

Goals and Objectives Plastic Surgery Rotations McMaster University

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1. Introduction

The following comprises the goals and objectives for the various Plastic Surgery rotations. These goals and objectives are described using the CanMEDS format.

1.1 CanMEDS Format - Essential Roles and Key Competencies of Specialist Physicians

Medical Expert

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care
- Access and apply relevant information to clinical practice
- Demonstrate effective consultation services with respect to patient care, education and legal opinions

Communicator

- Establish therapeutic relationship with patients/families
- Obtain and synthesize relevant history from patients/families/communities
- Listens effectively
- Discuss appropriate information with patients/families and the health care team
- Dictates/writes clear consultation letters, progress notes, and discharge summaries
- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form
- Prepares, participates, presents effectively in rounds and seminars

Collaborator

- Consult effectively with other physicians and health care professionals
- Contribute effectively to interdisciplinary team activities
- Works with cooperation and respect with nurses, therapists and other members of the health care team
- Maintains professional relationships with other health care providers

Leader

- Contribute to the improvement of health care delivery in teams, organizations, and systems
- Utilize resources effectively to balance patient care, learning needs, outside activities
- Allocate finite health care resources wisely
- Work effectively and efficiently in a health care organization
- Manages team, delegates tasks and graded responsibility effectively
- Utilize information technology to optimize patient care and life-long learning

Health Advocate

- Identify the important determinants of health affecting patients

- Contribute effectively to improved health of patients and communities
- Recognize and respond to those issues where advocacy is appropriate
- Advocates on behalf of the patient

Scholar

- Develop, implement and monitor a personal continuing education strategy
- Recognizes gaps in knowledge and develops strategies to correct these
- Reads and prepares for scheduled clinical procedures
- Critically appraise sources of medical information
- Facilitate learning of patients, housestaff/students and other health professionals
- Contribute to development of new knowledge
- Accepts and acts on constructive feedback

Professional

- Deliver the highest quality care with integrity, honesty and compassion
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed
- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status

2. Plastic Surgery Rotation - HHS

2.1 Objectives for Junior Plastic Surgery Residents (PGY 1 and 2), Off-service Residents (General Surgery, Orthopedic Surgery, Emergency Medicine, Family Medicine, other programs)

Some topics will be more applicable to some specialties than to others (e.g. Orthopaedic Surgery residents need to focus more on hand injuries and bone healing while General Surgery residents need to know more about principles and techniques of breast reconstruction, wound healing and abdominal reconstruction techniques).

Medical Expert / Clinical Decision Maker

Knowledge: Basic Science

1. Wound healing
2. Bone healing Tendon healing Nerve healing
3. Anatomy - skin, hand, breast
4. Pathophysiology of shock, sepsis, trauma
5. Burns:
 - a. Pathologic aspects of a burn wound, and the pathophysiology of the burn wound with respect to both local and systemic derangements
 - b. Mechanism of development of burn shock and of fluid shifts and hemodynamic changes following significant burn injury
6. Microbiology of infectious disease and mechanism of antimicrobials

Knowledge: General Clinical

1. Be able to evaluate a new patient with thorough history and physical as well as ordering appropriate tests such as plain radiographs, panorex, cephalograms, CT/MRI and biopsies.
2. Formulate a diagnostic work-up and treatment plan including collaboration with appropriate colleges
3. Ability to optimize health of patients prior to operation, and consult appropriate services.
4. Diagnose and manage common post-operative complications of inpatients.

Knowledge: Specific Clinical

1. Burns:
 - a. Mechanism of development of burn shock and of fluid shifts and hemodynamic changes following significant burn injury
 - b. Understanding of resuscitation of burn shock including roles of and complications associated with use of crystalloids, colloids, and hypertonic solutions, and use of resuscitation endpoints including urinary output, lactate, base deficit, and invasively derived parameters such as PCWP, CI, and mixed venous oxygen saturation
 - c. Understanding of complications of fluid resuscitation including limb and abdominal compartment syndrome, pulmonary edema, and airway

- compromise.
- d. Indications for airway protection/prophylactic intubation of a burn patient, and the pathophysiology and clinical management of smoke inhalation injury, CO poisoning, and HCN poisoning.
 - e. Understanding of indications for and technique of escharotomy for both trunk and the limbs.
 - f. Understanding of indications for and approach to surgical decision making surrounding early excision and closure of the burn wound, for both minor and major injuries
2. Physical examination
 - a. Hand:
 - i. General Hand exam
 - ii. Fingertip injuries
 - iii. Extensor tendon lacerations
 - iv. Flexor tendon lacerations Fractures and dislocations
 - v. Infections
 - vi. Common "tumours" (ganglia, giant cell tumours)
 - vii. Common inflammatory conditions (stenosing tenosynovitis, DeQuervain's tenosynovitis)
 - viii. Compression neuropathies (carpal tunnel syndrome, cubital tunnel syndrome)
 - b. Craniofacial - Facial Fractures
 - c. Burns – assessment of thermal, chemical, electrical burns, ABA criteria for admission
 - d. Wounds / Ulcers – assessment of tissue viability, need for debridement
 - e. Skin – Malignancies (basal cell carcinoma, squamous cell carcinoma, melanoma), common benign lesions
 - f. Breast – assessment of patient for breast reduction, post-mastectomy reconstruction
 3. Basic surgical techniques
 - The awareness and appropriate use of various haemostatic techniques.
 - Awareness and appropriate use of various suture materials.
 - Effective assistance at surgery: knowledge of procedure, anticipation of steps.
 - Use of basic operating room instruments (scalpel, needle driver, suture, cautery, etc.)
 - Basic surgical skills (knot tying, soft tissue handling)
 - Various techniques to open/close wounds
 - Preparation of the operating room for a surgical procedure and understanding of aseptic techniques.
 4. Specific surgical techniques
 - Repair of fingertip injuries
 - Repair of extensor tendon lacerations
 - Closed reduction and appropriate splinting of simple fractures and dislocations
 - Incision and drainage of simple hand infections
 - Minor hand surgeries (trigger finger releases, carpal tunnel releases)
 - Skin Harvesting skin grafts (split thickness, full thickness)

- Excision of lesions, basic skin flaps
- Debridement of ulcers
- Burns Debridement and Escharotomies

Communicator

- Develop therapeutic relationships with patients and their families through effective listening and dissemination of information
- Be able to identify specific concerns of the patient/families, in particular relating to orthognathic surgery so the goals of surgery are clearly identified.
- Discuss information appropriately with patients/families and other members of the health care team
- Obtain and synthesize relevant history from patients/families/communities
- Listens effectively
- Dictates/writes clear consultation letters, progress notes, and discharge summaries
- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form

Collaborator

- Consult and interact effectively with other health care professionals
- Interact with other services in management of patients (intensivists, anesthesia, general surgery/ENT re airway)
- Contribute effectively to interdisciplinary team activities
- Works with cooperation and respect with nurses, therapists and other members of health care team
- Maintains professional relationships with other health care providers

Leader

- Contribute to the improvement of health care delivery in teams, organizations, and systems
- Be able to manage the diagnosis and treatment of maxillofacial problems in a sound manner with respect to the utilization of health care resources.
- Coordinate multiple services for the management when required (eg ENT for tracheostomy etc)
- Work effectively and efficiently in a health care organization
- Utilize information technology to optimize patient care

Health Advocate

- Familiarity with important determinates of health affecting patients undergoing anesthesia (e.g. smoking, obesity, drug or alcohol dependence, cervical disc problems, family history anesthetic problems) and addresses preventative measures
- Attentive to issues of public policy for health
- Advocates on behalf of patients

Scholar

- Recognizes gaps in knowledge and develops strategies to correct these
- Reads and prepares for scheduled clinical procedures
- Acts as effective teacher for medical students, and other health care professionals
- Develops knowledge from current literature/journals
- Understands principles of basic and clinical research including design and conduct of clinical trials and critical appraisal of scientific literature
- Takes an evidence-based approach to management problems
- Accepts and acts on constructive feedback

Professional

- Deliver health care to patients in an honest, ethical and professional manner.
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed
- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status

2.2 Senior Plastic Surgery Residents (PGY3, PGY4 and PGY5)

Residents should have a thorough grasp of all the basic knowledge and technical skills listed above plus the objectives outlined below.

Residency training (and beyond) is a continuum of learning and not a series of quantum leaps from year to year. Generally speaking however, execution of more difficult cases is not expected until the more senior years (PGY4, PGY5, fellow).

Medical Expert / Clinical Decision Maker

Knowledge: Specific Clinical and Technical

1. Microsurgery and replantation

- A. Anatomy and classification of flaps: pedicled and free (fasciocutaneous, myocutaneous, osteocutaneous)
- B. Ability to prepare patient for microsurgical cases
- C. Principles in raising a flap, preparing the recipient site and carrying out inset of the flap and microvascular anastomosis
- D. Understanding principles in replantation, when digits/limbs are salvageable or not, as well the steps required to carry out a successful replantation
- E. Ability to manage the microvascular / replantation patient intra and post-operatively (monitoring, medications, positioning)
- F. Ability to identify and manage post-operative complications

2. Hand

- A. General:
 - i. Describe and illustrate the normal anatomy and its variations of the hand as it relates to: vascular supply, nerve supply, flexor tendons, extensor tendons, bones, joints, skin, fascia and nails.
 - ii. Perform a thorough hand history investigating aspects of function, pain and body image
 - iii. Perform a complete hand examination.
- B. Fractures:
 - i. Describe an algorithm for management of hand fractures
 - ii. Perform a closed reduction for a hand fracture
 - iii. Perform an open reduction for a hand fracture
 - iv. List the complications and risks associated with hand fractures
 - v. Describe a corrective osteotomy for a malunion
- C. Extensor Tendons:
 - i. Classify and describe the treatment for extensor tendon laceration
 - ii. Perform an extensor tendon repair
 - iii. Describe the abnormalities and treatment associated with extensor mechanism imbalance for the digits and the thumb
- D. Flexor Tendons
 - i. Classify and describe the treatment for flexor tendon lacerations

- ii. Describe flexor tendon healing
 - iii. Describe post-operative regimens for flexor tendon healing
 - iv. Describe suture techniques and their rationale
 - v. Perform a flexor tendon repair
 - vi. Describe methods of flexor tendon reconstruction
- E. PIP joint repair and reconstruction
- i. Classify and describe PIP joint injuries
 - ii. Describe the treatment for PIP joint injuries
- F. Rheumatoid hand /Osteoarthritis
- i. Describe the management of Rheumatoid hand and osteoarthritis of the hand including the thumb carpometacarpal joint
 - ii. Describe the radiographic findings associated with arthritis of the hand
- G. Other Hand
- i. List the principles of tendon transfers
 - ii. Describe the tendon transfers for major peripheral nerve injuries and tetraplegia
 - iii. List and describe the management of upper extremity compression neuropathies
 - iv. Perform a carpal tunnel release, release of Guyon's canal and ulnar nerve transposition
 - v. Describe the principles of nerve repair and reconstruction and be able to perform a nerve repair.
 - vi. Dupuytren's disease - understand the anatomy and be able to carry out a palmar fasciectomy
 - vii. Tumours (soft tissue, bone) – classification, work-up and management
 - viii. Injection injuries - management
 - ix. Reflex sympathetic dystrophy – diagnosis and management
- H. The Wrist
- i. Describe and illustrate the normal anatomy of the wrist as it relates to: bones, joints, vascular supply, nerve supply, and ligaments
 - ii. Perform a thorough history and clinical examination of the wrist
 - iii. Describe the interpretation and normal findings of radiographs of the wrist
 - iv. Classify and describe the findings and management of scapholunate dissociation
 - v. Classify and describe the findings and management of traumatic ligamentous wrist injuries
- I. Complex extremity reconstruction
- i. Describe the treatment principles for complex traumatic upper extremity injuries
 - ii. Describe upper extremity flaps for reconstruction
 - iii. Describe the treatment principles for complex traumatic lower

extremity injuries

- iv. List the major available flaps for reconstruction distal to the knee
- v. List the major free flaps (three each for skin, muscle, and bone) and describe their anatomy, advantages and disadvantages
- vi. Elevate a free flap
- vii. Perform a microvascular anastomosis

3. Burns

- a. Pathologic aspects of a burn wound, and the pathophysiology of the burn wound with respect to both local and systemic derangements.
- b. Mechanism of burn shock and of fluid shifts and hemodynamic changes following significant burn injury.
- c. Resuscitation of burn shock including roles of and complications associated with use of crystalloids, colloids, and hypertonic solutions, and use of resuscitation endpoints including urinary output, lactate, base deficit, and invasively derived parameters such as PCWP, CI, and mixed venous oxygen saturation.
- d. Understanding the complications of fluid resuscitation including limb and abdominal compartment syndrome, pulmonary edema, and airway compromise.
- e. Indications for airway protection/prophylactic intubation of a burn patient, and the pathophysiology and clinical management of smoke inhalation injury, CO poisoning, and HCN poisoning.
- f. Indications for and technique of escharotomy for both trunk and the limbs.
- g. Indications for and approach to surgical decision making surrounding early excision and closure of the burn wound, for both minor and major injuries.
- h. Understanding of the management of burns to the hand, including non-operative measures (elevation, splinting, wound care, mobilization, analgesia), operative indications and techniques, and post-operative care.
- i. Understand management of burns to the face, ears and neck, including non-operative measures, surgical approach/decision making surrounding excision and closure, use of aesthetic units concept, post operative care.
- j. Understanding of the role of nutritional support and metabolic alterations in the burn patient.
- k. Understanding of the role and use of topical antimicrobials and dressings for burn wounds.
- l. Complications and management of complications associated with significant burn injury, specifically sepsis and ARDS.
- m. Ventilation modalities for burn patients including protective conventional ventilation, high-frequency percussive ventilation, and high-frequency oscillatory ventilation.
- n. Understanding of the indications for and use of skin substitutes.
- o. Understanding of approach to chemical and electrical burns, and specific considerations in these specialized burn injuries.
- p. Understanding of burn centre approach to management of severe exfoliative disorders such as Toxic Epidermal Necrolysis.
- q. Understanding of the pathophysiology of scar and hypertrophic scar formation, and the modalities used in conjunction with the burn Rehabilitation Therapist to control hypertrophic scar formation.

- r. Understanding of the rationale behind splinting in the burn patient, and knowledge of correct positioning and splinting for the burn patient in the acute, perioperative and late (rehabilitation) phases.
- s. Understanding of approach to analgesia in burn patients including opioid and non- opioid modalities

4. Breast:

A. General

- i. Describe the embryology of the breast.
- ii. Explain common congenital anomalies of the breast based on an understanding of the underlying embryology (axillary breast tissue, amastia, Poland's syndrome, accessory nipple).
- iii. Describe and illustrate the anatomy of the breast as it relates to: anatomic location, vascular supply, lymphatic supply, nerve supply, supporting structures.
- iv. List the premalignant and malignant conditions that affect the breast and describe the treatment options available for each condition.
- v. List the genes that are involved in genetic screening for breast cancer and discuss the implications of a positive test as it relates to plastic surgery.
- vi. Describe the current recommendations for mammography in the Province of Ontario.
- vii. Describe the diagnosis and treatment options for common benign conditions of the breast including fibroadenoma, fibrocystic disease, Mondor's disease, ductal papilloma.

B. Reduction

- i. Perform a thorough consultation for a breast reduction to include a history, physical and development of a treatment plan.
- ii. List the complications that would be discussed in an informed consent for a breast reduction procedure.
- iii. Draw a Wise pattern for a breast reduction and describe variations in the pattern to suit different breast sizes and shapes.
- iv. List various options for infiltration in breast reduction surgery and discuss the advantages of each.
- v. Perform an inferior pedicle breast reduction.
- vi. Perform a superior/superior lateral/superior medial breast reduction.
- vii. Perform a free nipple graft breast reduction.
- viii. Draw a vertical skin pattern breast reduction and perform a breast reduction using a limited skin excision approach.
- ix. Describe a reasonable postoperative plan following breast reduction to include: hospitalization, dressings, wound management, follow up visits and mammography.

C. Gynecomastia

- i. Describe an appropriate work-up including history, physical and examination for a patient presenting with gynecomastia.

- ii. Classify gynecomastia by etiology and appearance.
- iii. List the complications and risks associated with male subcutaneous mastectomy as it relates to a full informed consent.
- iv. Perform a subcutaneous mastectomy through a peri-areola incision.

D. Breast Augmentation

- i. List the complications and risks associated with saline breast augmentation as it relates to providing a full informed consent.
- ii. List the complications and risks associated with silicone gel breast implant augmentation as it relates to providing a full informed consent.
- iii. List and explain the various breast implant options presently available for breast augmentation surgery.
- iv. Perform a subpectoral breast augmentation.
- v. Perform a subglandular breast augmentation.
- vi. Perform a dual plane breast augmentation.
- vii. Perform a breast augmentation through an inframammary approach.
- viii. Perform a breast augmentation through a peri-areolar approach.
- ix. Perform a breast augmentation through a trans-axillary approach.
- x. Describe the components of a tubular breast deformity.
- xi. Describe an acceptable treatment plan for a tubular breast deformity.

E. Mastopexy

- i. Provide a classification scheme for ptosis of the breast.
- ii. List the complications associated with a mastopexy that would be discussed in a complete informed consent.
- iii. Discuss the indications for a peri-areolar mastopexy, inverted tear-drop and Wise pattern mastopexy
- iv. Draw and describe the procedure for a peri-areolar mastopexy, inverted tear drop and Wise pattern mastopexy.
- v. Explain any modifications to a mastopexy that are or may be required when performing an augmentation at the same time as a mastopexy.

F. Reconstruction

- i. Describe the anatomy of the TRAM flap.
- ii. Describe the variations of a TRAM flap: single pedicle, double pedicle, free TRAM
- iii. Discuss the indications, contraindications, risks and complications associated with TRAM flap surgery.
- iv. Perform a single pedicle TRAM flap.
- v. Perform a double pedicle TRAM flap.
- vi. Discuss management of the abdominal wall in TRAM flap surgery.
- vii. Discuss approaches to shaping the TRAM flap and demonstrate an ability to shape and reconstruct the breast using a TRAM flap.
- viii. Discuss perforator flaps and their use in Breast reconstruction (DIEP, SIEP)
- ix. Discuss the indications, contraindications, risks and complications associated with perforator flaps
- x. Carry out a breast reconstruction with a perforator flap

- xi. Describe the anatomy of the latissimus dorsi flap and the extended latissimus dorsi flap for breast reconstruction.
- xii. Perform a latissimus dorsi flap breast reconstruction with or without an implant or expander.
- xiii. Perform a two-stage immediate breast reconstruction with a tissue expander and implant.
- xiv. Perform a two-stage delayed reconstruction with a tissue expander and implant.
- xv. Discuss the selection of tissue expanders in post-mastectomy breast reconstruction.
- xvi. Discuss the selection of permanent breast prosthesis in post-mastectomy breast reconstruction.
- xvii. List the risks and complications associated with post-mastectomy breast reconstruction utilizing tissue expanders and implants.
- xviii. List options for nipple areola reconstruction and describe the advantages and disadvantages of each approach.
- xix. Perform areola reconstruction using tattooing and full thickness skin grafts.
- xx. Perform nipple reconstruction utilizing local flaps, nipple sharing and labia grafts.

- A. **Head & Neck:** All topics covered in Head & Neck rotation
 - a. Lump in the neck
 - b. Premalignant and malignant disease
 - c. Mandibular tumours/cysts
 - d. Salivary gland tumours
 - e. Flaps in the head and neck
 - f. Mandibular reconstruction
 - g. Soft tissue reconstruction principles
 - i. Illustrate the ideal orientation of incisions on the face
 - ii. Illustrate aesthetic units of the face
 - iii. Describe the healing and outcome of a local skin flap, partial and full thickness skin graft, composite graft
 - iv. Describe the physiology and clinical application of the delay phenomenon.
 - v. Classify and illustrate local skin flaps
 - vi. Describe and illustrate regional axial pattern flaps in the head and neck
 - vii. Perform a full thickness skin graft reconstruction
 - viii. Perform a rhomboid flap reconstruction
 - ix. Perform an advancement flap reconstruction
 - x. Perform a rotation flap reconstruction
 - h. Eyelid reconstruction
 - i. Discuss the principles of eyelid reconstruction
 - ii. Describe and classify techniques for upper lid reconstruction
 - iii. Perform a flap reconstruction of a lower lid defect
 - iv. Classify ectropion

- v. Describe a treatment plan for cicatricial ectropion
- vi. Define medial canthal dystopia and describe the assessment
- i. Lip reconstruction
 - i. Discuss the principles of lip reconstruction
 - ii. Describe and illustrate an Abbe flap
 - iii. Describe and illustrate a Karapandzic flap
 - iv. Perform a lower lip defect reconstruction
- j. Cheek reconstruction
 - i. Describe principles of cheek reconstruction
 - ii. Describe and illustrate a rhomboid flap, V-Y flap, rotation flap, Mustarde flap
- k. Ear reconstruction
 - i. Describe and classify techniques for ear reconstruction
 - ii. Perform a reconstruction of a helical defect
- l. Nose reconstruction
 - i. Discuss the principles of nasal reconstruction
 - ii. Perform a flap reconstruction of a lower third nasal defect
 - iii. Perform a flap reconstruction of an upper two-thirds nasal defect
 - iv. Describe the use of a forehead flap in nasal reconstruction
- A. Facial nerve palsy
 - i. Cross facial nerve graft
 - ii. Masseter nerve innervation of gracilis
 - iii. Free functioning gracilis transfer
 - iv. Depressor resection
 - v. Static sling operations
 - vi. Gold weight insertion into upper eyelids
 - vii. Static sling operations for lower eyelids

B. Aesthetic:

- a. Body Contouring
 - i. Describe the components of the tumescent solution.
 - ii. Describe what it meant by dry, super wet and tumescent liposuction
 - iii. List the risks and complications associated with liposuction surgery as it relates to a full informed consent.
 - iv. Perform liposuction surgery on areas to include abdomen, hips, thighs, knees and buttocks.
 - v. Provide appropriate guidelines for fluid resuscitation associated with super wet and tumescent liposuction.
 - vi. List the risks and complications associated with abdominoplasty surgery as it relates to a full informed consent.
 - vii. Perform a full abdominoplasty procedure including plication of the rectus muscles.
 - viii. Describe the indications for a full abdominoplasty, mini-abdominoplasty and liposuction of the abdomen.
 - ix. Discuss the indications for a circumferential body lift.
 - x. Discuss the indications for a thigh lift.
 - xi. Discuss the various approaches to treating the upper arm including brachioplasty mini-brachioplasty and liposuction.

- b. Rhytidectomy
 - i. Mark incisions for a rhytidectomy
 - ii. Discuss complications
 - iii. Describe a submental lipectomy and placcation
 - iv. Variations of facelift procedures
- c. Blepharoplasty
 - i. Describe the assessment of a patient with blepharochalasia
 - ii. Describe complications of lower lid blepharoplasty
 - iii. Describe an upper eyelid blepharoplasty
 - iv. Describe a lower eyelid blepharoplasty
- d. Browlift
 - i. Discuss normal brow position and morphology
 - ii. Describe techniques of brow lift
- e. Rhinoplasty
 - i. Describe the assessment of a patient with a nasal deformity
 - ii. List the complications of rhinoplasty
 - iii. Perform a septoplasty
 - iv. Expose the nose through an external rhinoplasty approach
 - v. Harvest cartilage graft from the septum and the concha
 - vi. Discuss techniques of nasal osteotomy
 - vii. Describe the use of spreader grafts
 - viii. Discuss techniques of altering nasal tip projection
- f. The role of fat grafting in cosmetic surgery ie Coleman's work

C. Craniofacial:

- a. General
 - i. Anatomy
 - 1. Scalp
 - 2. Temporal region (to include Temporal Parietal Fascia, Deep Temporal Fascia, course of facial nerve)
 - 3. Frontal sinus
 - 4. Orbit
 - 5. Eyelids and canthi
 - 6. Nasoethmoid region
 - 7. Nose
 - 8. Maxilla
 - 9. Zygoma
 - 10. Mandible and TMJ
 - 11. Lips
 - 12. Ear
 - 13. Facial nerve
 - ii. Describe normal occlusion and principles of re-establishing premorbid occlusion.
 - iii. Perform a comprehensive clinical assessment of the face, including specific evaluations of:
 - 1. Facial nerve function
 - 2. Visual function

3. Jaw function and occlusion
 - iv. Demonstrate an ability to read:
 1. Coronal and axial face CT scans
 2. Facial X-rays
 3. Panorex
 - v. Describe the normal healing of a fracture, of a free and a vascularized bone graft
 - vi. Perform the following surgical approaches and exposures:
 1. Coronal
 2. Lower lid (transconjunctival, Mid-lower lid)
 3. Upper and lower buccal sulcus
 4. External mandibular
- b. Craniofacial Trauma
1. Describe the principles of (ABC's) trauma management. Discuss specific management of facial hemorrhage, compromised airway, patient with facial injuries and associated c-spine or head injury.
 2. Management of a patient with acute loss of vision
 3. Management of a patient with facial fractures and CSF rhinorrhea.
 4. Perform repairs of facial soft tissue injuries. Describe principles
 5. Perform the following facial fracture procedures:
 - a. Closed reduction nasal fracture
 - b. Open reduction and fixation frontal sinus fracture
 - c. Open reduction and fixation zygoma fracture
 - d. Repair orbital floor defect
 - e. Open reduction and fixation nasoethmoid fracture
 - f. Lateral canthoplasty
 - g. Maxillo-mandibular fixation
 - h. Open reduction and fixation midface fracture
 - i. Open reduction and fixation mandibular fracture
 6. Management of condylar neck fractures
 7. Indications for orbital fracture repair
- c. Cranial Vault Deformity:
- i. Classify cranial vault defects
 - ii. List the materials available for cranioplasties and discuss the indications and contraindications for each
- d. Orbital Deformity
- i. Clinical features and pathomechanics of enophthalmos, exophthalmos, hyperglobus and hypoglobus, vertical orbital dystopia
 - ii. Clinical features and pathomechanics of an enucleated orbit
 - iii. Be able to discuss the procedure and complications and obtain an informed consent for an orbital exploration
 - iv. Perform an orbital exploration

- v. Describe the surgical options for enophthalmos repair and the indications for each

D. Trunk and lower extremity reconstruction

- a. Describe the treatment principles for complex traumatic upper extremity injuries
- b. Describe upper extremity flaps for reconstruction
- c. Describe the treatment principles for complex traumatic lower extremity injuries
- d. List the major available flaps for reconstruction distal to the knee
- e. Describe the principles for complex abdominal wall reconstruction
- f. Describe the principles for a component separation
- g. List the major free flaps (three each for skin, muscle, and bone) and describe their anatomy, advantages and disadvantages
- h. Elevate a free flap
- i. Perform a microvascular anastomosis

E. Tissue Expansion

- a. indications and contraindication
- b. principles in choosing correct expander and its placement
- c. managing the expansion
- d. identifying and managing complications of expansion

F. Scars – prevention and management

Communicator

- Develop therapeutic relationships with patients and their families through effective listening and dissemination of information
- Be able to identify specific concerns of the patient/families, in particular relating to orthognathic surgery so the goals of surgery are clearly identified.
- Discuss information appropriately with patients/families and other members of the health care team
- Obtain and synthesize relevant history from patients/families/communities
- Listens effectively
- Dictates/writes clear consultation letters, progress notes, and discharge summaries
- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form

Collaborator

- Consult and interact effectively with other health care professionals
- In addition, interact with other services in management of patients (intensivists, anesthesia, general surgery/ENT re airway)
- Contribute effectively to interdisciplinary team activities
- Works with cooperation and respect with nurses, therapists and other members of health care team
- Maintains professional relationships with other health care providers

Leader

- Contribute to the improvement of health care delivery in teams, organizations, and systems
- Be able to manage the diagnosis and treatment of plastic surgery problems in a sound manner with respect to the utilization of health care resources.
- Coordinate multiple services for the management when required (eg ENT for tracheostomy etc)
- Work effectively and efficiently in a health care organization
- Utilize information technology to optimize patient care

Health Advocate

- Familiarity with important determinates of health affecting patients undergoing anesthesia (e.g. smoking, obesity, drug or alcohol dependence, cervical disc problems, family history anesthetic problems) and addresses preventative measures
- Attentive to issues of public policy for health
- Advocates on behalf of patients

Scholar

- Recognizes gaps in knowledge and develops strategies to correct these
- Reads and prepares for scheduled clinical procedures
- Acts as effective teacher for medical students, and other health care professionals
- Develops knowledge from current literature/journals
- Understands principles of basic and clinical research including design and conduct of clinical trials and critical appraisal of scientific literature
- Takes an evidence-based approach to management problems
- Accepts and acts on constructive feedback

Professional

- Deliver health care to patients in an honest, ethical and professional manner.
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed
- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status

2.3 Orientation to the HHS Plastic Surgery Service

The Plastic Surgery service at the Hamilton General Site is located at the Burn and Trauma Unit on the 3rd floor. The Hamilton General Site residents will also cover OR's at the Henderson site when appropriate. The service is composed of several tiers: Clinical clerks, off-service residents, plastics residents (junior/senior), and plastic surgeons.

The senior Plastic Surgery resident is responsible for making the manpower assignments for the week. It is expected that these be communicated to the staff prior to the commencement of the week so everyone is clear on their clinical responsibilities. Each resident will be expected to actively participate in his or her own education by following the schedule.

Each resident should attend OR's, clinic (in addition to the residents' clinic) or office and the minor procedure room (SSU) each week. What you get from a rotation is proportional to what you put into it.

2.4 Coverage

Throughout the day there is an emergency coverage call schedule from 0800h to 1700h. The senior resident will determine this. Cases in emergency are to be discussed with the staff surgeon on call and the senior resident if possible.

All admissions and in-hospital consultations must be discussed with the senior resident and the resident who will be covering call.

Notes must be dictated for all consultations and procedures. A copy must be dictated to the on-call staff, the GP, WSIB, (when appropriate).

Discharge summaries are to be dictated by the residents for all patients who have been admitted.

Communication is the key to a well-run service. Residents on call in the evening and during the day are to sign over to the on-coming resident, and/or senior resident. This should occur before 0800h on the weekdays and 0900h on the weekends. If there is a case on the emergency board for the operating room that will likely go to the OR after 5pm or on the weekend, the resident must sign out to the on-call resident so they are aware that there is a case pending. The resident who admitted the patient has the opportunity to come back for the case if they choose even if they are not on call. During weekend call if there are ORs starting at 0800h you must let the on coming resident know in advance about the OR so they can be in hospital for the start of the case.

A plastic resident call room on **8 North, Room 8N-03, General Site** is available if necessary when on call at night.. We have made the key available for you to sign out at the Burn Unit. You are required to sign it out with your pager number and sign

it back in when you are finished.

When leaving the service you are expected to write hand over summaries on your patients. And at the end of the day, communicate with the on-call resident about any in-patients with active concerns or patients waiting in the ER.

2.5 Rounds

Rounds will commence promptly at 0700h Monday, Tuesday, Thursday, and Friday. On Wednesday rounds will start at 0630h because of academic half days in the morning. Residents are expected to return to their clinical duties by 1300h on Wednesdays.

Residents are expected to round on the active patients and acutely sick patients, and write progress notes (including the weekend). Notes must be signed and dated (including the time you saw the patient). Under the signature, you must include your first and last name printed in a legible manner.

When on call on the weekends. It is important to start rounds early enough on weekends to facilitate discharges. If there is an OR at 09:00 hrs on a weekend, the am rounds should be completed before you go the OR at 09:00 hrs.

All burn / micro / flap patients require progress notes daily, and assessment several times throughout the day. It is required to round on your sick patients before leaving at the end-of the day, and sign over active issues to the on-call resident.

Stable ulcer / wound patients should be assessed at least once per week, along with a progress note.

2.6 Burns

Burn admissions can be extremely sick and require very diligent care. Off-service residents may make arrangements with the plastic residents for added coverage when on call at night if a very sick burn is admitted. There is a burn admission information sheet in a binder on the chart rack in BTU.

Burn rounds are held on the BTU at 1530 hrs on Tuesdays and are mandatory for all residents to attend.

2.7 Resident Clinic

There is a resident clinic on Friday afternoons starting at 1300h. This is mandatory for all residents. The staff surgeon on call during the weekend covers this clinic. Follow-up appointments for this clinic are to be booked by patients in advance -otherwise they arrive without a chart or x-rays.

The patient is to call the morning after assessment/injury and book an appointment for the given Friday. The number is 527-4322 ext 46266. Business cards are available at the clinic (main floor OPD section C) and the emergency room.

Instructions for Resident's Clinic

- **Dictate a note on all of the patients you see in resident's clinic.**
- **Dictate under the name of the surgeon who the patient was originally referred to** (*not under the surgeon who is supervising the clinic today – although they do need to be copied on the dictation*)
 - This will be the surgeon who was on-call the day that this patient was referred to our service – usually the day they were seen in Emerg
 - You may need to confirm this date with the patient, or look it up on Meditech
 - There are copies of the staff call schedule out front at the registration desk where you can look up which staff was on call on a particular date
- **Before you finish with your patient's chart, make sure it has the following 4 things clearly indicated on it:**
 1. Your signature
 2. The supervising staff surgeon's signature
 3. The billing codes for the visit
 4. The dictation number for your note
- **If the patient is being discharged from Resident's clinic and is going to follow-up with their surgeon, you need to do the following:**
 - Give the patient the surgeon's office number so they can call for an appointment
 - Call the surgeon's office to let their secretary/assistant know to expect the patient's call and what time frame they need to be seen in
 - Ask the clerk or nurse to fax a copy of the Resident's Clinic chart to the surgeon's office (b/c your dictation may take awhile to make it to the office)
- **At the end of clinic, the charts can be left in the office, or you can give them to one of the clerks at the registration desk.**
- **If the patient has never been seen by our service, or if they have only been seen by a resident in Emerg, then you can bill for a new consult (A085)**
 - If the patient has been seen before in Resident's clinic, or if they have been seen or operated on by one of the staff surgeons and then sent to Resident's Clinic, they should be billed as a Partial Assessment (A084)

2.8 Hand Therapy

Follow-up in the Hand therapy clinic (main floor HGH) requires several steps:

1. A detailed note of the time of injury, treatment, details of the treatment (location of k-wires, type of tendon repair) and the splint-protocol requested needs to be completed and given to the patient to take with them to the clinic. This can be done on a prescription.
2. The Hand therapy clinic should be sent a copy of the dictated note.
3. The patient must call the clinic in advance to make an appointment. If you wish the

patient to be seen the same day, then you must call the clinic yourself to see if this is possible. The number is 527-4322 ext 46297.

2.9 ORs

Residents are expected to know the patient on whom they will be operating. The surgeons' office can provide the patient details and appropriate history. In addition, it is an expectation that the resident arrives in the OR / patient holding in advance to read the chart and examine the patient prior to the case. Preparation for cases in advance is essential to maximize the learning opportunity. ORs start promptly at 0800h. Rounds must be finished to allow for this start time. **This will require you to allocate an adequate amount of time to finish rounding on the in-patients prior to the commencement of the surgical cases.**

Each surgeon operates in the main OR, and in a Short Stay Unit (SSU). Schedule your time to allow exposure to both.

2.10 Schedule

1. MUMC clinics (Bain, Strumas, Choi) and MUMC OR's are covered by the MUMC resident but the Hamilton General Clinics are covered by the HGH resident.
2. Surgeries at the Henderson are covered by the resident for the particular surgeon who is operating, (see below)
3. The weekly schedule has some variability since the surgeons cover three sites, so it is necessary to review this schedule to be familiar with the subtleties.

Surgeon	Monday	Tuesday	Wednesday	Thursday	Friday
Dr. DalCin	Academic time	1, 3, 5 OR – HGH 2, 4 – Office Clinic	1, 3, 5, SSU HGH 2, 4, Office Clinic	OR - HGH	Academic time
Dr. Martin	AM/PM – Clinic	HGH- OR	AM/PM - SSU	HGH - OR	AM - Clinic
Dr. Avram	OR - JCC	PM – JCC cancer clinic	OR – JCC	Alternate weeks – Breast Centre Clinic vs JCC Clinic	Every other week – JCC clinic
Dr. Strumas	AM – Clinic4F PM – Clinic 4F	AM-4V1 Clinic PM-SSU	OR - HGH	Alternate Weeks OR – MUMC SSU - HGH	AM-2G clinic PM-Cleft clinic monthly
Dr. Bain	AM-2G Clinic PM-2G Clinic	AM-SSU PM-2G clinic	AM/PM-4F Clinic	Alternate Weeks OR – MUMC SSU - HGH	OR-HGH
Dr. Cooper	AM – OPD Clinic PM-SSU	HGH – Emerg OR	HGH – Emerg OR	HGH – Emerg OR	AM – OPD Clinic

2.11 Surgeons Contact Information

Dr. R. Avram
Office: ext. 44891
Pager: 905-521-5030
Dictation: 13087

Dr. S. Martin
Office: 572-6226
Pager: 524-8067
Dictation: 13906

Dr. James Brain
Office: ext. 7322
Pager: 905-521-5030
Dictation: 13531

Dr. N. Strumas,
Office: ext. 73594
Pager: 905-521-5030
Dictation: 13069

Dr. A. Dal Cin

Dr. J. Cooper

Office: 905-526-0811
Pager: 905-521-5030
Dictation: 13610

Office: ext. 44891
Pager: 905-521-5030
Dictation: 13150

3. Plastic Surgery Rotations at St. Joseph's Healthcare: Rotation Specific Objectives

3.1 General Objectives for All Residents

Medical Expert

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care
- Access and apply relevant information to clinical practice

Communicator

- Establish therapeutic relationship with patients/families
- Obtain and synthesize relevant history from patients/families/communities
- Listens effectively
- Timely completion of consultations, progress notes, procedure notes and discharge summaries to facilitate communication with referring physicians and other members of the health care team
- Concise and accurate case presentations either in person or by telephone to senior colleagues (staff or other residents)
- Discuss appropriate information with patients/families and the health care team
- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form
- Prepares, participates, presents effectively in rounds and seminars

Collaborator

- Consults effectively with other physicians (internal medicine, infectious disease) and health care professionals (OT/PT, nutrition)
- Contribute effectively to interdisciplinary team activities
- Maintains professional relationships with other health care providers

Leader

- Contribute to the improvement of health care delivery in teams, organizations, and systems
- Utilize resources effectively to balance patient care, learning needs, outside activities
- Allocate finite health care resources wisely
- Work effectively and efficiently in a health care organization
- Manages team, delegates tasks and graded responsibility effectively
- Utilize information technology to optimize patient care and life-long learning

Health Advocate

- Identify the important determinants of health affecting patients
- Contribute effectively to improved health of patients and communities
- Recognize and respond to those issues where advocacy is appropriate
- Advocates on behalf of the patient

Scholar

- Develop, implement and monitor a personal continuing education strategy
- Recognizes gaps in knowledge and develops strategies to correct these
- Reads and prepares for scheduled clinical procedures
- Critically appraise sources of medical information
- Facilitate learning of patients, housestaff/students and other health professionals
- Contribute to development of new knowledge
- Accepts and acts on constructive feedback

Professional

- Deliver the highest quality care with integrity, honesty and compassion
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed
- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status

3.2 Objectives for Junior Plastic Surgery Residents (PGY1 and PGY2) and Off-service Residents (General Surgery, Orthopaedic Surgery, Emergency Medicine, Family Medicine, other programs)

Some topics will be more applicable to some specialties than to others (e.g. Orthopaedic Surgery residents need to focus more on hand injuries and bone healing while General Surgery residents need to know more about principles and techniques of breast reconstruction).

Greater proficiency at technical skills is expected of residents in surgical programs (and Emergency Medicine) than in other programs.

Medical Expert / Clinical Decision Maker

Knowledge: Basic Science

1. Wound healing
2. Bone healing Tendon healing Nerve healing
3. Anatomy - skin, hand, breast
4. Pathophysiology of shock, sepsis,
5. Microbiology of infectious disease and mechanism of antimicrobials

Knowledge: General Clinical

1. Be able to evaluate a new patient with thorough history and physical as well as ordering appropriate tests such as plain radiographs, CT/MRI and biopsies.
2. Formulate a diagnostic work-up and treatment plan including collaboration with appropriate colleges
3. Ability to optimize health of patients prior to operation, and consult appropriate services.
4. Diagnose and manage common post-operative complications of inpatients.

Knowledge: Specific Clinical

- a. Physical examination
 - a. Hand:
 - i. General Hand exam

- ii. Fingertip injuries
- iii. Extensor tendon lacerations
- iv. Flexor tendon lacerations Fractures and dislocations
- v. Infections
- vi. Common "tumours" (ganglia, giant cell tumours)
- vii. Common inflammatory conditions (stenosing tenosynovitis, DeQuervain's tenosynovitis)
- viii. Compression neuropathies (carpal tunnel syndrome, cubital tunnel syndrome)
- b. Craniofacial - Facial Fractures
- c. Wounds / Ulcers – assessment of tissue viability, need for debridement
- d. Skin – Malignancies (basal cell carcinoma, squamous cell carcinoma, melanoma), common benign lesions
- e. Breast – assessment of patient for breast reduction, post-mastectomy reconstruction, aesthetic breast surgery

b. Basic surgical techniques

- The awareness and appropriate use of various haemostatic techniques.
- Awareness and appropriate use of various suture materials.
- Effective assistance at surgery: knowledge of procedure, anticipation of steps.
- Use of basic operating room instruments (scalpel, needle driver, suture, cautery, etc.)
- Basic surgical skills (knot tying, soft tissue handling)
- Various techniques to open/close wounds
- Preparation of the operating room for a surgical procedure and understanding of aseptic techniques.

c. Specific surgical techniques

- Repair of fingertip injuries
- Repair of extensor tendon lacerations
- Closed reduction and appropriate splinting of simple fractures and dislocations
- Incision and drainage of simple hand infections
- Minor hand surgeries (trigger finger releases, carpal tunnel releases)
- Skin Harvesting skin grafts (split thickness, full thickness)
- Excision of lesions, basic skin flaps
- Debridement of ulcers

Communicator

- Develop therapeutic relationships with patients and their families through effective listening and dissemination of information
- Be able to identify specific concerns of the patient/families, in particular relating to surgery so the goals of surgery are clearly identified.
- Discuss information appropriately with patients/families and other members of the health care team
- Obtain and synthesize relevant history from patients/families/communities
- Listens effectively
- Dictates/writes clear consultation letters, progress notes, and discharge summaries

- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form

Collaborator

- Consult and interact effectively with other health care professionals
- Interact with other services in management of patients (intensivists, anesthesia, general surgery/ENT re airway)
- Contribute effectively to interdisciplinary team activities
- Works with cooperation and respect with nurses, therapists and other members of health care team
- Maintains professional relationships with other health care providers

Leader

- Contribute to the improvement of health care delivery in teams, organizations, and systems
- Manage plastic surgery problems in a sound manner with respect to the utilization of health care resources.
- Coordinate multiple services for the management when required (eg ENT for tracheostomy, internal medicine, intensivists, general surgery, orthopedics etc)
- Work effectively and efficiently in a health care organization
- Utilize information technology to optimize patient care

Health Advocate

- Familiarity with important determinates of health affecting patients undergoing anesthesia (e.g. smoking, obesity, drug or alcohol dependence, cervical disc problems, family history anesthetic problems) and addresses preventative measures
- Attentive to issues of public policy for health
- Advocates on behalf of patients

Scholar

- Recognizes gaps in knowledge and develops strategies to correct these
- Prepares for scheduled clinical procedures
- Acts as effective teacher for medical students, and other health care professionals
- Develops knowledge from current literature/journals
- Understands principles of basic and clinical research including design and conduct of clinical trials and critical appraisal of scientific literature
- Takes an evidence-based approach to management problems
- Accepts and acts on constructive feedback

Professional

- Deliver health care to patients in an honest, ethical and professional manner.
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed

- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status

3.3 Senior Plastic Surgery Residents (PGY3, PGY4 and PGY5)

Residents should have a thorough grasp of all the basic knowledge and technical skills listed above plus the objectives outlined below.

Residency training (and beyond) is a continuum of learning and not a series of quantum leaps from year to year. Generally speaking however, execution of more difficult cases is not expected until the more senior years (PGY4, PGY5, fellow).

Medical Expert / Clinical Decision Maker

Knowledge: Specific Clinical and Technical

5. Microsurgery and replantation

- A. Anatomy and classification of flaps: pedicled and free (fasciocutaneous, myocutaneous, osteocutaneous)
- B. Ability to prepare patient for microsurgical cases
- C. Principles in raising a flap, preparing the recipient site and carrying out inset of the flap and microvascular anastomosis
- D. Understanding principles in replantation, when digits/limbs are salvageable or not, as well the steps required to carry out a successful replantation
- E. Ability to manage the microvascular / replantation patient intra and post-operatively (monitoring, medications, positioning)
- F. Ability to identify and manage post-operative complications

6. Hand

- A. General:
 - i. Describe and illustrate the normal anatomy and its variations of the hand as it relates to: vascular supply, nerve supply, flexor tendons, extensor tendons, bones, joints, skin, fascia and nails.
 - ii. Perform a thorough hand history investigating aspects of function, pain and body image
 - iii. Perform a complete hand examination.
- B. Fractures:
 - i. Describe an algorithm for management of hand fractures
 - ii. Perform a closed reduction for a hand fracture
 - iii. Perform an open reduction for a hand fracture

- iv. List the complications and risks associated with hand fractures
- v. Describe a corrective osteotomy for a malunion

C. Extensor Tendons:

- i. Classify and describe the treatment for extensor tendon laceration
- ii. Perform an extensor tendon repair
- iii. Describe the abnormalities and their treatment associated with extensor mechanism imbalance both for the digits and the thumb

D. Flexor Tendons

- i. Classify and describe the treatment for flexor tendon lacerations
- ii. Describe flexor tendon healing
- iii. Describe post-operative regimens for flexor tendon healing
- iv. Describe suture techniques and their rationale
- v. Perform a flexor tendon repair
- vi. Describe methods of flexor tendon reconstruction

E. PIP joint repair and reconstruction

- i. Classify and describe PIP joint injuries
- ii. Describe the treatment for PIP joint injuries

F. Rheumatoid hand /Osteoarthritis

- i. Describe the management of Rheumatoid hand and osteoarthritis of the hand including the thumb carpometacarpal joint
- ii. Describe the radiographic findings associated with arthritis of the hand

G. Other Hand

- i. List the principles of tendon transfers
- ii. Describe the tendon transfers for major peripheral nerve injuries and tetraplegia
- iii. List and describe the management of upper extremity compression neuropathies
- iv. Perform a carpal tunnel release, release of Guyon's canal and ulnar nerve transposition
- v. Describe the principles of nerve repair and reconstruction and be able to perform a nerve repair.
- vi. Dupuytren's disease - understand the anatomy and be able to carry out a palmar fasciectomy
- vii. Tumours (soft tissue, bone) – classification, work-up and management
- viii. Injection injuries - management
- ix. Reflex sympathetic dystrophy – diagnosis and management

H. The Wrist

- i. Describe and illustrate the normal anatomy of the wrist as it relates to: bones, joints, vascular supply, nerve supply, and ligaments

- ii. Perform a thorough history and clinical examination of the wrist
- iii. Describe the interpretation and normal findings of radiographs of the wrist
- iv. Classify and describe the findings and management of scapholunate dissociation
- v. Classify and describe the findings and management of traumatic ligamentous wrist injuries

I. Complex extremity reconstruction

- i. Describe the treatment principles for complex traumatic upper extremity injuries
- ii. Describe upper extremity flaps for reconstruction
- iii. Describe the treatment principles for complex traumatic lower extremity injuries
- iv. List the major available flaps for reconstruction distal to the knee
- v. List the major free flaps (three each for skin, muscle, and bone) and describe their anatomy, advantages and disadvantages
- vi. Elevate a free flap
- vii. Perform a microvascular anastomosis

7. Breast:

A. General

- i. Describe the embryology of the breast.
- ii. Explain common congenital anomalies of the breast based on an understanding of the underlying embryology (axillary breast tissue, amastia, Poland's syndrome, accessory nipple).
- iii. Describe and illustrate the anatomy of the breast as it relates to: anatomic location, vascular supply, lymphatic supply, nerve supply, supporting structures.
- iv. List the premalignant and malignant conditions that affect the breast and describe the treatment options available for each condition.
- v. List the genes that are involved in genetic screening for breast cancer and discuss the implications of a positive test as it relates to plastic surgery.
- vi. Describe the current recommendations for mammography in the Province of Ontario.
- vii. Describe the diagnosis and treatment options for common benign conditions of the breast including fibroadenoma, fibrocystic disease, Mondor's disease, ductal papilloma.

B. Reduction

- i. Perform a thorough consultation for a breast reduction to include a history, physical and development of a treatment plan.
- ii. List the complications that would be discussed in an informed consent for a breast reduction procedure.
- iii. Draw a Wise pattern for a breast reduction and describe variations in the pattern to suit different breast sizes and shapes.
- iv. List various options for infiltration in breast reduction surgery and discuss the advantages of each.

- v. Perform an inferior pedicle breast reduction.
 - vi. Perform a superior/superior lateral/superior medial breast reduction.
 - vii. Perform a free nipple graft breast reduction.
 - viii. Draw a vertical skin pattern breast reduction and perform a breast reduction using a limited skin excision approach.
 - ix. Describe a reasonable postoperative plan following breast reduction to include: hospitalization, dressings, wound management, follow up visits and mammography.
- C. Gynecomastia
- i. Describe an appropriate work-up including history, physical and examination for a patient presenting with gynecomastia.
 - ii. Classify gynecomastia by etiology and appearance.
 - iii. List the complications and risks associated with male subcutaneous mastectomy as it relates to a fully informed consent.
 - iv. Perform a subcutaneous mastectomy through a peri-areola incision.
- D. Breast Augmentation
- i. List the complications and risks associated with saline breast augmentation as it relates to providing a full informed consent.
 - ii. List the complications and risks associated with silicone gel breast implant augmentation as it relates to providing a full informed consent.
 - iii. List and explain the various breast implant options presently available for breast augmentation surgery.
 - iv. Perform a subpectoral breast augmentation.
 - v. Perform a subglandular breast augmentation.
 - vi. Perform a dual plane breast augmentation.
 - vii. Perform a breast augmentation through an inframammary approach.
 - viii. Perform a breast augmentation through a peri-areolar approach.
 - ix. Perform a breast augmentation through a trans-axillary approach.
 - x. Describe the components of a tubular breast deformity.
 - xi. Describe an acceptable treatment plan for a tubular breast deformity.
- E. Mastopexy
- i. Provide a classification scheme for ptosis of the breast.
 - ii. List the complications associated with a mastopexy that would be discussed in a complete informed consent.
 - iii. Discuss the indications for a peri-areolar mastopexy, inverted tear-drop and Wise pattern mastopexy
 - iv. Draw and describe the procedure for a peri-areolar mastopexy, inverted tear drop and Wise pattern mastopexy.
 - v. Explain any modifications to a mastopexy that are or may be required when performing an augmentation at the same time as a mastopexy.
- F. Reconstruction
- i. Describe the anatomy of the TRAM flap.
 - ii. Describe the variations of a TRAM flap: single pedicle, double

- pedicle, free TRAM
- iii. Discuss the indications, contraindications, risks and complications associated with TRAM flap surgery.
- iv. Perform a single pedicle TRAM flap.
- v. Perform a double pedicle TRAM flap.
- vi. Discuss management of the abdominal wall in TRAM flap surgery.
- vii. Discuss approaches to shaping the TRAM flap and demonstrate an ability to shape and reconstruct the breast using a TRAM flap.
- viii. Discuss perforator flaps and their use in Breast reconstruction (DIEP, SIEP)
- ix. Discuss the indications, contraindications, risks and complications associated with perforator flaps
- x. Carry out a breast reconstruction with a perforator flap
- xi. Describe the anatomy of the latissimus dorsi flap and the extended latissimus dorsi flap for breast reconstruction.
- xii. Perform a latissimus dorsi flap breast reconstruction with or without an implant or expander.
- xiii. Perform a two-stage immediate breast reconstruction with a tissue expander and implant.
- xiv. Perform a two-stage delayed reconstruction with a tissue expander and implant.
- xv. Discuss the selection of tissue expanders in post-mastectomy breast reconstruction.
- xvi. Discuss the selection of a permanent breast prosthesis in post-mastectomy breast reconstruction.
- xvii. List the risks and complications associated with post-mastectomy breast reconstruction utilizing tissue expanders and implants.
- xviii. List options for nipple areola reconstruction and describe the advantages and disadvantages of each approach.
- xix. Perform areola reconstruction using tattooing and full thickness skin grafts.
- xx. Perform nipple reconstruction utilizing local flaps, nipple sharing and labia grafts.

G. Head & Neck: All topics covered in Head & Neck rotation

- a. Lump in the neck
- b. Premalignant and malignant disease
- c. Mandibular tumours/cysts
- d. Salivary gland tumours
- e. Flaps in the head and neck
- f. Mandibular reconstruction (i) free flaps for mandibular reconstruction eg fibula, radius, iliac crest, scapula (ii) free flaps for bone support and lining (iii) bone support and external coverage (iv) “through-and-through reconstruction.
- g. Soft tissue reconstruction principles
 - i. Illustrate the ideal orientation of incisions on the face
 - ii. Illustrate aesthetic units of the face
 - iii. Describe the healing and outcome of a local skin flap, partial and

- iii. List the risks and complications associated with liposuction surgery as it relates to a full informed consent.
- iv. Perform liposuction surgery on areas to include abdomen, hips, thighs, knees and buttocks.
 - v. Provide appropriate guidelines for fluid resuscitation associated with super wet and tumescent liposuction.
- vi. List the risks and complications associated with abdominoplasty surgery as it relates to a full informed consent.
- vii. Perform a full abdominoplasty procedure including plication of the rectus muscles.
- viii. Describe the indications for a full abdominoplasty, mini-abdominoplasty and liposuction of the abdomen.
 - ix. Discuss the indications for a circumferential body lift.
 - x. Discuss the indications for a thigh lift.
 - xi. Discuss the various approaches to treating the upper arm including brachioplasty mini-brachioplasty and liposuction.
- b. Rhytidectomy
 - i. Mark incisions for a rhytidectomy
 - ii. Discuss complications
 - iii. Describe a submental lipectomy and placcation
 - iv. Types of facelift techniques and indications
- c. Blepharoplasty
 - i. Describe the assessment of a patient with blepharochalasia
 - ii. Describe complications of lower lid blepharoplasty
 - iii. Describe an upper eyelid blepharoplasty
 - iv. Describe a lower eyelid blepharoplasty
- d. Browlift
 - i. Discuss normal brow position and morphology
 - ii. Describe techniques of brow lift
- e. Rhinoplasty
 - i. Describe the assessment of a patient with a nasal deformity
 - ii. List the complications of rhinoplasty
 - iii. Perform a septoplasty
 - iv. Expose the nose through an external rhinoplasty approach
 - v. Harvest cartilage graft from the septum and the concha
 - vi. Discuss techniques of nasal osteotomy
 - vii. Describe the use of spreader grafts
 - viii. Discuss techniques of altering nasal tip projection

I. Trunk and lower extremity reconstruction

- i. Describe the treatment principles for complex traumatic upper extremity injuries
- ii. Describe upper extremity flaps for reconstruction
- iii. Describe the treatment principles for complex traumatic lower extremity injuries
- iv. List the major available flaps for reconstruction distal to the knee
- v. Describe the principles for complex abdominal wall reconstruction

- vi. Describe the principles for a component separation
- vii. List the major free flaps (three each for skin, muscle, and bone) and describe their anatomy, advantages and disadvantages
- viii. Elevate a free flap
- ix. Perform a microvascular anastomosis

J. Tissue Expansion

- i. indications and contraindication
- ii. principles in choosing correct expander and its placement
- iii. managing the expansion
- iv. identifying and managing complications of expansion

K. Scars – prevention and management

Communicator

- Develop therapeutic relationships with patients and their families through effective listening and dissemination of information
- Be able to identify specific concerns of the patient/families, in particular relating to orthognathic surgery so the goals of surgery are clearly identified.
- Discuss information appropriately with patients/families and other members of the health care team
- Obtain and synthesize relevant history from patients/families/communities
- Listens effectively
- Dictates/writes clear consultation letters, progress notes, and discharge summaries
- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form

Collaborator

- Consult and interact effectively with other health care professionals
- In addition, interact with other services in management of patients (intensivists, anesthesia, general surgery/ENT re airway)
- Contribute effectively to interdisciplinary team activities
- Works with cooperation and respect with nurses, therapists and other members of health care team
- Maintains professional relationships with other health care providers

Leader

- Contribute to the improvement of health care delivery in teams, organizations, and systems
- Be able to manage the diagnosis and treatment of plastic surgery problems in a sound manner with respect to the utilization of health care resources.
- Coordinate multiple services for the management when required (eg ENT for tracheostomy etc)
- Work effectively and efficiently in a health care organization
- Utilize information technology to optimize patient care

Health Advocate

- Familiarity with important determinates of health affecting patients undergoing anesthesia (e.g. smoking, obesity, drug or alcohol dependence, cervical disc problems, family history anesthetic problems) and addresses preventative measures
- Attentive to issues of public policy for health
- Advocates on behalf of patients

Scholar

- Recognizes gaps in knowledge and develops strategies to correct these
- Reads and prepares for scheduled clinical procedures
- Acts as effective teacher for medical students, and other health care professionals
- Develops knowledge from current literature/journals
- Understands principles of basic and clinical research including design and conduct of clinical trials and critical appraisal of scientific literature
- Takes an evidence-based approach to management problems
- Accepts and acts on constructive feedback

Professional

- Deliver health care to patients in an honest, ethical and professional manner.
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed
- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status

3.3 Resident Clinic

There is a resident clinic on Friday mornings from 0800 to 0900h. This is mandatory for all residents. The staff surgeon on call during the weekend covers this clinic. Follow-up appointments for this clinic are to be booked by patients in advance -otherwise they arrive without a chart or x-rays.

The patient is to call the morning after assessment/injury and book an appointment for the given Friday.

Instructions for Resident's Clinic

- **Dictate a note on all of the patients you see in resident's clinic.**
- **Dictate under the name of the surgeon who the patient was originally referred to** (*not under the surgeon who is supervising the clinic today – although they do need to be copied on the dictation*)
 - This will be the surgeon who was on-call the day that this patient was referred to our service – usually the day they were seen in Emerg
 - You may need to confirm this date with the patient, or look it up on Meditech
 - There are copies of the staff call schedule out front at the registration desk where you can look up which staff was on call on a particular date
- **Before you finish with your patient's chart, make sure it has the following 4 things clearly indicated on it:**
 5. Your signature
 6. The supervising staff surgeon's signature
 7. The billing codes for the visit
 8. The dictation number for your note
- **If the patient is being discharged from Resident's clinic and is going to follow-up with their surgeon, you need to do the following:**
 - Give the patient the surgeon's office number so they can call for an appointment
 - Call the surgeon's office to let their secretary/assistant know to expect the patient's call and what time frame they need to be seen in
 - Ask the clerk or nurse to fax a copy of the Resident's Clinic chart to the surgeon's office (b/c your dictation may take awhile to make it to the office)
- **At the end of clinic, the charts can be left in the office, or you can give them to one of the clerks at the registration desk.**
- **If the patient has never been seen by our service, or if they have only been seen by a resident in Emerg, then you can bill for a new consult (A085)**
 - If the patient has been seen before in Resident's clinic, or if they have been seen or operated on by one of the staff surgeons and then sent to Resident's Clinic, they should be billed as a Partial Assessment (A084)

3.4 Surgeons Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
Dr. Thoma	SSU	SJH-OR	AM-Office clinic PM-Hand Clinic SJCC	AM-Office Clinic PM-academic	AM/PM-Hand Clinic Fontbonne
Dr. Hynes	AM-Office Clinic PM-Hand clinic	Twice a month, LOTUS OR all day AM-SSU twice a month	OR	AM/PM-Office	AM-SSU
Dr. Levis	AM/PM-Fontbone Clinic	AM-Clinc PM-SSU every other week	SJH-OR	AM-SSU	SJH-AM-OR (1 st Friday/month) PM-admin
Dr. Patterson	SJCC-OR	Office OR	Office clinic	Office clinic	Office-minor OR
Dr. Dickson	AM-research PM-Office	AM/PM - Clinic	AM/PM-Clinic	OR-SJCC	Academic time

3.5 St. Joseph Surgeons Contact Information

Dr. Thoma
Office: 905-523-0019
Pager: 905-3122785

Dr. Patterson
Office: 905-572-1070
Pager: 289-244-0988

Dr. Levis
Office: 905-308-9419
Pager: 905-521-5030

Dr. Dickson
Office: ext. 36092
Pager: 905-521-5030

Dr. Hynes
Office: 905-645-5640
Pager: 905-777-6408

4. Plastic Surgery Rotations Objectives at McMaster University Medical Centre

4.1 General Objectives

Communicator - The paediatric focus of this rotation requires focus on communicator skills with children and parents in both ambulatory and emergency situations with clear communication with staff, allied health personnel and accurate documentation are also required.

Collaborator - Many paediatric clinical problems require coordination of patient management with physicians from other services (e.g. paediatrics, paediatric general surgery, ICU, etc.) and with allied health professionals (e.g. OT/PT, nutrition and child life).

Manager - Wise management of health care resources with cost-effective bed management strategies to provide optimal care to the surgical patient. Daily rounds and progress notes on all inpatients. Appropriate planning and distribution of human resources to balance service requirements and educational opportunities.

Health Advocate - Counseling of patients and families regarding their child's illness and treatment including prevention strategies, understanding patient advocacy, paediatric consent issues and role of Children's Aid.

Scholar - Reviewing surgical journals and other medical and surgical sources of information regarding diagnostic and therapeutic guidelines. Participation in the education of medical students and paramedical personnel. Participate in research activity to advance our field.

Professional - Professional and ethical behavior is required at all times. Specifically reliability, responsibility and honesty are expected and required. Understanding, tolerance and sensitivity for gender racial differences and religious beliefs. Health care personnel in the Emergency Department, Short Stay Unit, OR and hospital wards.

MEDICAL EXPERT

General Paediatric Plastic Surgery

1. Anatomy, embryology and physiology of paediatric problems.
2. Understand the differences in the physiology and metabolism of the paediatric patient
3. Knowledge of the various congenital malformations, deformations, disruptions (syndromic and non-syndromic) affecting the face, hands, feet, trunk and genitalia
4. Understand the difference between malformations, deformations and disruptions
5. Knowledge of importance differences in mechanisms of trauma and wound healing between children and adults.
6. To be able to monitor appropriately the paediatric plastic surgery patient including

appropriate choice of fluid and electrolyte replacement, drug and drug dosing, and blood product management and to be able to recommend appropriate analgesic medication.

7. Recognize soft tissue infections and initiate appropriate therapies.
8. Manage post-op complications involving airway, bleeding, fever, dressings, etc.
9. Recognize and use appropriate services such as PT, OT, Social Work, Dietician etc.
10. Develop the skills required to be able to communicate with paediatric patients, parents and family
11. Understand the use of regional anaesthetic blocks and sedation in the paediatric population to effectively manage minor trauma in the ER
12. Knowledge and expertise in the application of dressings in the paediatric patient
13. To be able to recommend an appropriate surgical approach and be familiar with non-surgical alternatives
14. To be aware of unique timing issues of surgical intervention in the paediatric plastic surgery patient
15. To be knowledgeable and participate in standard microsurgical procedures involving brachial plexus reconstruction, flap elevation and transfer.
16. To become knowledgeable of skin lesions and conditions arising in the paediatric population

Paediatric Upper Extremity

A) General

1. Describe and illustrate the normal anatomy and its variations of the hand as it relates to: vascular supply, nerve supply, flexor tendons, extensor tendons, bones, joints, skin, fascia and nails.
2. Perform a thorough hand history
3. Perform a complete hand examination.

B) Fractures

1. Understand unique aspects of paediatric hand fractures including the Salter Harris classification system
2. Describe an algorithm for the management of paediatric hand fractures
3. Demonstrate competence in local anaesthesia and sedative techniques to perform closed reduction procedures
4. Perform a closed reduction for a hand fracture
5. Perform an open reduction for a hand fracture
6. List the complications and risks associated with hand fractures
7. Describe a corrective osteotomy for a mal-union

C) Extensor Tendons

1. Classify and describe the treatment for extensor tendon laceration
2. Perform an extensor tendon repair
3. Describe the abnormalities and their treatment associated with extensor mechanism imbalance both for the digits and the thumb

D) Flexor Tendons

1. Classify and describe the treatment for flexor tendon lacerations
2. Describe flexor tendon healing

3. Describe post-operative regimens for flexor tendon healing
4. Describe suture techniques and their rationale
5. Perform a flexor tendon repair
6. Describe methods of flexor tendon reconstruction

E) PIP/MCP joint repair and reconstruction

1. Classify and describe PIP joint injuries
2. Describe the treatment for PIP joint injuries

F) Fingertip/Nailbed injuries

- A. Classify and describe fingertip and nail bed injuries in children
- B. Describe and perform treatment for fingertip and nail bed injuries

G) Obstetrical Brachial Plexus Palsy

1. Describe, illustrate and understand the normal anatomy and function of the brachial plexus
2. Establish the diagnosis and understand the pathophysiology of obstetrical brachial plexus palsy
3. Understand the treatment principles involved in the primary management of obstetrical brachial plexus palsy (exploration and nerve graft reconstruction)
4. Understand the treatment principles involved in the secondary management of obstetrical brachial plexus palsy (tendon transfers, Botox injection, etc.)

H) Congenital Hand Anomalies

1. Establish the diagnosis of common paediatric congenital hand anomalies such as syndactyly, polydactyly, hypoplastic thumb, trigger digit, overgrowth and undergrowth anomalies
2. Perform treatment for simple congenital hand anomalies such as polydactyly, syndactyly and trigger digit
3. Understand treatment philosophies for the management of complex congenital hand anomalies such as hypoplastic thumb, radial and ulnar ray anomalies, etc.

I) Traumatic/Ischemic Injuries

1. Diagnosis and investigation of complex upper extremity trauma involving soft tissue with possible nerve and or vascular injuries
2. Perform treatment of complex upper extremity injuries demonstrating knowledge of peripheral nerve and vascular microsurgical repair.

BURNS

The plastic surgery resident will be expected to achieve competency in all areas of paediatric burn management including acute care, reconstruction and rehabilitation phases with emphasis on the following areas:

1. Pathophysiology of burn injury (scald, thermal, chemical, intravenous extravasation, electrical)
2. Knowledge of causal agents
3. Ability to determine burn wound depth, classification, body surface area
4. Understanding of principles of initial acute burn care including transfer of burn

- patients, A,B,C's of trauma, intravenous fluid resuscitation, pain management, indications for escharotomies and intubation
5. Pathophysiology of inhalation injury
 6. Burn wound sepsis - diagnosis, prevention and treatment
 7. Principles of nutritional support
 8. Wound care - dressings, debridement, local antimicrobial therapy, VAC
 9. Principles of skin substitutes, artificial skin, allografts and cultured skin
 10. Rationale and indications behind different methods and techniques of primary excision and resurfacing
 11. Scar formation - conservative treatment including post-burn scar rehabilitation using OT/PT services for splinting, compression.
 12. Understanding of philosophies, techniques and planning of secondary post-burn reconstruction.
 13. To be aware and to be able to manage aspects of burn care unique to paediatric patients such as child abuse and neglect
 14. To be able to assume the OR logistics for a major burn
 15. Tangential excision of a burn wound
 16. Harvest and application of skin grafts
 17. Post-operative wound care
 18. Understanding and familiarity with post-burn psychosocial issues in wider setting of family and community and to be able to integrate with available support groups
 19. To understand and utilize appropriate ancillary support services in the management of the paediatric burn patient such as psychiatry, social work, OT, PT etc.

PAEDIATRIC CLEFT LIP AND PALATE

1. To understand normal embryologic development of the lip and palate
2. To be able to describe the pathophysiology, embryology and anatomy of the unilateral and bilateral cleft lip and palate
3. To be able to diagnose and classify clefts of the face including the lip and palate as well as Tessier craniofacial clefts
4. To understand the functional issues facing the newborn baby with cleft lip and/or palate To be familiar with the etiology and genetics of cleft lip and palate development.
5. To recognize and become familiar with the nutritional, airway, speech, growth, and psychosocial aspects of managing the cleft child.
6. To understand the need for multidisciplinary approach to the management of the cleft child
7. To be able to understand and discuss various treatment options for the management of cleft lip and cleft palate including the timing issues, potential pitfalls, and post-operative care and to be able to draw various forms of surgical repair of cleft lip
8. To understand the progression and sequence of care in the management of the cleft child and to be able to discuss the indications for surgical intervention in the cleft child
9. To become familiar with the surgical techniques and to perform, under supervision, standard surgical repairs involved in the management of a cleft child

- including closure of a cleft palate, pharyngeal flap, alveolar bone grafting.
10. To become familiar with the surgical techniques and to participate in, under supervision, cleft lip repair and cleft rhinoplasty
 11. To be able to recognize and deal with post-operative complications following cleft lip/palate/pharyngoplasty/alveolar bone grafting/rhinoplasty procedures
 12. To understand the principles involved in the management of the cleft facial deformity in the skeletally mature cleft patient involving a combined orthodontic and orthognathic surgical approach

PAEDIATRIC CRANIOMAXILLOFACIAL

1. Describe and illustrate the anatomy of the paediatric craniofacial skeleton including the calvarium, cranial base, orbits, naso-orbital-ethmoid region, eyelids and canthi, para-nasal sinuses, nose, zygoma, maxilla, mandible, TMJ, lips, ear, and facial nerve
2. Describe normal occlusion and principles of re-establishing premorbid occlusion.
3. Perform a comprehensive clinical assessment of the craniofacial region including specific evaluations of:
 - i. Cranial vault deformity
 - ii. Facial nerve function
 - iii. Visual function
 - iv. Jaw function and occlusion
 - v. Facial aesthetics
4. Demonstrate an ability to read:
 - i. Coronal, axial and 3D facial CT scans
 - ii. Facial x-rays
 - iii. Panorex
5. Understand and perform the following surgical approaches and exposures:
 - i. coronal
 - ii. upper buccal sulcus
 - iii. lower buccal sulcus
 - iv. lower lid, upper lid incisions for exposure of all areas of the facial skeleton
6. Understand the basic principles and techniques of rigid fixation of the craniofacial skeleton to use in congenital and traumatic conditions including the pitfalls and complications
7. To acquire knowledge of the various congenital malformations (syndromic and non syndromic) affecting the craniofacial skeleton.
8. To be able to diagnose and discuss treatment philosophies of the following congenital and acquired craniofacial conditions including but not limited to non-syndromic craniosynostosis, syndromic craniofacial dysostoses (Apert's, Crouzon's, Pfeiffer's, Saethre-Chotzen syndromes), hemifacial microsomia, Treacher-Collins syndrome, Pierre Robin Sequence, vascular malformations positional plagiocephaly, Tessier's craniofacial clefts, hemifacial atrophy, bone tumours, soft tissue tumours, overgrowth and undergrowth conditions
9. To have knowledge of the timing of congenital reconstructive procedures and basic surgical principles involved.
10. To understand the principles of elective orthognathic surgery and the basis of cephalometric evaluation.

11. To understand the mechanism of paediatric facial trauma, incidence of various fractures, classification schema and unique aspects of dealing with the growing paediatric craniofacial skeleton including post-traumatic secondary deformities
12. To be able to provide appropriate treatment options for the management of paediatric facial trauma (bony and soft tissue) and secondary post-traumatic deformities.
13. To participate in, under supervision, standard craniofacial osteotomy procedures such as frontal-orbital osteotomies, Le Fort and mandibular osteotomies
14. To perform under supervision rigid fixation techniques of the craniofacial skeleton using titanium and bioresorbable fixation systems
15. To understand the mechanism of bone healing in the paediatric craniofacial skeleton.
16. To be able to harvest bone graft from the iliac crest, rib and calvarium.

4.2 Surgeons Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
Dr. Bain	AM-2G Clinic PM-2G Clinic	AM-SSU PM-2G clinic	AM/PM-4F Clinic	Alternate Weeks OR – MUMC SSU - HGH	OR-HGH
Dr. Strumas	AM – Clinic4F PM – Clinic 4F	AM-4V1 Clinic PM-SSU	OR - HGH	Alternate Weeks OR – MUMC SSU - HGH	AM-2G clinic
Dr. Choi	MUMC OR	AM-4F Clinic PM-2G Clinic	Academic Time	AM-2G clinic PM-SSU	AM-2G clinic PM-2G clinic

4.3 Surgeons Contact Information

Dr. James Brain

Office: 905-521-2100 ex 7322

Pager: 905-521-5030

Dictation: 13531

Dr. N. Strumas (MUMC)

Office: 521-2100 ex 73594

Pager: 521-5030

Dictation: 13069

Dr. M. Choi (CTU Director - MUMC)

Office: 521-2100 ext 73550

Pager: 2060

Dictation: 13908

5. Goals and Objectives for the Plastic Surgery Resident on the Aesthetic Surgery Rotation

Exposure to aesthetic surgery is important in the application of its principles and techniques to general restoration and reconstruction even if aesthetic surgery is not to be a part of the resident's future practice.

Medical Expert / Clinical Decision Maker

Knowledge: Basic Science and Anatomy:

1. The anatomy, embryology and physiology of:
 - Integumentary system including the breast.
 - Extravisceral soft tissue including the subcutis, fascia, muscle, bone and cartilage
2. Basic science as it relates to biomaterials and alloplastic tissue substitutes
3. Understand the effects of sun-damage, nicotine and environmental factors on the normal aging process as well as the anatomic changes that accompany the normal aging process.

Knowledge: General Clinical:

1. Be able to evaluate the aesthetic surgery patient with a proper history and physical as well as obtaining appropriate tests and referrals depending on the patient's needs.
2. Appropriate documentation including photographs when required for treatment planning.
3. Formulating an appropriate treatment plan based on realistic patient goals.

Knowledge: Specific Clinical

1. The influences on patient perception of normalcy including:
 - Ethnicity
 - Age
 - Peer pressure
 - Psychosocial circumstances
2. Methods of skin restoration including;
 - Laser treatment
 - Use of retinoids
 - Dermabrasion
 - Chemical peels
3. Methods of ablating facial crease lines including:
 - Augmentation techniques such as collagen and hyaluronic acid injections and fat grafting

- Surgical excision of muscle/ nerve
 - Use of Botox™
4. Methods of re-contouring facial features by
 - Augmentation with autogenous tissues including fat, dermis, fascia, cartilage and bone
 - Augmentation with alloplastic materials
 - Surgical redistribution of skin and subcutis, and platysma
 - Direct excision of excess skin and subcutis, cartilage and bone
 - Reposition and suspension of deeper structures
 - SAL
 5. Methods of rhinoplasty including open and closed techniques including:
 - Septoplasty
 - Cartilage, bone, soft tissue grafts
 - Osteotomies
 - Suture techniques
 6. Breast reduction, mastopexy and augmentation
 7. Panniculectomy, abdominoplasty and recontouring upper and lower limbs
 8. Understanding of the various methods of surgical weight loss and associated health implications.
 9. Specific body contouring needs of patients after massive weight loss
 10. Liposuction techniques
 11. Non-surgical or medical modalities to improve appearance

Knowledge: Technical Skills:

There is no expectation that residents will have independently performed each of the common aesthetic procedures. The expectation is that residents will gain experience by performing most parts of all common aesthetic procedures in a segmental and sequential fashion under appropriate supervision. By acting as first assist for complete procedures and participating in post-surgical care residents should be competent to establish their own aesthetic practices.

Communicator

- Develop therapeutic relationships with patients through effective listening and dissemination of information
- Be able to identify specific concerns of the patient relating to aesthetic surgery so the goals of surgery are clearly identified
- Discuss appropriate information with patients/families and the health care team
- Dictates/writes clear consultation letters, progress notes, and discharge summaries
- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form

Collaborator

- Consult and interact effectively with other health care professionals making appropriate referrals as part of the treatment planning process
- Works in cooperation and with respect with nurses, therapists and other members of health care team
- Maintains professional relationships with other health care providers
- Understand the role that various other health professionals have in the “cosmetic” industry

Leader

- Contribute to the improvement of health care delivery in teams, organizations, and systems
- Be able to manage the diagnosis and treatment of aesthetic problems in a sound manner with respect to the utilization of health care resources
- Work effectively and efficiently in a health care organization
- Manages team, delegates tasks and graded responsibility effectively
- Utilize information technology to optimize patient care and life-long learning
- Develop an understanding of the various costs and required resources associated with running an aesthetic practice

Health Advocate

- Awareness of the health and preventive measures related to various disease processes.
- Advocate on behalf of the patient for coverage of surgical procedures that may have significant physiological or psychological impact on them.

Scholar

- Develop, implement and monitor a personal continuing education strategy
- Recognizes gaps in knowledge and develops strategies to correct these
- Reads and prepares for scheduled clinical procedures

- Critically appraise sources of medical information
- Facilitate learning of patients, housestaff/students and other health professionals
- Contribute to development of new knowledge
- Accepts and acts on constructive feedback

Professional

- Deliver the highest quality care with integrity, honesty and compassion
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed
- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status

Aesthetic Surgery Rotation Orientation Guide

GOALS

- This is your rotation. I want you to decide what is important for you to learn. I can certainly offer you advice, but in the end it is your exam and your surgical practice.
- There are goals and objectives attached below to guide you. **Please read those ahead of time** and let me know if you have any questions or concerns.

GENERAL

- I don't expect you to do call so there is time to study and be prepared for your rotation.
- Could you **please email me a resume and photo** that I may forward to the staff plastic surgeons as a way to introduce you to them.
- Vacation time is up to you. **Let me know what days you plan to be away** and any documents I need to complete. Also, advise the other staff.

SCHEDULING

- Typical week but you can confirm the week ahead (they often cancel assistants if you plan to be there so you can not cancel last minute)
 - Mon = Khanna , Sliwin
 - Tues = Brown OR,
 - Wed = Lista OR,
 - Thur= Brown Clinic,
 - Fri = Shortt, injectable RN, variable
- If you want to go to someone's office and need help let me know.
- I have some expectations for ensuring a minimum exposure:
 - 1 day a week in clinic (Brown or Lista)
 - 1 day minimum in Toronto for rhinoplasty with Dr. Neu (**call ASAP for scheduling**).
 - A week with Dr Shenker in Cambridge
 - Dr MacLean in Mississauga also welcomes residents
 - 2 days of injectables with a nurse injector
 - I will set up some patients for you to inject so get some experience early on

CODE OF CONDUCT

- Sounds obvious but just so it's been said...:
 - Dress code: Business casual for office days and also **bring scrubs with you**.
 - If you commit to showing up then follow through on it. **Call to cancel!**
 - **Show up on time.**

- **Confirm at least a week in advance so those offices can accommodate you.**
- Get cases from secretaries in advance so that you can read up.
- None of these surgeons receive any benefit from McMaster University nor do they expect you do call for them or round on their patients. Every time you scrub, it costs them money. They graciously do this to provide you a good rotation and an education. **Please respect that you are their guest.**
- At the end of your rotation it would be greatly appreciated by me if you would take the time to **send each a letter of thanks.**

ROUNDS

- Tuesday at my office 7:15 am. Will be based on cases from current or previous week that you emailed to me.
- Dr Brown and I are present and will be asking you questions about:
 - Anatomy, evaluating patients, surgical techniques, etc
- If you will not make it let me know.

EVALUATION

- Since I do not spend much time with you clinically, I will send an **evaluation form to various supervisors who can adequately assess you.** I will tabulate their evaluations.

Cosmetic Surgery Contact List

Dr. Stephen Brown and Dr. Rodger Shortt
1-406 North Service Road East
Oakville, ON L6H 5R2
905-849-4282
Assistant: Jenna (jpeikari@briarwoodsurgical.com)

Dr. Julie Khanna
100-1344 Cornwall Road
Oakville, ON L6J 7W5
905-842-2262
Assistant: Roxanne (roxanne@icls.ca)

Dr. Frank Lista and Dr. Jamil Ahmad
1421 Hurontario Street
Mississauga, ON L5G 3H5
905-278-7077
Assistant: Leslie x 225 (leslie@theplasticsurgeryclinic.com)

Dr. Hugh McLean
50 Burnhamthorpe Road West, Suite 343
Mississauga, ON L5B 3C2

905-273-4888

Assistant: Gina (gina@mcleanclinic.com)

Dr. Bernd Neu

One Medical Place, 20 Wynford Drive, Suite 319

Toronto ON M3C 1J4

416-447-6176

Assistant: Brenda (brenda@drneu.com)

Dr. Robert Shenker

50 Albert Street

Waterloo, ON N2L 3S2

519-746-1132

Assistant: Heather (heather@drshenker.com)

Dr. Sammy Sliwin

Forest Hill Institute of Aesthetic Plastic Surgery

1188B Eglinton Ave West

Toronto, ON M6C 2E3

416-785-7864

Assistant: Misty (misty@sliwinplasticsurgery.com)

6 – Community Rotation

6.1 Objectives

Medical Expert

General:

1. Take a focused and appropriate history from a patient
2. Perform an appropriate physical examination
3. Identify possible perioperative risk factors
4. Develop a differential diagnosis based on the history and physical
5. Arrange and interpret appropriate diagnostic tests and investigations
6. Identify the diagnosis and recommend appropriate management of plastic surgical problems
7. Perform techniques including gentle tissue handling, recognition of important skin lines and landmarks, and understand the blood supply to the skin and other tissues
8. Knowledge of different suture materials and wound closure techniques
9. Recognizes and recommends appropriate alternative therapies
10. Recognizes and recommends appropriate postoperative rehabilitation
11. Able to recognize and manage postoperative complications

Specific Clinical:

Skin Pathology and Wound Healing:

1. Has an in depth knowledge of the embryology, physiology, and anatomy of the skin
2. Understands the principles and pathophysiology of wound healing
3. Understands factors affecting scar formation and can recommend appropriate treatment for both prevention and treatment of scars
4. Has a knowledge of various clinical options to modify wound healing
5. Has a knowledge of basic techniques for wound closure
6. Has an in depth knowledge of skin lesions, both benign and malignant
7. Understands the surgical, non-surgical, and adjuvant treatment regimens for various skin malignancies
8. Understands the theory, design, and indications for local skin flaps and can use this knowledge to execute appropriately chosen flaps
9. Understands the pathophysiology of thermal injuries
10. Is able to diagnose, classify, and appropriately manage burns and frostbite
11. Is able to diagnose and appropriately treat injection and extravasation injuries
12. Can proficiently perform the grafting of skin and other tissues
13. Has knowledge regarding the pathophysiology, classification, prevention, and treatment options of pressure sores, both surgical and non-surgical
14. Has a comprehensive knowledge regarding the pathophysiology of ulcers and diabetic foot problems
15. Is able to recommend appropriate investigations and management for ulcers and

- diabetic foot problems
16. Has a knowledge of various wound care regimens, dressings, and topical antimicrobials
 17. Has knowledge regarding cellulitis and necrotizing infections of the soft tissues
 18. Is able to diagnose, properly investigate and recommend appropriate treatment, both surgical and non-surgical, for cellulitis and necrotizing infections of the soft tissues

Hand

A. General:

- i. Describe and illustrate the normal anatomy and its variations of the hand as it relates to: vascular supply, nerve supply, flexor tendons, extensor tendons, bones, joints, skin, fascia and nails.
- ii. Perform a thorough hand history investigating aspects of function, pain and body image
- iii. Perform a complete hand examination.

B. Fractures:

- i. Describe an algorithm for management of hand fractures
- ii. Perform a closed reduction for a hand fracture
- iii. Perform an open reduction for a hand fracture
- iv. List the complications and risks associated with hand fractures
- v. Describe a corrective osteotomy for a malunion

C. Extensor Tendons:

- i. Classify and describe the treatment for extensor tendon laceration
- ii. Perform an extensor tendon repair
- iii. Describe the abnormalities and their treatment associated with extensor mechanism imbalance both for the digits and the thumb

D. Flexor Tendons

- i. Classify and describe the treatment for flexor tendon lacerations
- ii. Describe flexor tendon healing
- iii. Describe post-operative regimens for flexor tendon healing
- iv. Describe suture techniques and their rationale
- v. Perform a flexor tendon repair
- vi. Describe methods of flexor tendon reconstruction

E. PIP joint repair and reconstruction

- i. Classify and describe PIP joint injuries
- ii. Describe the treatment for PIP joint injuries

F. Rheumatoid hand /Osteoarthritis

- i. Describe the management of Rheumatoid hand and osteoarthritis of the hand including the thumb carpometacarpal joint
- ii. Describe the radiographic findings associated with arthritis of the hand

G. Other Hand

- i. List the principles of tendon transfers

- ii. Describe the tendon transfers for major peripheral nerve injuries and tetraplegia
- iii. List and describe the management of upper extremity compression neuropathies
- iv. Perform a carpal tunnel release, release of Guyon's canal and ulnar nerve transposition
- v. Describe the principles of nerve repair and reconstruction and be able to perform a nerve repair.
- vi. Dupuytren's disease - understand the anatomy and be able to carry out a palmar fasciectomy
- vii. Tumours (soft tissue, bone) – classification, work-up and management
- viii. Injection injuries - management
- ix. Reflex sympathetic dystrophy – diagnosis and management

Craniofacial

- i. Anatomy of the facial skeleton
- ii. Interpret radiologic investigations appropriately
- iii. Classify facial fractures
- iv. Principles of rigid fixation and bone healing
- v. Understand the basics of facial aesthetics and dental occlusion
- vi. Able to perform a comprehensive examination of a patient with a craniofacial injury (acute and post traumatic)
- vii. Surgical approaches to the facial skeleton
- viii. Develop an appropriate treatment plan patients with craniofacial injuries
- ix. Able to apply mandibulomaxillary fixation
- x. Able to adequately expose and treat various facial fractures

Breast

A. General

- i. Describe the embryology of the breast.
- ii. Explain common congenital anomalies of the breast based on an understanding of the underlying embryology (axillary breast tissue, amastia, Poland's syndrome, accessory nipple).
- iii. Describe and illustrate the anatomy of the breast as it relates to: anatomic location, vascular supply, lymphatic supply, nerve supply, supporting structures.
- iv. List the premalignant and malignant conditions that affect the breast and describe the treatment options available for each condition.
- v. List the genes that are involved in genetic screening for breast cancer and discuss the implications of a positive test as it relates to plastic surgery.
- vi. Describe the current recommendations for mammography in the Province of Ontario.
- vii. Describe the diagnosis and treatment options for common benign conditions of the breast including fibroadenoma, fibrocystic disease, Mondor's disease, ductal papilloma.

B. Reduction

- i. Perform a thorough consultation for a breast reduction to include a history, physical and development of a treatment plan.

- ii. List the complications that would be discussed in an informed consent for a breast reduction procedure.
 - iii. Draw a Wise pattern for a breast reduction and describe variations in the pattern to suit different breast sizes and shapes.
 - iv. List various options for infiltration in breast reduction surgery and discuss the advantages of each.
 - v. Perform an inferior pedicle breast reduction.
 - vi. Perform a superior/superior lateral/superior medial breast reduction.
 - vii. Perform a free nipple graft breast reduction.
 - viii. Draw a vertical skin pattern breast reduction and perform a breast reduction using a limited skin excision approach.
 - ix. Describe a reasonable postoperative plan following breast reduction to include: hospitalization, dressings, wound management, follow up visits and mammography.
- C. Gynecomastia
- i. Describe an appropriate work-up including history, physical and examination for a patient presenting with gynecomastia.
 - ii. Classify gynecomastia by etiology and appearance.
 - iii. List the complications and risks associated with male subcutaneous mastectomy as it relates to a full informed consent.
 - iv. Perform a subcutaneous mastectomy through a peri-areola incision.
- D. Breast Augmentation
- i. List the complications and risks associated with saline breast augmentation as it relates to providing a full informed consent.
 - ii. List the complications and risks associated with silicone gel breast implant augmentation as it relates to providing a full informed consent.
 - iii. List and explain the various breast implant options presently available for breast augmentation surgery.
 - iv. Perform a subpectoral breast augmentation.
 - v. Perform a subglandular breast augmentation.
 - vi. Perform a dual plane breast augmentation.
 - vii. Perform a breast augmentation through an inframammary approach.
 - viii. Perform a breast augmentation through a peri-areolar approach.
 - ix. Perform a breast augmentation through a trans-axillary approach.
 - x. Describe the components of a tubular breast deformity.
 - xi. Describe an acceptable treatment plan for a tubular breast deformity.
- E. Mastopexy
- i. Provide a classification scheme for ptosis of the breast.
 - ii. List the complications associated with a mastopexy that would be discussed in a complete informed consent.
 - iii. Discuss the indications for a peri-areolar mastopexy, inverted tear-drop and Wise pattern mastopexy
 - iv. Draw and describe the procedure for a peri-areolar mastopexy, inverted tear drop and Wise pattern mastopexy.
 - v. Explain any modifications to a mastopexy that are or may be required when performing an augmentation at the same time as a mastopexy.
- F. Reconstruction

- i. Describe the anatomy of the TRAM flap.
- ii. Describe the variations of a TRAM flap: single pedicle, double pedicle, free TRAM
- iii. Discuss the indications, contraindications, risks and complications associated with TRAM flap surgery.
- iv. Perform a single pedicle TRAM flap.
- v. Perform a double pedicle TRAM flap.
- vi. Discuss management of the abdominal wall in TRAM flap surgery.
- vii. Discuss approaches to shaping the TRAM flap and demonstrate an ability to shape and reconstruct the breast using a TRAM flap.
- viii. Describe the anatomy of the latissimus dorsi flap and the extended latissimus dorsi flap for breast reconstruction.
- ix. Perform a latissimus dorsi flap breast reconstruction with or without an implant or expander.
- x. Perform a two-stage immediate breast reconstruction with a tissue expander and implant.
- xi. Perform a two-stage delayed reconstruction with a tissue expander and implant.
- xii. Discuss the selection of tissue expanders in post-mastectomy breast reconstruction.
- xiii. Discuss the selection of permanent breast prosthesis in post-mastectomy breast reconstruction.
- xiv. List the risks and complications associated with post-mastectomy breast reconstruction utilizing tissue expanders and implants.
- xv. List options for nipple areola reconstruction and describe the advantages and disadvantages of each approach.
- xvi. Perform areola reconstruction using tattooing and full thickness skin grafts.
- xvii. Perform nipple reconstruction utilizing local flaps, nipple sharing and labia grafts.

Aesthetic Surgery

- i. Becomes familiar with the principles and ranges of aesthetic procedures
- ii. Understands the concepts of appropriate patient selection
- iii. Take an appropriate history and carry out a proper physical examination of the aesthetic patient
- iv. Is able to recommend an appropriate approach to rejuvenation, including both surgical and non-surgical options
- v. Understands the risks, complications and principles of liposuction
- vi. Is able to perform portions of various aesthetic procures under direct supervision

General Pediatric Plastic Surgery

1. Recognizes various congenital hand anomalies
2. Recognizes various congenital craniomaxillofacial anomalies
3. Is aware of and recommends appropriate timing for surgery for congenital anomalies
4. Understands common pediatric tumours and vascular malformations and can appropriate diagnose, investigate and manage these entities
5. Diagnose and treat pediatric hand fractures
6. Diagnose and classify malformations and deformations of the ear

Communicator

- Establish therapeutic relationship with patients/families
- Obtain and synthesize relevant history from patients/families/communities
- Listens effectively
- Discuss appropriate information with patients/families and the health care team
- Dictates/writes clear consultation letters, progress notes, and discharge summaries
- Able to explain procedures/treatments, options for treatment, complications and morbidity to patients and families in a clear and understandable form
- Prepares, participates, presents effectively in rounds and seminars

Collaborator

- Consult effectively with other physicians and health care professionals
- Contribute effectively to interdisciplinary team activities
- Works with cooperation and respect with nurses, therapists and other members of the health care team
- Maintains professional relationships with other health care providers

Leader

- Utilize resources effectively to balance patient care, learning needs, outside activities
- Allocate finite health care resources wisely
- Work effectively and efficiently in a health care organization
- Manages team, delegates tasks and graded responsibility effectively
- Utilize information technology to optimize patient care and life-long learning
- Understands the health care limitations in a community setting.
- Understands the different approaches to patient care in a community hospital vs academic centre. Understands when to refer to academic centre.

Health Advocate

- Identify the important determinants of health affecting patients
- Contribute effectively to improved health of patients and communities
- Recognize and respond to those issues where advocacy is appropriate
- Advocates on behalf of the patient

Scholar

- Develop, implement and monitor a personal continuing education strategy
- Recognizes gaps in knowledge and develops strategies to correct these
- Reads and prepares for scheduled clinical procedures
- Critically appraise sources of medical information
- Facilitate learning of patients, housestaff/students and other health professionals
- Contribute to development of new knowledge
- Accepts and acts on constructive feedback

Professional

- Deliver the highest quality care with integrity, honesty and compassion
- Practice medicine ethically consistent with obligations of a physician
- Exhibit appropriate personal and interpersonal professional behaviors
- Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgery
- Recognizes limitations and seeks advice and consultation when needed
- Exercises initiative within limits of knowledge and training
- Reports facts accurately, including own errors
- Maintains appropriate boundaries in work and learning situations
- Shows respect of diversity of race, age, gender, sexual orientation, disability, intelligence and socio-economic status