and directing them to the appropriate resources and their locations.
❖ The resident will participate in burn research when possible.
❖ Teaches medical students and other junior residents
❖ Participates in the education of patients and other health care professionals including the presentation of cases on rounds

Professional
❖ Delivers the highest quality of care with integrity and honesty
❖ Demonstrates compassion in proving care to burn patients and their families
❖ Demonstrates a strong worth ethic and dependability
❖ Develops effective professional relationships with health care professionals in surgery including nurses, nutritionist, wound care team members, therapists and other physicians
❖ Duties will be discharged reliably and they will always strive for excellence
❖ Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
❖ Accept constructive criticism with grace.
Aesthetic (Cosmetic) Surgery Goals and Objectives

General Objectives:

Become competent in the preoperative, operative, and postoperative management of all types of aesthetic surgery. The PGY3-5 resident participates in a variety of operations, and the major focus of this rotation should be to begin to become competent in the perioperative care of patients, and to begin to understand the principles of cosmetic surgery, and to begin to be able to perform cosmetic surgery.

Note: It is understood that aesthetic surgery is performed largely outside of the teaching facility because of hospital constraints. Every attempt at exposing the Resident to aesthetic surgery will be undertaken throughout the Residency Program, but it is recognized that further aesthetic surgical experience may be beneficial after a Residency Program and because of the nature of aesthetic surgery frequently the Resident is not able to perform these procedures independently during their residency.

Specific Objectives:

Although the residents are exposed to and have the opportunity to learn about a variety of procedures, the major focus for the PGY3-5’s medical knowledge objectives should be to obtain a thorough knowledge of the anatomy, physiology, and embryology of the skin, head and neck, upper extremity, trunk and breast, and to be able to apply this information to the cosmetic surgery for a variety of conditions.

Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY3, 4, and 5.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

- Skin
  - Know the basic physiology of the aging process of the skin.
  - Understand the basic physiological processes of sun exposure effects on the skin, and the principles of prevention of sun exposure effects, and demonstrates familiarity with pharmacological agents for prevention of sun exposure, and the details of their prescription and use.
  - Recognize common inflammatory disorders of the skin such as impetigo, cellulites, lymphangitis, hidradenitissuppurativa, necrotizing fasciitis, as well as common congenital disorders of skin, including xerodermapigmentosa, Ehlers Danlos Syndrome, basal cell nevus syndrome, albinism etc.
Demonstrate knowledge of common generalized dermatologic disorders, such as scleroderma, lupus erythematos, dermatomyositis, and is familiar with their treatment.

- **Head and neck**
  - Be familiar with concepts of beauty and aesthetic principles in facial structure.
  - Understands the principles and techniques of aesthetic rhinoplasty; recognizes the differences in approach between primary and secondary rhinoplasty.
  - Be familiar with diagnostic and therapeutic techniques in management of nasal airway obstruction.
  - Be familiar with application of aesthetic techniques to cleft lip nose.
  - Knows the complications of rhinoplasty and septoplasty, and their prevention and treatment.
  - Be familiar with techniques of rhytidectomy, suction lipectomy, brow lift, blepharoplasty, and other methods for treatment of the aging face.
  - Know the complications of rhinoplasty and septoplasty, and their prevention and treatment.
  - Recognize the various aesthetic deformities of the ear, and knows the principles and techniques for surgical correction.
  - Be familiar with aesthetic and functional problems of the eyelid, including blepharochalasis and ptosis, knows the treatment techniques for these problems, complications and their prevention.
  - Be familiar with the diagnostic methods and treatment options for patients with facial palsy.
  - Be familiar with diagnostic principles and treatment techniques for alopecia and male pattern baldness.
  - Know the various ancillary techniques for management of the aging face, such as chemical peel, RetinA, dermabrasion, facial fillers, neuromodulators (Botox/Dysport), and fat grafting.
  - Know the differential diagnosis and the management methods for facial atrophy.

- **Extremities**
  - Understand the manifestations and surgical treatment of aesthetic upper/lower extremity deformities.

- **Trunk**
  - Understand the techniques for treatment of aesthetic deformity of the abdomen (including panniculectomy and abdominoplasty), the indications for and contraindications to the procedures, the complications of the procedures and their prevention and management.
  - Know the techniques of suction lipectomy, as applied to aesthetic deformities of the trunk.
  - Understand the principles of selection of procedures for specific deformities (e.g. abdominoplasty vs. abdominal liposuction).
  - Know the basic principles and techniques for treating other aesthetic deformities, such as localized lipodystrophy.
  - Understand the various surgical methods employed for weight loss and understand the nutritional deficiencies that may occur following such surgeries.

- **Breast**
  - Know the normal anatomy of the breast, including common measurements.
  - Know the pathologic anatomy and histology of the breast, as related to mammary hyperplasia, hypoplasia and ptosis.
o Be familiar with the various surgical techniques for breast augmentation, the indications for and contraindications to the procedures, and the complications of augmentation mammoplasty, their prevention and treatment.
o Be familiar with the different types of breast implants, and the reason for selection of a particular type for a particular problem.
o Know the basic techniques for mastopexy, the indications for and contraindications to these procedures; and the complications of mastopexy, their prevention and management.
o Understand the principles of selection of procedures for specific deformities (e.g. mastopexy vs. augmentation mammoplasty).
o Know the basic principles and techniques for treating other aesthetic deformities, such as inverted nipple, tubular breast etc.
o Recognize the long-term consequences of augmentation mammoplasty, and the methods for follow-up, including special techniques for mammography.

Clinical Skills

❖ Able to obtain an appropriate history and perform a focused physical examination of the aesthetic surgery patient
❖ Able to understand the motivation of patients to undergo aesthetic surgery
❖ Skin
  o Demonstrate familiarity with nonsurgical methods and agents for treating aging in the skin.
  o Uses pharmacological agents for treatment of aging skin, prevention of sun exposure.
  o Understand the indications and application of ancillary procedures such as collagen fillers, fat grafting, and neuromodulators
❖ Head and Neck
  o Evaluate patients with aging face.
  o Evaluate patients with aesthetic problems of the eyelid; performs blepharoplasty.
  o Evaluate patients with nasal deformity and performs rhinoplasty and septal surgery.
  o Evaluate patients with functional problems of the eyelid such as ptosis.
  o Evaluate patients with aesthetic problems of the ear, performs otoplasty.
  o Diagnose patients with facial palsy.
  o Diagnose patients with facial atrophy.
  o Evaluate patients with alopecia and male pattern baldness.
❖ Extremities
  o Evaluate patients with aesthetic upper/lower extremity deformities.
❖ Breast
  o Evaluate patients with mammary hypertrophy, marks and operate upon the, and performs postoperative care.
  o Evaluate patients with mammary hypoplasia, including both acute management and the care of patients with late problems (such as capsular contracture).
  o Evaluate patients with mammary ptosis.
Abdomen/Trunk
- Evaluate patients with aesthetic deformity of the abdomen and the trunk
- Evaluate the massive weight loss patient

**Technical Skills**

- Perform/Assist or be familiar with the following procedures:
  - Skin
    - Excision of cosmetically benign skin lesions
    - Chemical peels
    - Fat grafting
  - Head and Neck
    - Rhytidectomy (facelift)
    - Brow lift
    - Neck Lift
    - Upper and lower blepharoplasty
    - Eyelid ptosis correction
    - Rhinoplasty – open/closed techniques
    - Septoplasty
    - Otoplasty
    - Genioplasty
    - Hair transplantation
    - Ancillary procedures – Neuromodulators, dermal fillers, fat grafting
  - Extremities
    - Brachioplasty
    - Medial thigh lift
    - Liposuction
  - Breast
    - Breast reduction
    - Breast augmentation in subglandular and submuscular planes
    - Mastopexy – periareolar, circumvertical
    - Mastopexy/Augmentation
    - Gynecomastia
    - Fat grafting
  - Abdomen/Trunk
    - Abdominoplasty
    - Panniculectomy
    - Abdominal suction lipectomy
    - Rectus diastasis correction
    - Buttock lift/augmentation
COMMUNICATOR

- Establishes a therapeutic relationship with patients and communicates well with families that are characterized by understanding, trust, respect, honesty, and empathy
- Respects patient confidentiality, privacy, and autonomy in the aesthetic surgery patient
- Be aware and responsive to nonverbal cues and understand the motivation of the aesthetic surgery patient
- Communicates effectively with families, patients, peers and health care team members involved in the care of the patient
- Elicits and synthesizes information from patients and conveys this information to patients and other colleagues in an understandable fashion.
- Conveys effective oral and written information about a medical encounter and provides clear management plans
- Delivers information to the patient and family in a humane manner
- Establish trust and rapport and ethical relationships with patients.

COLLABORATOR

- Works well in the plastic surgery team environment, establishes harmonious relationships with physicians, nursing staff, and aestheticians
- The resident will be able to work in an inter-professional team including the intraoperative team required in treating aesthetic
- The resident will be able to prevent, negotiate, and resolve inter-professional conflicts that may arise.

MANAGER

- Uses available resources effectively and considers alternative management options
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room and in clinic
- Attentive to details, following up on delegated tasks
- Uses private medical facility resources appropriately

HEALTHADVOCATE

- Intervenes on behalf of patients with respect to their care
- Identifies opportunities for health promotion and disease prevention:
  - Smoking cessation
  - Skin care and sun protection
  - Breast self-exams
  - Mammograms and timing of the at risk population
  - Scar prevention
  - Nutrition and diet
SCHOLAR

- Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
- Maintain competency through learning from other colleagues, what is available in the literature, and through international meetings.
- Critically appraises sources of medical information and uses evidence in clinical decision-making
- Understand how to monitor outcomes with regards to aesthetic surgery and apply it in their own practice.
- Facilitates learning and the dissemination of information to patients

PROFESSIONAL

- Delivers the highest quality of care with integrity and honesty
- Demonstrates compassion in providing care to patients and their families
- Demonstrates a strong worth ethic and dependability
- Accept constructive criticism with grace.
- Dresses and acts in a professional manner in all environments
- The resident will commit to ethical practices in aesthetic surgery including the importance of patient confidentiality.
Head and Neck Oncology Reconstruction Goals and Objectives

**General Objectives:**

Become competent in the preoperative, operative and postoperative management of all types of head and neck neoplastic surgery. The resident participates in a variety of operations, and the major focus of this rotation should be to become competent in the perioperative care of patients, to understand the principles of head and neck neoplasm surgery, and be able to perform head and neck neoplasm surgery.

**Specific Objectives:**

Although the residents are exposed to and have the opportunity to learn about a variety of conditions, the major focus for the PGY3-PGY5s medical knowledge objectives should be to obtain a thorough knowledge of the relevant anatomy, physiology, and embryology of the head and neck tumors, and to apply this information to the comprehensive management of a variety of problems of head and neck tumors, including diagnosis and surgical and nonsurgical treatment.

Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY3, 4, and 5.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

**MEDICAL EXPERT**

**Cognitive skills:**

- Detailed understanding of Head and Neck anatomy:
  - Bony anatomy of the skull
    - Anatomy, location and contents of all foramina of the skull including the superior orbital fissure and inferior orbital fissure
    - Contents and anatomy of the temporal and infratemporal fossae
    - Named vascular supply to the scalp, ear, face, nose, eyelids and lips
    - Anatomy of the TMJ
    - Branches of the External carotid and there landmarks WRT triangles of the neck, and there relations to the digastric and omohyoid muscles
    - Detailed Carotid artery and Jugular vein anatomy
    - Lymphatic drainage from the head and neck and node level anatomy
    - Location and landmarks of the thoracic duct
    - Facial artery and vein anatomy in detail including landmarks, relation to marginal mandibular branch, node of Starr, and platysma
    - Location and landmarks to locate the transverse cervical artery and its significance to microsurgery
    - Branches of the thyrocervical trunk
    - Contents and boundaries of the triangles of the neck
Surface anatomic landmarks of the greater auricular nerve and frontal branch of facial nerve
Operative landmarks of the accessory nerve
Innervation, origins/insertions, and function of all muscles innervated by the facial nerve
Location and relation of the superficial temporal vessels to the temporoparietal fascia, greater auricular nerve, frontal branch of facial nerve and zygomatic arch
Detailed knowledge of facial nerve anatomy; intra cranial, intra-temporal, and extra-temporal
Anatomy of the masseter: origins and insertions, blood supply, and how to identify and dissect the nerve to masseter
Anatomy of the temporalis muscle: origins, insertions, blood supply, and innervation
Detailed anatomy of the cervical esophagus

Detailed knowledge of basic science:
Tumor biology, behavior, pathological classifications (and appearance under light microscopy) and their implications on clinical outcomes: SCC (intra and extra-oral, laryngeal, esophageal), BCC, Melanoma, Parotid Tumors, DFSP, sebaceous carcinoma, merkel cell carcinoma
The effect of radiation and dosage on soft tissue, blood vessels, and bone
The pathophysiology of osteoradionecrosis
Mechanisms of chemotherapeutic agents, common drugs used and complications
The effects of Hyperbaric oxygen on tissue
The motor mechanisms of speech and swallowing including the phases of swallowing

History and evolution of Head and Neck reconstruction:
The contributions of Sir Harold Gillies, Bekamjian, Ariyan, Soutar
Understand the principles and physiology behind tubed pedicled flaps, Waltzing flaps
Understand the time frame and why the evolution to axial pedicle flaps
Understand the time frame and why the evolution to free tissue transfer
Be familiar with Hildagos’ contribution to vascularized bone reconstruction of the
Mandible and his option for TMJ reconstruction
Basic principles and time related vascular changes associated with flap delay

The consequences of tumor resection and goals of reconstruction as they relate to:
Oral continence
Swallowing
Speech
Aspiration

Outline and delineate the boundaries of the anatomic subunits of the oral cavity, their function and their reconstruction:
Tongue
Floor of mouth (FOM)
Buccal Mucosa
Retromolartrigone (RMT)
Hard palate
Soft palate

Outline the principles and list the flap options and flap requirements for tongue reconstruction:
Subtotal glossectomy requirements vs. total glossectomy requirements and why they differ
Understand the vascular significance of the lingual arteries to the remaining tongue

Outline the principles and flap options and requirements for palate reconstruction

Outline the advantages and disadvantages of obturation vs. autogenous reconstruction of the palate

Know the differences between dental based and osteo-integrated based obturators
Outline the principles and flap options and flap requirements for buccal mucosa RMT reconstruction

Describe the anatomy, positioning, arc of rotation (for pedicle flaps) and step by step harvest techniques of the following flaps:
- Radial forearm
- ALT
- Pectoralis Major
- Deltoplectoral and delayed DP flap
- Latissimus dorsi
- Scapular and parascapular
- Trapezius
- IMA perforator
- Submental flap
- Platysmal flap
- Cervicofacial advancement flap

List all the flaps that can be harvested on the subscapular axis

Understand the concept and applicability of chimeric flaps

List the most common chimeric flaps used in head and neck reconstruction

Possess a detailed knowledge as it relates to Head and neck cervical esophagus reconstruction and pharyngeal reconstruction
- Define the anatomic limits of the pharynx, cervical esophagus and the mediastinal esophagus
- List the options and desired requirements for reconstruction of pharyngeal defects
  - List the most common flaps used
  - List the implications for speech, swallowing and aspiration
- List the options and desired requirements for cervical esophageal reconstruction
  - Detailed knowledge regarding the advantages and disadvantages of utilizing a fasciocutaneous flaps vs. jejunum
  - List in particular the disadvantages of the jejunum as it relates to ischemic time, speech, laparotomy, and swallowing

Understand the definition of “wet” speech and segmentation vs. peristalsis
- List the options for lower esophageal reconstruction
  - Understand the technique, and anatomy of gastric pull-up
  - Understand the technique of colonic transposition and supercharged colonic transposition

List the post-operative complications of head and neck surgery, their timing, their clinical presentation and their treatment:
- Fistula
- Salivary leak
- Total flap failure
- Jugular vein thrombosis and flap venous congestion and bailout options
- Understand the disadvantage to vein grafts in the head and neck vs. other areas of reconstruction
- List the signs and symptoms of cervical esophageal leakage
- List the first sign and symptoms of carotid blowout
- Define the complications of a cervical esophageal fistula:
  - Options for treatment
  - Understand the principles behind a controlled fistula
• Outline the treatment of impending carotid blowout
  ❖ Understand the utilization of implantable flap monitoring:
    o Define the Doppler principle and incident angle
    o Define piezoelectric crystal
    o Explain the difference in signal characteristics between arterial vs. venous occlusion
    o Understand augmentation of the implantable Doppler signal
    o List the complications and disadvantages associated with implantable Doppler monitoring vs. clinical flap monitoring

❖ Possess a detailed knowledge of the following as it relates to mandibular reconstruction:
❖ Outline the consequences of mandibular resection on:
  o Occlusion, TMJ motion, airway, speech, and swallowing, aspiration, facial height and projection
  o Define the “Andy Gump deformity”
  o Outline the Boyd (HCL) Classification of mandibular defects:
    • Understand the importance of each and differences between lateral and central defects
    • Know the major issues associated with central defects and how to prevent them
  o Outline the advantages, disadvantages and indications for non-vascularized bone vs. vascularized bone vs. plate only reconstruction of the mandible
  o Outline the options, advantages, disadvantages of all forms of TMJ reconstruction in mandibular reconstruction
  o Outline the clinical and radiographic presentation of osteoradionecrosis (ORN) of the mandible
  o Understand the indications for surgical treatment of osteoradionecrosis of the mandible both conservative and radical
  o Understand the role for HBO in treatment of ORN of the mandible
  o Understand the difficulties and differences between the microsurgical reconstruction of ORN of the mandible vs. primary microsurgical reconstruction of the mandible as it relates to flap choices, vessel choices and complications
  o Outline the differences, advantages, disadvantages of various plating options for the mandibular reconstruction (2.4mm, 2.0mm – reconstruction plates - locking, non-locking vs. miniplates). Outline the minimal number or cortices required for stable fixation.
  o Outline the role of MMF and External –fixation in mandibular reconstruction
  o Understand the necessary imaging and other processes involved in planning for pre-operatively bending of a mandibular reconstruction plate
  o Be familiar with 3D modeling of the mandible to allow pre-op plate bending
  o Be aware of the option of and costs associated with pre-op modeling, factory pre-bent plates, fibular osteotomy cutting guides
  o Understand the treatment options for exposed mandibular hardware (intra or extra oral)
  o List all the vascularized bone flap options for mandibular reconstruction and the advantages and disadvantages of each i.e. skin quality/reliability vs. bone length vs. ability to osteotomize vs. pedicle length and caliber vs. patient positioning

Clinical Skills

❖ Perform multiple history and physical examinations in patients presenting with an intra-oral cancer, parotid cancers, melanomas.
Review pertinent clinical examination, radiographic investigations, pathology and then stage patients appropriately.

Detailed understanding of clinical scenarios and operative procedures:
- The indications for SLNB in head and neck surgery including melanoma
- Staging of melanoma in the head and neck
- Indications for SLNB in melanoma in the head and neck
- Surgical margins for melanoma in the head and neck
- Surgical margins for BCC
- List the indications for Mohs micrographic surgery in Head and neck SCC and BCC and other neoplasms (DFSP, Merkel cell, sebaceous CA)
- Staging of SCC in the head and neck (intra and extra oral), the indications for neck dissection, level of neck dissection, and bilateral neck dissection
- Options to stop life threatening hemorrhage from the maxillary artery
- Operative steps and pertinent anatomy of a maxillectomy
- Operative steps and anatomy for achieving carotid control preceding maxillectomy
- Operative steps and pertinent anatomy in performing a composite neck dissection
- Operative steps and pertinent anatomy in performing superficial parotidectomy
- Timing and effect on surgery of chemotherapeutic agents
- Detailed list of all the deficits associated with facial nerve palsy
- Detailed list of all etiologies of facial nerve palsy
- Operative steps and pertinent anatomy of performing a tracheostomy
- Indications and contraindications to hyperbaric oxygen
- Describe in detail the anatomy and step by step harvest techniques of the following bone or osteocutaneous flaps:
  - Fibula,
  - Radial forearm
  - Iliac Crest,
  - Scapular (both angular and lateral border)

Technical skills:

- Assist or perform parts of the harvest of the following flaps
  - ALT, RFFF (skin and osteocutaneous), Fibula flap
- Assist or perform parts of the inset of the following flaps
  - ALT, RFFF, fibula flap
- Assist or perform parts of pre-bending fibula plates
- Assist or perform parts of fibula osteotomies
- Assist or perform parts of fibula flap osteosynthesis
- Assist in microvascular anastomosis
- Perform microvascular anastomosis
- Assist and perform parts of tracheostomy tube change
- Assist dissection of the superficial temporal vessel system
- Assist and observe the dissection of the facial vessels at the mandibular angle, the anatomy of the region, the relationship of the facial artery and vein to each other, observe directly the marginal mandibular nerve.
- Assist or perform parts of the dissection of the recipient vessels in the neck:
  - Facial artery
- Superior thyroid artery
- Lingual artery
- Transverse cervical vessels
- Branches of and internal jugular vein proper

**COMMUNICATOR**

- The resident will be able to explain the diagnosis and basic requirements for treatment in a sensitive manner to the patient and family for the above listed tumors.
- The resident will communicate with the patient and family on rounds the significance and treatment of any surgical complications that might arise from head and neck surgery.
- The resident will show compassion and understanding to patients and family when conveying sensitive and often life changing information to this group of patients.
- Establishes a therapeutic relationship with patients and communicates well with families that are characterized by understanding, trust, respect, honesty, and empathy.
- Respects patient confidentiality, privacy, and autonomy.
- Be aware and responsive to nonverbal cues.
- Communicates effectively with families, patients, peers and health care team members involved in the care of the patient.
- Elicit and synthesize information from patients and their families as well as their colleagues and convey this information to patients and other colleagues in an understandable fashion.
- Conveys effective oral and written information about a medical encounter and provides clear management plans.
- Delivers information to the patient and family in a humane manner.
- Presents cases at surgical rounds.

**COLLABORATOR**

- The resident will understand the function and list the members of the multidisciplinary Head and Neck team.
- The resident will attend at least 2 multidisciplinary Head and Neck conferences.
- The resident will provide verbal or written communications that will accurately reflect the diagnosis and other pertinent information to other subspecialties when their assistance is needed in the care of a particular patient.
- Works well in the plastic surgery team environment, establishes harmonious relationships with physicians, nursing staff, and therapists.
- Consults effectively with other physicians and health care professionals to create plans for a multi-disciplinary approach to the care of the breast oncology patient.
- The resident will able to work in an inter-professional team including the intraoperative team required in treating head and neck pathology as well as with their colleagues in other disciplines including Radiation Oncology, Surgical Oncology, ENT, Oral Surgery, and Endocrinology.
- The resident will be able to prevent, negotiate, and resolve inter-professional conflicts that may arise.

**MANAGER**

- The resident will understand the pathways of referral to the different subspecialties involved in the care of the head and neck patient.
The resident will be able to manage and put together the clinical exam, radiographic, lab, and pathological investigations to provide the attending physician with all the information needed to allow him to make an accurate diagnosis, stage, and plan treatment for a patient.

- Uses available resources effectively and considers alternative management options
- Orders invasive (FNA or open biopsy) and non-invasive (MRI/PET scan/CT scan) tests appropriately
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, clinic, and on the ward
- Attentive to details, following up on delegated tasks
- Uses hospital resources appropriately
- Organize interdisciplinary communication and conferences when approaching patients with head and neck abnormalities

**HEALTHADVOCATE**

- Intervenes on behalf of patients with respect to their care
- Identifies opportunities for health promotion and disease prevention:
  - Sun protection
  - Smoking and alcohol cessation measures
  - Teaching patients about the ACBDE of skin lesions
- Identifies the determinants of health of the populations, including barriers to access to care and resources
- Understand the health needs of the communities

**SCHOLAR**

- Be able to access all appropriate textbooks and medical literature to allow him/her to meet all the objectives listed under medical expert
- Critically evaluate the literature as it relates to the evaluation of treatment modalities (surgical/non-surgical) in the head and neck patient
- Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
- Maintain competency through learning from other colleagues, what is available in the literature, and through international meetings.
- Teaches medical students and other junior residents
- Participates in the education of patients and other health care professionals including the presentation of cases on rounds and at Head and Neck Case Conferences

**PROFESSIONAL**

- Delivers the highest quality of care with integrity and honesty
- Demonstrates compassion in providing care to patients and their families
- Demonstrates a strong worth ethic and dependability
- Develops effective professional relationships with health care professionals in surgery including nurses, radiotherapists, and other physicians
- Duties will be discharged reliably and they will always strive for excellence
- Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
- Accept constructive criticism with grace.
- Dresses and acts in a professional manner in all environments
- The resident will commit to ethical practices in breast surgery including the importance of patient confidentiality.
Trunk and Genitalia Reconstruction Goals and Objectives

General Objectives:

Become competent in the preoperative, operative, and postoperative management of all types of trunk and genitalia surgery. The resident participates in a variety of operations, and the major focus of this rotation should be to become competent in the perioperative care of patients, and to understand the principles of, and to be able to perform trunk and genitalia surgery.

Specific Objectives:

The residents exposed to and have the opportunity to learn about a variety of conditions, the major focus for the PGY3-PGY5s medical knowledge and objectives on this service should be to obtain a thorough knowledge of the anatomy, physiology, and embryology of the trunk and genitalia, to be able to apply this information to the comprehensive management of a variety of problems. Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY3, 4, and 5.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

- Trunk
  - Anatomy/Physiology/Embryology
    - Demonstrate knowledge of the musculature, blood supply, lymphatic drainage and innervation of the trunk and abdominal wall.
    - Be familiar with the embryonic development of the trunk and abdominal wall.
  - Congenital Disorders
    - Be familiar with chest wall embryology and anatomy as applied to developmental chest wall deformities.
    - Recognize the physiologic consequences of developmental chest wall deformities.
    - Know common deformities of the posterior trunk.
    - Understand the embryology, developmental anatomy, and surgical management of congenital abdominal wall deformities.
  - Benign and Malignant Tumors
    - Be familiar with the principles of management and participates in treatment of patients with benign and malignant tumors of the trunk, including thoracic cage and abdominal wall.
  - Trauma and Reconstruction
    - Understand the etiology and nonsurgical management of pressure sores (including preventive measures).
    - Know common post-traumatic deformities of trunk.
Genitalia
  o Anatomy/Embryology
    • Know embryology of male and female genitourinary systems.
    • Be familiar with the anatomy of the genitourinary system as it relates to reconstruction.
    • Explain the genesis of common congenital anomalies based on interrelated embryology and anatomy.
    • Apply the fundamental knowledge of genitourinary embryology, anatomy and pathology to treatment.
  o Trauma/Reconstruction/Functional Disorders
    • Understand etiology and diagnosis of developmental abnormalities of the vagina.
    • Know principles and techniques of and performs vaginal reconstruction.
    • Understand the principles and techniques of perineal reconstruction following tumor resection
    • Know principles and techniques of reconstruction of the male urethra and of repair of hypospadias.
    • Know principles and techniques of reconstruction (and construction) of the penis.
    • Understand the principles of diagnosis and treatment of transsexuals

Clinical Skills

Perform a detailed and structured history and physical exam with respect to an approach to problems of the trunk and genitalia with congenital or acquired deformities.

Trunk
  o Evaluate and participate in the multi-specialty surgical evaluation and reconstruction of patients with congenital deformities of the posterior trunk.
  o Participate in the evaluation and surgical planning of reconstructive surgery on patients with trunk deformities
  o Evaluate and treat patients with pressure sores.
  o Evaluate and manage complications of reconstruction.
  o Evaluate and manage patients with abdominal wall congenital deformities.

Genitalia
  o Know how to evaluate ambiguous genitalia and evaluate patients with vaginal, penile, urethral and/or ambiguous genitalia disorders.
  o Be familiar with the techniques of male-to-female and female-to-male reassignment surgery.

Technical Skills

Trunk
  o Perform the following with increasing competency and independence:
    • Pressure sore reconstruction with various regional pedicled flaps for sacral, ischial, and trochanteric ulcers
    • Correction of rectus diastasis of the abdomen
  o Assist/Participate/Perform or be familiar with:
Know surgical aspects of treatment of patients with developmental chest wall deformities, such as pectuscarinatum and pectusexcavatum.

Reconstruction of posterior trunk defects with regional muscles or fasciocutaneous flaps

Perform reconstructive surgery on patients with developmental chest wall deformities.

Perform abdominal wall reconstruction with fascial grafts or flaps.

Perform reconstructive procedures for post-traumatic thoracic deformities, sternal wound dehiscence, radiation injury including pectoralis major muscle advancement or rectus turnover flaps

Genitalia

- Assist/Participate/Perform or be familiar with:
  - Participate in the reconstruction of the perineum using Gracilis, Singapore or Rectus Abdominus flaps.
  - Know the surgical aspects of penile reconstruction with free bone flaps
  - Participate in urethral construction and reconstruction in collaboration with the urologist.
  - Participate in the care (including surgical management) of transsexuals.

COMMUNICATOR

- Establishes a therapeutic relationship with patients and communicates well with families that are characterized by understanding, trust, respect, honesty, and empathy
- Respects patient confidentiality, privacy, and autonomy especially in the transsexual patient
- Be aware and responsive to nonverbal cues in infants
- Communicates effectively with families, patients, peers and health care team members involved in the care of the patient
- Elicit and synthesize information from patients and their families as well as their colleagues and convey this information to patients and other colleagues in an understandable fashion.
- Conveys effective oral and written information about a medical encounter and provides clear management plans
- Delivers information to the patient and family in a humane manner
- Presents cases at surgical ward rounds
- Establish trust and rapport and ethical relationships with patients and their families.

COLLABORATOR

- Recognize the role of urologist and/or gynecologist in collaborative management of selected cases.
- Works well in the plastic surgery team environment, establishes harmonious relationships with physicians, nursing staff, and therapists
- Consults effectively with other physicians and health care professionals to create plans for a multi-disciplinary approach to the care of the patient
- The resident will able to work in an inter-professional team including the intraoperative team required in treating patients as well as with their colleagues in other disciplines including Thoracic/General surgery, Psychiatry, and Endocrinology.
The resident will be able to prevent, negotiate, and resolve inter-professional conflicts that may arise.

**MANAGER**

- Uses available resources effectively and considers alternative management options
- Orders invasive (biopsy) and non-invasive (pulmonary function tests, MRI/CT scan) tests appropriately
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, clinic, and on the ward
- Attentive to details, following up on delegated tasks
- Uses hospital resources appropriately
- Organize interdisciplinary communication and conferences when approaching patients with trunk or genital abnormalities.

**HEALTH ADVOCATE**

- Intervenes on behalf of patients with respect to their care
- Identifies opportunities for health promotion and disease prevention:
  - Smoking advice
  - Pressure sore relief measures – beds, cushions
  - Nutrition in the pressure sore patient
- Identifies the determinants of health of the populations, including barriers to access to care and resources especially in the transgender patient

**SCHOLAR**

- Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
- Maintain competency through learning from other colleagues, what is available in the literature, and through international meetings.
- Critically appraises sources of medical information and uses evidence in clinical decision-making
- Teaches medical students and other junior residents
- Participates in the education of patients and other health care professionals including the presentation of cases on rounds
- Facilitates learning and the dissemination of information to patients and their family.

**PROFESSIONAL**

- Delivers the highest quality of care with integrity and honesty
- Demonstrates compassion in providing care to patients and their families
- Demonstrates a strong worth ethic and dependability
- Develops effective professional relationships with health care professionals in surgery including nurses, therapists, radiologists, and other physicians
- Duties will be discharged reliably and they will always strive for excellence
• Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
• Accept constructive criticism with grace.
• Dresses and acts in a professional manner in all environments
• The resident will commit to ethical practices including the importance of patient confidentiality.
Upper Extremity: Goals and Objectives

General Objectives:
Become competent in the preoperative, operative and postoperative management of all types of upper extremity plastic surgery. The resident will participate in a variety of operations, and the major focus of this rotation should be to become competent in the perioperative care of patients, understand the principles of upper extremity surgery, and be able to perform upper extremity surgery. S/he is expected to have a detailed knowledge of the anatomy, physiology, and embryology of the upper extremity, including congenital disorders, benign and malignant tumors, and trauma, and to use this knowledge for management of the hand, arm and brachial plexus problems.

Specific Objectives:
Although the residents are exposed to and have the opportunity to learn about a variety of conditions, the major focus for the residents’ medical knowledge objectives should be a thorough knowledge of the relevant anatomy, physiology, and embryology of the upper extremity to be able to apply this information to the comprehensive management of a variety of problems of upper extremity.

Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY 1 to 5.

Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

❖ Anatomy/Physiology/Embryology
  o Know in detail the anatomy of the muscles, tendons and ligaments of the hand and upper extremity.
  o Know in detail the anatomy of the vascular tree of the upper extremity, including relationships to surrounding structures.
  o Know in detail the anatomy of the major nerves and their branches in the upper extremity, including relationships to surrounding structures.
  o Understand the functional anatomy of the upper extremity, including the skin.
  o Know the clinical techniques of physical examination of the hand.
  o Be familiar with the anatomy of the brachial plexus.
  o Know the detailed radiographic anatomy of the bony structures of the upper extremity.
  o Understand the major aspects of embryologic development of the hand and upper extremity.
  o Understand the routine and special radiologic techniques (including CT scan, MRI) to discern the hard and soft tissues of the upper extremity.
  o Understand the principles of electrical evaluation, and have knowledge of the techniques of electrical examination of the upper extremity (including conduction studies and EMG evaluation)
Trauma

- Know the anatomy and pathophysiology of injuries to the hand and upper extremity.
- Understand the principles and application of diagnostic techniques for the evaluation of hand and upper extremity trauma.
- Know the techniques for operative management of traumatic injuries of the upper extremity, their indications and contraindications, and their potential complications and the treatment thereof.
- Understand the indications for, contraindications to, and techniques for non-operative management understand traumatic disorders of the wrist including applied anatomy, modalities of investigation, and reconstructive goals.
- Understand the diagnosis, clinical presentation, radiographic investigation and appearance as well as treatment modalities for sympathetic related pain syndromes of the upper extremity.
- Understand the indications and contraindications for replantation of traumatic injuries of the hand and upper extremity.
- Be familiar with compartment syndrome of the hand identifying all the compartments and incisions required for release.
- Recognize, evaluate and manage Volkman’s and other ischemic contractures.

Reconstruction

- Know the principles, indication and techniques of tendon reconstruction in the hand, including (a) tendon grafting – sources, methods, indications and (b) use of prosthesis – indications, timing, techniques.
- Understand functional defects resulting from loss of segments of the anatomic system.
- Be familiar with the diagnostic techniques used to evaluate functional loss including EMG and conduction studies, arteriography, conventional radiographs, CT scan and MRI.
- Understand the management of nerve injury, including primary, delayed primary and secondary repair.
- Know the techniques of grouped inter-fascicular nerve grafting, and of nerve graft harvesting (including use of vascularized nerve beds).
- Understand conservative and surgical management of nerve compression syndromes.
- Understand the principles of nerve injury and reconstruction. This will include familiarity with the work of Seddon, and Sunderland.
- Understand the principles and expected outcomes of nerve grafting, transfers and repair.
- Understand the principles and various nerve tumors and their prognoses.
- Be familiar with the literature and indication for nerve tubes/conduits and nerve transfer.
- Be familiar with the anatomy of the brachial plexus.
- They will be familiar with both adult and pediatric brachial plexus injuries as well as compressive neuropathies.
- Understand the principles of congenital and adult brachial plexopathies including complete familiarity with the innervation of the musculature and sensory distribution of the upper extremity and the expected treatment outcomes.
- Understand the principles of management of patients with brachial plexus injuries, including radiologic and electrical evaluation and surgical treatment (early and late).
- Be familiar and be able to list the functional deficits of high and low, median, ulnar and radial nerve injuries and the tendon transfers available for each of these lesions.
- Be able to list and be familiar with the principles of tendon transfers.
Know the indications and techniques for reconstruction of the amputated thumb including lengthening, pollicization, free whole toe transfer and free wraparound techniques.

Know the indications for and technical methods of skin and soft tissue coverage, including skin grafts, local flaps, distant flaps, and free tissue transfer.

Know the requirements and resurfacing techniques for areas of critical innervation in hand.

Understand the use of tendon transfer and pedicled muscle/tendon substitution (including free muscle transfer) to redistribute functional activities in the upper extremity.

Know the indications and techniques (including joint replacement) for treatment of digital dysfunction and joint deformities secondary to trauma or disease.

Understand the consequences of derangement of the bony architecture of the hand and methods and techniques for bone stabilization.

Understand the indications and techniques for correcting bony deficits of the hand including lengthening, free non-vascularized bone grafting, and free microvascular bone transfer techniques.

Understand the principles of fractures and bone healing including the types of fixation and AO principles.

Understand the anatomy, pathology, and surgical treatments for Dupuytren’s disease.

Be familiar with the vascular disorders of the hand and upper extremity, the appropriate investigations and surgical options available.

Clinical Skills

Able to take an accurate history from hand and wrist injury patients, extracting all pertinent data.

Detailed history and extraction of appropriate information will be expected for all the aforementioned conditions.

Understand the difference based on history and physical examination of deformity versus disability.

Perform physical examination of the hand and upper extremity in both normal and pathologic states.

Evaluate the traumatized upper extremity, and perform initial emergency treatment.

Obtain and interpret radiographs and other diagnostic images for evaluation of traumatic, congenital and degenerative problems of the hand and upper extremity.

Obtain and interpret electro-diagnostic studies of upper extremity problems.

Be able to formulate appropriate diagnoses and plans of treatment from history and physical examinations.

Apply casts and splints for preoperative and postoperative care of these patients.

Direct rehabilitation of upper extremity trauma following surgery.

Perform disability evaluations following upper extremity trauma.

Be familiar with tendon injury and repair as well as the various types of postoperative rehabilitation regimens that are available including Duran protocol, early active range of motion protocols. Understand when each of these protocols is indicated.

Technical Skills:

- Perform the following procedures with increasing competency and independence
  - Closed and open reduction of fractures
  - Kirshner wire and plate fixation of fractures
- Lag screw fixation of fractures
- Fingertip amputations and nail bed injuries
- Fingertip flaps including V-Y advancement, cross-finger flaps
- Minor soft tissue injury closure
- Incision and drainage of all compartment of the hand/wrist for infection
- Joint arthroscopy
- Extensor tendon repair and tenolysis
- Flexor tendon repair and tenolysis
- Harvesting tendon grafts
- Perform EIP to EPL tendon transfer
- Trigger finger release
- Decompressions of major compression neuropathies including a carpal tunnel and cubital tunnel
- Complete microsurgical nerve and artery repair
- CMC and MCP arthroplasty
- Finger joint and wrist arthrodesis
- Harvesting of iliac crest and radial bone grafts
- Trapezium resection and ligament reconstruction
- Palmar fasciectomy for Dupuytren’s
- Fasciotomies of the upper extremity compartments

- Assist in:
  - Brachial plexus exposure and reconstruction
  - Nerve transfers
  - Tendon transfers
  - Ligament reconstructions of the wrist.
  - Complex soft tissue and bone reconstruction of the hand and upper extremity

**COMMUNICATOR**

- Be able to elicit and synthesize information from patients and colleagues regarding the upper extremity conditions and convey this information either to patients and colleagues in an understandable fashion.
- Provide pre- and postoperative teaching to parents of children with congenital anomalies of the upper extremity.
- Provide pre- and postoperative teaching to patients with a variety of hand conditions.
- Be able to effectively communicate with the patient, the family and the multidisciplinary team members regarding the prognosis, operative plan and rehabilitation plan for the patient.
- Be able to convey the procedure performed and the consequences to the rest of the team, such as which joints may need restrictions for range of motion.
- The resident will be able to discuss with the team the needs for post discharge rehabilitation and wound care, and evaluate with the team and family the best plan for achieving those goals.
- Perform history and physical examinations, and share information with the senior resident and/or attending.
- Develops the ability to establish therapeutic relationships with patients and their families.
❖ Establishes a good relationship with peers and other professionals concerning the care of the hand patient.
❖ Conveys effective oral and written information through clear and accurate completion of consultations, progress notes and operative procedures.
❖ Develops the ability to deliver “bad news” when communicating to patients family members in patients with severe amputations or brachial plexus injuries with poor prognosis.

COLLABORATOR

❖ Be able to function and work as an interprofessional team with other specialties involved in the hand surgery realm including orthopedic surgeons, the Infectious Disease team, physiotherapy and occupational therapy, as well as other Plastic Surgery colleagues in cases requiring a two-team approach.
❖ Use radiotherapy, medical oncology, hand therapy, occupational therapy and prosthetics where appropriate for patients with upper extremity tumors.
❖ The resident will participate in weekly multidisciplinary hand rounds.
❖ They will understand when it is indicated to consult another health care provider to assist in patient care such as infectious disease, rheumatology or physical medicine or rehabilitation.
❖ The resident will be able to prevent, negotiate, and resolve inter-professional conflicts and understand how these may arise between the disciplines.
❖ Teach and help supervise medical students.

MANAGER

❖ Understand what is required to manage a sustainable practice and career in upper extremity surgery if they should so desire.
❖ Understand resources available to the hand surgery patients including what is available from Workers Compensation Board to the injured patients.
❖ They should understand the difficulty in allocating healthcare resources, which may include lack of access to OR, manpower deficiencies and therapists.
❖ The resident should demonstrate an understanding of the costs of equipment and procedures and be able to choose cost effective solutions when possible.
❖ The resident should understand the various administrative and leadership roles that are taken in the subspecialty.
❖ Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, emergency department, clinic, and on the ward.
❖ Follows-up on delegated tasks set aside by the senior resident or attending surgeon.
❖ Begin to use an extensive literature data base, including periodicals and specialty surgical texts.

HEALTH ADVOCATE

❖ Understand the importance of safety in the workplace with regards to Workers Compensation Board patients.
Identifies opportunities for health promotion and disease prevention:
  o Tetanus prophylaxis
  o Workplace setup in safety as well as ergonomic design in the ability to resolve or alleviate repetitive traumatic disorders to the hand or compressive neuropathies.
  o Advocate for appropriate use of power tools/equipment

Identifies the determinants of health of the populations, including barriers to access to care and resources

Understand the health needs of the communities and determinants of health in the population with regards to the hand injured patient as well as the pediatric brachial plexus patient.

Understand the incidents and prevalence of the different forms of arthritis in the local population.

**SCHOLAR**

The resident will understand the continuous medical education and learning requirements that are required to maintain competency in their specialty.

The residents should be able to critically evaluate the hand/wrist and nerve surgery literature and be able to apply this to their own practices.

The resident will be able to critically evaluate the surgical outcomes in their own practices by following the guidelines set by colleagues in their field.

Teaches medical students and other junior residents.

Participates in the education of patients and other health care professionals including the presentation of cases on rounds.

At the conclusion of their hand/wrist/nerve surgery training, the residents will be able to facilitate the learning and instruction of therapists in protocols.

**PROFESSIONAL**

Delivers the highest quality of care with integrity and honesty

Demonstrates compassion in providing care to patients and their families

Demonstrates a strong worth ethic and dependability

Develops effective professional relationships with health care professionals in surgery including nurses, oncologists, radiologists, therapists and other physicians

Duties will be discharged reliably and they will always strive for excellence

Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.

Accept constructive criticism with grace.

Dresses and acts in a professional manner in all environments.
Pediatric Plastic Surgery Goals and Objectives

General Objectives:
Become competent in the preoperative, operative, and postoperative management of all types of pediatric plastic surgery. Major focus of this rotation should be to develop an understanding of those conditions affecting the pediatric population, become competent in the perioperative care of pediatric patients, understand the principles of pediatric plastic surgery, and be able to perform pediatric plastic surgery.

Specific Objectives:
Although the residents are exposed to and have the opportunity to learn about a variety of conditions, the major focus for the PGY3-4’s medical knowledge objectives should be a thorough knowledge of the anatomy, physiology, and embryology of the head and neck, upper extremity, breast, trunk and genitalia and to be able to apply this information to the comprehensive management of a variety of problems in the pediatric patient.
Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY3 to PGY4.
Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

- Understand differences between malformations, deformations and disruptions.
- Acquire knowledge of the various congenital malformations (syndromic and non-syndromic) affecting the facial skeleton, trunk and extremities

Congenital Head and Neck
- Develop an understanding of the embryology of the head and neck specifically craniofacial clefts, cleft lip/palate and ear formation
- Demonstrate intimate knowledge of the common congenital disorders of the head and neck
- Understand the basic principles of the surgical and non-surgical management of common congenital disorders of the head and neck including:
  - Cleft lip
  - Cleft palate
  - Velopharyngeal incompetence
  - Craniosynostosis
  - Hemangiomas
  - Vascular Malformations
  - Auricular abnormalities
- Demonstrate broad general knowledge of less common congenital disorders including:
  - Hemifacial microsomia
  - Goldenhar’s syndrome
  - Submucous cleft palate
  - Tessier Clefts
  - Treacher Collin’s
- Pierre Robin
- Apert’s syndrome
- Crouzon’s Syndrome

- Comprehend the etiology, genetics, embryology and anatomy related to these disorders.
- Be familiar with the radiographic and special diagnostic studies necessary to fully evaluate these anomalies, as well as the specialty care which may be required.
- Be familiar with craniofacial growth and development, and the effect of particular anomalies or their treatments on such development.
- Be able to describe the sutures of the skull and the associate head shape abnormality descriptors, which accompany early fusion of each of these sutures.
- Be able to differentiate synostosis from deformational plagiocephaly, clinically, and know when x-rays or CT scan is necessary to differentiate the two.

**Clinical Skills**

- Can formulate a definitive short- and long-term treatment plan for patients with common congenital disorders, choosing the most appropriate surgical or non-surgical modality.
- Obtain an appropriate history and physical examination in patients with common head and neck congenital anomalies from the patient, family, and hospital records.
- Identify and describe in detail the cleft lip nose deformity and its surgical treatment.
- Participate in the surgical planning for patients with common congenital disorders of the head and neck, including cleft lip and palate.
- Recognize and coordinate nonsurgical treatment of congenital head and neck disorders, and provide pre- and postoperative care for such problems.
- Understand the timing of congenital reconstructive procedures and the basic surgical principles followed.
- Be able to readily classify facial cleft malformations based on phenotype of patient
- Participate in multidisciplinary evaluation and treatment programs for patients with congenital disorders of the head and neck (Cleft Palate Clinic, Craniofacial Clinic).
- Provide perioperative care, and participate in surgical treatment of patients with major craniofacial anomalies, such as telo-orbitism and Crouzon’s disease.
- Be familiar with the organization of specialty clinics (e.g. Cleft Palate Clinic, Craniofacial Clinic), including the coordination of all special services in the evaluation of the patient.

**Technical Skills**

- Demonstrate an ability of appropriate tissue handling and surgical ability in dealing with the various surgeries dealing with congenital problems.
- Perform primary and secondary surgery on patients with common congenital disorders of the head and neck with increasing competency and independence:
  - Excision of dysplastic nevi or congenital melanocytic nevi
  - Excision of dermoid cyst
  - Learn to draw the cleft lip/nose deformity and plan corrective surgery for the same.
  - Elevation of cleft lip and palate flaps
  - Excision of pre-auricular sinuses/pits
- Otoplasty

- Assist/Perform or be familiar with the following cases:
  - Cleft lip closure
  - Cleft palate closure
  - VPI pharyngoplasty
  - Cranial vault remodeling for craniosynostosis/plagiocephaly
  - Ear reconstruction with autogenous rib grafts
  - Tissue expansion of the scalp
  - Hemangioma/Vascular malformation debulking

- Be fully cognizant of the various complications/indications for such surgeries.

- Have a general sense of procedures available and surgical timing for procedures in the rehabilitation of these patients.

**Upper Extremity/Hand**

**Cognitive Skills**
- Know in detail the anatomy of the muscles, tendons and ligaments of the hand and upper extremity.
- Know in detail the anatomy of the vascular tree of the upper extremity, including relationships to surrounding structures.
- Know in detail the anatomy of the major nerves and their branches in the upper extremity, including relationships to surrounding structures.
- Understand the functional anatomy of the upper extremity, including the skin.
- Know the clinical techniques of physical examination of the hand.
- Be familiar with the anatomy of the brachial plexus.
- Know the detailed radiographic anatomy of the bony structures of the upper extremity.
- Understand the major aspects of embryologic development of the hand and upper extremity.
- Understand the routine and special radiologic techniques (including CT scan, MRI) to discern the hard and soft tissues of the upper extremity.
- Understand a classification system for congenital hand anomalies, including: failure of part formation, failure of differentiation, duplication, overgrowth, undergrowth, congenital bands, generalized musculo-skeletal anomalies.
- Understand the physiologic theories which explain the etiology of anomalies in each category.
- Know the incidence and inheritance pattern of the more frequent anomalies.
- Know the anomalies of other body parts which may be associated with the particular hand anomaly.
- Understand the range of deformity which can exist within a category and the specific changes which define that anomaly.
- Know the indications for operation for each category, including timing of the operation.
- Know the specific operations used in the surgical management of conditions within each category.
- Understand the normal embryologic developmental sequence of the hand and the post-natal ossification pattern (bone age).
- Understand the indications for and the application of non-operative casting and splinting for conditions within each category.

**Clinical Skills**
- Perform and obtain an appropriate history and physical examination of the pediatric patient with an upper extremity condition from child and family members.
Perform appropriate physical examination tests to determine brachial plexus lesion and upper extremity functionality

Becomes familiar with the interpretation of radiographs in the pediatric patient especially classification of Salter-Harris fractures in children.

Understand the timing of surgical and non-surgical interventions in pediatric patient with upper extremity conditions

**Technical Skills**

Perform the following procedures with increasing competence:
- Closed and open reduction of pediatric hand fractures
- Internal fixation of pediatric hand fractures
- Nerve and tendon repair

Assist/Perform or be knowledgeable of the operative techniques in the following procedures:
- Syndactyly release
- Polydactyly reconstruction
- Thumb pollicization
- Constriction band release/surgery

**Breast**

**Cognitive Skills**

Demonstrate knowledge of the anatomy musculature, blood supply, lymphatic drainage and Innervation of the breast.

Demonstrate knowledge of the glandular structure and function of the breast, and understands hormonal influence on breast development and function.

Recognize the breast structure and function in adolescence

Understand the relationships between breast disease and breast physiology.

Understand the embryonic development of the breast.

Understand the structure and function of the male, as well as female breast.

Know normal male and female breast growth and development.

Understand principles and techniques of surgical treatment of common developmental breast anomalies (e.g. amastia, Poland’s syndrome etc.)

**Clinical Skills**

Perform and obtain and appropriate history and physical examination of the developing adolescent

Perform appropriate physical examination tests to determine breast abnormality

Understand the timing of surgical and non-surgical interventions in pediatric patient with congenital breast conditions

**Technical Skills**

Perform the following procedures with increasing competence:
- Excision of supernumerary nipples
- Excision of breast masses

Assist/Perform or be knowledgeable of the operative techniques in the following procedures:
- Tuberous breast deformity correction with implants/tissue rearrangement
- Poland’s syndrome correction with latissimus dorsi reconstruction or DIEP
Trunk
Cognitive Skills
- Demonstrate knowledge of the musculature, blood supply, lymphatic drainage and innervation of the trunk and abdominal wall.
- Be familiar with the embryonic development of the trunk and abdominal wall.
- Be familiar with chest wall embryology and anatomy as applied to developmental chest wall deformities.
- Recognize the physiologic consequences of developmental chest wall deformities.
- Know common deformities of the posterior trunk including neural tube defects (spina bifida)
- Understand the embryology, developmental anatomy, and surgical management of congenital abdominal wall deformities.

Clinical Skills
- Perform and obtain and appropriate history from the family and physical examination of infant with a trunk abnormality
- Perform appropriate physical examination to determine extent of deformity
- Understand the timing of surgical and non-surgical interventions

Technical Skills
- Assist/Perform or be knowledgeable of the operative techniques in the following procedures:
  - Pectus correction surgery
  - Neural tube defect closure
  - Abdominal wall correction surgery

Genitalia
Cognitive Skills
- Know embryology of male and female genitourinary systems.
- Be familiar with the anatomy of the genitourinary system as it relates to reconstruction.
- Explain the genesis of common congenital anomalies based on interrelated embryology and anatomy.
- Apply the fundamental knowledge of genitourinary embryology, anatomy and pathology to treatment.
- Know how to evaluate ambiguous genitalia and evaluate patients with vaginal, penile, urethral and/or ambiguous genitalia disorders.

Clinical Skills
- Perform and obtain and appropriate history from the family and perform a physical examination of the infant and developing child
- Perform appropriate physical examination tests to determine degree of abnormality
- Obtain appropriate imaging to determine extent of abnormality.
- Understand the timing of surgical and non-surgical interventions in pediatric patient with congenital conditions

Technical Skills
- Assist/Perform or be knowledgeable of the operative techniques in the following procedures:
  - Penile reconstruction
  - Vaginal reconstruction
  - Hypo/epispadias correction
COMMUNICATOR

- Can consistently present history and physical findings of the pediatric patient to an attending staff
- Progress and operative notes are written in a clear and concise manner so as to allow another physician or team member to identify the relevant issues
- Demonstrate the ability to establish a therapeutic relationship with the child and their family. This includes the ability to obtain and share pertinent information with the patients’ family and the health care team.
- Obtain thorough and relevant medical history from the patient and family.
- Communicates well with patients and families considering age, gender, ethnic cultural socio-economic background.
- Communicates with members of the health care team including social work, child and family services, and pediatricians.
- Communicates with other specialty physicians involved in the care of the pediatric patient
- Establishes a therapeutic relationship with patients and communicate well with families that are characterized by understanding, trust respect, honesty, and empathy
- Respects patient confidentiality, privacy, and autonomy
- Be aware and responsive to nonverbal cues especially in those patients young and unable to communicate verbally (infants)
- Communicates effectively with families, patients, peers and health care team members involved in the care of the patient
- Conveys effective oral and written information about a medical encounter and provides clear management plans

COLLABORATOR

- Effectively participates and contributes to rounds
- Demonstrate the ability to work effectively in a team environment, by contributing to interdisciplinary patient care activities and by consulting effectively with other physicians.
- Works well in the pediatric surgery team environment, established harmonious relationships with physicians, nursing staff, and nutritionists
- Consults effectively with other physicians and health care professionals

MANAGER

- Completes tasks in a timely fashion
- Can relate and co-ordinate treatment plan with other members of the health care team (nurses, therapists, social workers etc.)
- Uses available resources effectively and considers alternative management options
- Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, emergency room, clinic, and on the ward
- Attentive to details, following up on delegated tasks
- Uses hospital resources appropriately
- Organize interdisciplinary communication and conferences when approaching patients with multi-system abnormalities.
HEALTH ADVOCATE

- Intervenes on behalf of patients and their family with respect to their care or that of the child
- Identifies opportunities for health promotion and disease prevention:
  - Immunization
  - Hygiene
  - Alcohol cessation during pregnancy
  - Child support services
  - Folic acid supplementation during pregnancy to decrease risk of neural tube defects
  - Tummy time and Bumbo chair for prevention of positional plagiocephaly
- Identifies the determinants of health of the populations, including barriers to access to care and resources
- Understand the health needs of the communities including the incidents of congenital anomalies
- Understand the genetic implications for cleft lip/palate development based on family history

SCHOLAR

- Can systematically identify the problems in a pediatric patient and generate a problem list.
- Can generate a plan for care based on that problem list.
  - Can identify gaps in knowledge and expertise, and develop a strategy to fill the gaps
  - Is aware of medical literature in their clinical decision-making.
  - Can facilitate the learning of other members of the team.

PROFESSIONAL

- Delivers the highest quality of care with integrity and honesty
- Demonstrates compassion in providing care to patients and their families
- Demonstrates a strong work ethic and dependability
- Develops effective professional relationships with health care professionals in surgery including nurses, therapists, radiologists, and other physicians
- Duties will be discharged reliably and they will always strive for excellence
- Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
- Accept constructive criticism with grace.
- Dresses and acts in a professional manner in all environments
- The resident will commit to ethical practices in pediatric plastic surgery
Plastic Surgery Trauma: Goals and Objectives
(Upper Extremity Trauma/ Burns /Craniofacial Surgery)

General Objectives:

Craniofacial
Become competent in the preoperative, operative and postoperative management of all types of head and neck trauma/craniofacial surgery. The resident will learn to appreciate the extensive team required to collaborate in order to treat complex congenital anomalies of the craniofacial region, including otolaryngology, speech pathology, nursing, neurosurgery, dentistry, oral surgery, orthodontics, genetics, psychiatry, psychology, ophthalmology, physiotherapy, audiology, occupational therapy. The resident will be proficient in the description of the anatomy, growth and development of the craniofacial skeleton and both normal and abnormal dentoskeletal relationships. The resident participates in a variety of operations, and the major focus of this rotation should be to begin to become competent in the perioperative care of patients, to begin to understand the principles of head and neck trauma, and to begin to be able to perform head and neck surgery.

Specific Objectives:

Although the residents are exposed to, and have the opportunity to learn about a variety of conditions, the major focus for the PGY3-PGY5s medical knowledge objectives should be to obtain a thorough knowledge of the mechanisms of traumatic injury of head and neck, understand diagnostic techniques and therapeutic options, and perform management of complex soft tissue and bony injuries of the head and neck.
Increasing competency in skill and independency is expected to be demonstrated as one transitions each year from PGY1 to 5.
Upon completion of this rotation, the plastic surgery resident will have acquired the following competencies and will function as:

MEDICAL EXPERT

Cognitive Skills

❖ The ATLS protocols will be implemented, as necessary, by the resident early in treatment of these patients
❖ Know the priorities involved in treating patients with multiple trauma, the timing and treatment of head and neck injuries, and the indications for endotracheal intubation and tracheostomy in such patients
❖ Become astute in estimating the extent of injury based on history; especially mechanism of injury and physical exam
❖ Know the indications for specific diagnostic studies, including:
  • Conventional radiography
  • Panorex films
  • Tomograms
  • Computer-assisted tomography
• Three-dimensional CT scan imaging
• Magnetic resonance imaging

❖ Become proficient in utilizing the appropriate investigations, conscious of their costs to confirm or rule out the suspicions of fractures and evaluate the exact extent and configuration of fractures
❖ Be familiar with the basic principles and available types of rigid fixation, including resorbable versus nonabsorbable plating systems
❖ Know the biomedical properties of the facial skeleton and patterns of injury associated with facial trauma, including associated cervical and cranial trauma.
❖ Understand the concepts of primary bone healing, malunion, nonunion and osteomyelitis.
❖ Understand the neuro-anatomy, cranial anatomy, and soft tissue relationships pertinent to the facial nerve.
❖ Understand the anatomy of the parotid gland and options for treatment of parotid injuries.
❖ Understand the etiology of enophthalmos, and its treatment options.
❖ Understand the anatomy of the lacrimal apparatus, and options for treatment of lacrimal injuries.

Clinical Skills

❖ Know an orderly, systematic approach to the physical examination of patients with facial trauma.
❖ Understand the management of open facial injuries, including anesthesia, local wound care, principles of debridement, and biological features which distinguish facial injuries from those in other locations.
❖ Recognize the indications for operative treatment of facial fractures.
❖ Assessment of plain films and CT scans, as necessary, will be learnt such that independent evaluation of these examinations will become reliable.
❖ Know the advantages and disadvantages of various techniques for treatment of facial fractures, including non-operative treatment, closed reduction, mandibulo-maxillary fixation, open reduction with and without fixation, wire fixation, compression and non-compression fixation, intro-oral splints, and external fixation (including halo and bi-phasic techniques).
❖ Fracture pattern descriptions and classifications will be known by the resident, along with the naming of craniofacial buttresses in order to allow the planning of surgery and the approaches necessary to rehabilitate the patient.
❖ Understand specific treatment of maxillary, mandibular, orbital, nasoethmoid, frontal, zygoma, and zygomatic arch fractures; the potential complications of such treatment (including malposition, deformity, malocclusion etc.), and the management of these complications.
❖ The options of closed versus open reduction, wire versus ridged fixation and the need for maxillomandibular fixation and early bone grafting, with the advantages and disadvantages of each will be appreciated by the resident.
❖ Be familiar with the operative incisions for the treatment of facial fractures.
❖ Know the pertinent anatomy for each approach to the craniofacial skeleton, the pitfalls and dangers of each approach and when it would be necessary for other subspecialty colleagues to be present for the necessary exposure i.e., frontal sinus, fracture treatment in conjunction with neurosurgery.
❖ Become familiar with the use of dental impressions and splints in the treatment of acute craniofacial trauma and will learn to prevent and treat postoperative complications of these patients.
Specifically, dentoskeletal pathology, enophthalmos, hypertelorism, malar retraction and ectropion will be thoroughly assessed by history and physical examination with the ability to order appropriate tests to allow the planning of applicable osteotomies and bone grafting techniques.

Become proficient in assessment of post-traumatic craniofacial malunions and soft tissue deformity.

The bone graft harvest sites and placement techniques will form an intricate part of the resident’s treatment plan.

Know how to perform an examination of the facial nerve.

Understand techniques for the treatment of acute injuries to the facial nerve.

Manage patients postoperatively after surgical treatment of facial fractures.

Understand the universal numbering system of teeth and be familiar with primary and secondary dentition

Angle’s classification, overjet, overbite, open bite, crossbite and centric relation versus centric occlusion will be utilized to describe those patients with both normal occlusion and malocclusion patterns.

Perform cephalometric evaluation of the dentoskeletal relationships and common craniofacial landmarks as it relates to the diagnosis and treatment planning of common dentoskeletal dysplasias like mandibular micrognathism, mandibular prognathism, microgenia, macrogenia, vertical maxillary excess, vertical maxillary deficiency and cleft lip and palate dental skeletal patterns associated with maxillary retraction and transverse maxillary deficiency.

Perform the evaluation of basic cephalometric plain x-rays and panorex films, placements of landmarks and appropriate tracings and execution of the surgery on paper.

Understand distraction osteogenesis and the concept of a latency and consolidation phase and how this process would compare with osteotomies coupled with ridge fixation and bone grafting.

Technical Skills

Perform the following procedures:
  o Minor and major soft tissue injury closure
  o Closed and open nasal bone fracture reduction/splinting
  o Gillies elevation of the zygoma
  o Maxillomandibular fixation – arch bars, interdental wiring, 4 post techniques
  o Tooth removal including wisdom teeth and impacted teeth
  o Open reduction and internal fixation of:
    ▪ Mandible fractures
    ▪ Maxillary fractures
    ▪ Zygoma fractures
    ▪ Orbital floor fractures

Assist/Perform or be familiar with:
  o Facial nerve repair and grafting
  o Facial nerve transfers
  o Repair of lacrimal and parotid ducts
  o Frontal bone/sinus reconstruction/rehabilitation
  o Pericranial flap elevation
Harvesting of cranial bone grafts
Approach to common facial osteotomies
Genioplasty
Sagittal split osteotomies of the mandible
Le Fort I, II, and III osteotomies and techniques
Distraction osteogenesis

COMMUNICATOR
❖ Establishes a therapeutic relationship with patients and communicates well with families that are characterized by understanding, trust, respect, honesty, and empathy
❖ Respects patient confidentiality, privacy, and autonomy
❖ Be aware and responsive to nonverbal cues in intubated patients or patients in MMF
❖ Communicates effectively with families, patients, peers and health care team members involved in the care of the patient
❖ Elicit and synthesize information from patients and their families as well as their colleagues and convey this information to patients and other colleagues in an understandable fashion.
❖ Conveys effective oral and written information about a medical encounter and provides clear management plans
❖ Delivers information to the patient and family in a humane manner
❖ Presents cases at surgical rounds
❖ Establish trust and rapport and ethical relationships with patients and their families when dealing

COLLABORATOR
❖ The need for collaboration in the treatment of these patients should be identified by the resident early, including Neurosurgical or Ophthalmologic support when associated organ systems appear damaged.
❖ Orthodontic and dental collaborative efforts in preparations for these surgeries should also be known.
❖ Works well in the plastic surgery team environment, establishes harmonious relationships with physicians, nursing staff, and dentists
❖ Consults effectively with other physicians and health care professionals to create plans for a multidisciplinary approach to the care of the head and neck trauma patient
❖ The resident will able to work in an inter-professional team including the intraoperative team required in treating breast pathology as well as with their colleagues in other disciplines including Oral Surgery, Dentistry, ENT, and Neurosurgery.
❖ Be able to prevent, negotiate, and resolve inter-professional conflicts that may arise.

MANAGER
❖ Uses available resources effectively and considers alternative management options
❖ Orders invasive (TMJ joint injection studies) and non-invasive (MRI/CT) tests appropriately
❖ Works effectively/efficiently and able to prioritize, delegate, and manage tasks in the operating room, emergency room, clinic, and on the ward
❖ Attentive to details, following up on delegated tasks
❖ Understands the difficulty in allocating rare or expensive health care resources, which include newer instrumentation, such as distraction osteogenesis equipment and resorbable plating systems.

HEALTH ADVOCATE
❖ Intervenes on behalf of patients with respect to their care
❖ Identifies opportunities for health promotion and disease prevention:
  o Dental hygiene
  o Appropriate seat belt use/wear
  o Helmet wear in sports
❖ Identifies the determinants of health of the populations, including barriers to access to care and resources

SCHOLAR
❖ Demonstrates a commitment to continuing personal education through the reading of specialty textbooks and journal articles
❖ Maintain competency through learning from other colleagues, what is available in the literature, and through international meetings.
❖ Critically appraises sources of medical information and uses evidence in clinical decision-making
❖ Teaches medical students and other junior residents
❖ Participates in the education of patients and other health care professionals including the presentation of cases on rounds
❖ Facilitates learning and the dissemination of information to patients and their family with regards to head and neck trauma
❖ Postoperative results should be critically evaluated, such that this can be applied in their own practice.

PROFESSIONAL
❖ Delivers the highest quality of care with integrity and honesty
❖ Demonstrates compassion in providing care to patients and their families
❖ Demonstrates a strong worth ethic and dependability
❖ Develops effective professional relationships with health care professionals in surgery including nurses, radiologists, dentists and other physicians
❖ Duties will be discharged reliably and they will always strive for excellence
❖ Understand the importance of mentoring junior colleagues, and will do so, exercising respect for diversity.
❖ Accept constructive criticism with grace.
❖ Dresses and acts in a professional manner in all environments
❖ The resident will commit to ethical practices in craniofacial surgery including the importance of patient confidentiality.