

# 1. Objectives of Training and Specialty Training Requirements in Plastic Surgery

## Introduction

Welcome to Plastic Surgery Residency. This outline is intended to act as a guide for the Residents and Staff involved in the Post Graduate Training Program in Plastic Surgery at McMaster University affiliated hospitals.

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## Overview

### 1.1 Definition

The term "plastic" is derived from the Greek word "plastikos" which means moulding or giving form. It is the additional responsibility of the plastic surgeon to employ techniques designed to minimize damage to healthy tissue and to facilitate the healing of injured tissue. The plastic surgeon should be dedicated to enhancing the quality of life of the patient by improving bodily function and appearance which is abnormal due to birth defects, trauma or infection, or by correcting body features displeasing to the patient and thus improving the patient's self-esteem.

Upon completion of training, a resident is expected to be a competent specialist in Plastic Surgery, capable of assuming a consultant's role in the specialty. The resident must acquire a working knowledge of the theoretical basis of the specialty, including its foundations in the basic medical sciences and research.

The residents must obtain the competencies expected of a specialist in Plastic Surgery. These include Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional.

Residents must demonstrate the requisite knowledge, skills, and attitudes for effective patient-centered care and service to a diverse population. In all aspects of specialist practice, the graduate must be able to address issues of gender, sexual orientation, age, culture, ethnicity and ethics in a professional manner.

### 1.2 General Objectives

The program intends to train a Plastic Surgeon for future unsupervised practice who is capable of providing for the total care of the patients referred, in either elective or emergency circumstances. In addition to technical skills, we expect the future plastic surgeon to be a medical expert and 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.

On completion of the training program, each resident will demonstrate:

#### **Knowledge**

A comprehensive knowledge of:

1. The histology, physiology and biochemistry of the skin and adnexae as well as muscles, tendons, ligaments, bones, blood vessels, lymphatics and nerves;
2. Wound healing, normal and abnormal;
3. The pathophysiology of all aspects of thermal injury;
4. The principles of immunology as they relate primarily to tissue transplantation;
5. The genetics, embryology, anatomy and pathophysiology of congenital deformities commonly managed by plastic surgeons;

## Overview

6. Sepsis as it especially applies to operative care;
7. The pharmacology, including the principles of metabolism, action and toxicity, of drugs commonly used in the specialty;
8. The pathology and treatment of neoplasia of the skin and soft tissues;
9. Medical-legal, ethical and psychological aspects of plastic surgery.

### **Clinical Skills**

The capability of independent patient care in all facets of plastic surgery including the investigation, diagnosis and management of disease. This would include all aspects of soft tissue injury, tumours, wound healing, cranio-maxillofacial injury, hand and thermal injury, cosmetic (esthetic) deformities and liabilities as well as congenital anomalies. In the development of clinical skills there shall be emphasis for both adult and pediatric patients.

### **Technical Skills**

This is defined as competence in all technical aspects of plastic surgery procedures, competence in pre- and post-operative care, and the ability to select the appropriate procedure to fit the clinical situation and to recognize his/her limitations.

In particular, competence:

1. All techniques for the covering of skin
2. Management of soft tissue injuries
3. Cranioaxillofacial surgery including congenital and acquired deformities
4. Hand surgery including nerves, vessels, tendons, bones, ligaments and soft tissues
5. Thermal and chemical injury including reconstruction
6. Reconstructive surgery on the chest, abdomen, buttocks and extremities
7. Cosmetic surgery including face, eyelids, nose, ears, hair repositioning, body contouring, breast reduction, augmentation and post-mastectomy reconstruction
8. Pediatric plastic surgery including cleft lip and palate, pharyngoplasty, hypospadias, vaginal reconstruction, congenital hand and foot deformities, meningomyelocele and special concepts of wound care, tumour management, congenital deficiencies and excesses
9. Microneuro-vascular surgery with reference to repairs, replantation as well as free, simple and/or composite flap reconstruction, head and neck ablative and reconstructive surgery including
10. Ambulatory care surgery of a minor and major nature under both local and general anesthesia.

All aspects of technical skill development relate equally to the child and the adult.

## Overview

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As a *communicator*, he/she must establish a therapeutic relationship with patients and their families; obtain and synthesize relevant history from patients, families, and communities and listen effectively. He/she must discuss appropriate information with patients, families and health-care team members.

As a *scholar*, he/she must develop, implement and monitor a personal continuing education strategy and critically appraise sources of medical information and facilitate learning of patients, house staff, students and other health professionals and contribute to development of new knowledge.

As a *collaborator*, he/she must consult effectively with other physicians and health-care professionals, and contribute to interdisciplinary team activities.

As a *leader*, he/she must use resources to balance patient-care, learning needs, outside activities and allocate finite health-care resources wisely as well as work effectively and efficiently in a health-care organization. He/she must use information technology to optimize patient-care and lifelong learning. Contribute to the improvement of health care delivery in teams, organizations, and systems

As a *health advocate*, he/she must identify the important determinant of health affecting patients contribute to improved health of patients and communities and respond to those issues where advocacy is appropriate.

Finally, as a *professional* he/she must deliver the highest quality care with integrity, honesty and compassion, exhibit proper personal and interpersonal professional behaviors, and practice medicine that is ethically consistent with the obligations of a physician.

At the end of his/her training program, such a candidate should be proficient with the entire spectrum of general plastic surgery and will be poised for further tertiary training in an area of particular interest or need.

The candidate completing this program will be admissible to the Examination for Certification in Plastic Surgery of the Royal College of Physicians and Surgeons of Canada with the confidence of the program that their training and abilities are sufficient to expect success on the first attempt and become a competent consultant plastic surgeon.

## 1.3 Specialty Training Requirements

**MINIMUM TRAINING REQUIREMENTS** (applies to those beginning their training before July 1, 2010. For those starting after that, please see below).

1. Five (5) years of approved residency training. This period must include: **Note:**
  - 1.1. A minimum of two (2) years of foundational training in the core aspects of surgery related to Plastic Surgery. This period is under the direction of the Plastic Surgery Program Director in conjunction with the Core Surgery Program coordinator. This initial period of postgraduate training will provide:
    - 1.1.1. Plastic Surgery: minimum two (2) months, maximum six (6) months
    - 1.1.2. Minimum two (2) month rotations in each of the following:
      - 1.1.2.1. General surgery
      - 1.1.2.2. Orthopedic surgery
      - 1.1.2.3. Critical care
    - 1.1.3. Rotations of one (1) to three (3) months duration selected from the following:
      - 1.1.3.1. Otorhinolaryngology
      - 1.1.3.2. Vascular surgery
      - 1.1.3.3. Neurosurgery
      - 1.1.3.4. Pediatric surgery
      - 1.1.3.5. Surgical ophthalmology
      - 1.1.3.6. Surgical oncology
      - 1.1.3.7. Oral surgery
      - 1.1.3.8. Urology
    - 1.1.4. Other Rotations of one (1) to two (2) month duration may be selected from the following for a total of six (6) months maximum:
      - 1.1.4.1. Anesthesiology
      - 1.1.4.2. Emergency Medicine
      - 1.1.4.3. Internal Medicine
      - 1.1.4.4. Dermatology/ dermatopathology
      - 1.1.4.5. Radiology
      - 1.1.4.6. Rheumatology
      - 1.1.4.7. Physical Medicine and Rehabilitation
      - 1.1.4.8. Infectious Diseases

## Overview

### 1.1.4.9. Anatomy

1.2. Three (3) years of progressive senior residency training in Plastic Surgery, which must incorporate the principle of graded increasing responsibility. This period:

1.2.1.1. Must include six (6) months of responsibility as senior or chief resident

1.2.1.2. May include up to three (3) months of research or three (3) months of elective time which must be approved in advance by the Plastic Surgery residency program director

1.2.1.3. Must include exposure to the following Plastic Surgery Subspecialty domains while on Plastic Surgery rotations:

1.2.1.3.1. Burn surgery

1.2.1.3.2. Hand surgery

1.2.1.3.3. Aesthetic surgery

1.2.1.3.4. Craniofacial trauma surgery

1.2.1.3.5. Pediatric Plastic Surgery

1.2.1.3.6. Reconstructive surgery of the following:

1.2.1.3.6.1. Breast

1.2.1.3.6.2. Trunk

1.2.1.3.6.3. Head and neck

1.2.1.3.6.4. Lower limb and upper limb

## **MINIMUM TRAINING REQUIREMENTS (for those who started their training on or after July 1, 2011)**

Five (5) years of approved residency training. This period must include:

1. A minimum of two (2) years of Surgical Foundations training in the core aspects of surgery related to Plastic Surgery. This period is under the direction of the Plastic Surgery Program Director in conjunction with the Surgical Foundations Program Director. This initial period of postgraduate training will provide:

1.1 Plastic Surgery: minimum two (2) months, maximum twelve (12) months

1.2 Minimum two (2) month rotations in each of the following:

1.2.1 General Surgery

1.2.2 Orthopedic Surgery

1.2.3 Critical Care Medicine

1.3 Rotations of one (1) to three (3) month's duration selected from the following:

1.3.1 Otorhinolaryngology

1.3.2 Vascular Surgery

## Overview

- 1.3.3 Neurosurgery
- 1.3.4 Pediatric surgery
- 1.3.5 Surgical ophthalmology
- 1.3.6 Surgical oncology
- 1.3.7 Oral surgery
- 1.3.8 Urology

1.4 Other rotations of one (1) to two (2) month's duration may be selected from the following for a total of six (6) months maximum:

- 1.4.1 Anesthesiology
- 1.4.2 Emergency Medicine
- 1.4.3 Internal Medicine
- 1.4.4 Dermatology/ dermatopathology
- 1.4.5 Radiology
- 1.4.6 Rheumatology
- 1.4.7 Physical Medicine and Rehabilitation
- 1.4.8 Infectious Diseases
- 1.4.9 Anatomy

1.5 Minimum one (1) month on a service that provides initial trauma management (such as Emergency Medicine, General Surgery, trauma team, Orthopedic Surgery, or Plastic Surgery)

2. Three (3) years of senior residency training in Plastic Surgery, which must incorporate the principle of graded increasing responsibility. This period:

2.1 Must include six (6) months of responsibility as a designated official senior or chief resident

2.2 May include up to three (3) months of research or three (3) months of elective time which must be approved in advance by the Plastic Surgery residency program director

2.3 Must include exposure to the following Plastic Surgery subspecialty domains while on Plastic Surgery rotations:

- 2.3.1 Burn surgery
- 2.3.2 Hand surgery
- 2.3.3 Aesthetic surgery
- 2.3.4 Craniofacial trauma surgery
- 2.3.5 Reconstructive surgery of the following:
  - 2.3.5.1 Breast
  - 2.3.5.2 Trunk
  - 2.3.5.3 Head and neck
  - 2.3.5.4 Lower limb and upper limb

2.3.6 Pediatric Plastic Surgery

## Overview

### NOTES:

American Board Certification: Those who have successfully attained their certification by the American Board of Plastic Surgery will be considered to fulfill the minimum training requirements in Section 1 and 2.

Royal College certification in Plastic Surgery requires all of the following:

1. Successful completion of the Royal College Surgical Foundations curriculum;
2. Successful completion of the Royal College Principles of Surgery examination;
3. Successful completion of a 5-year Royal College accredited program in Plastic Surgery or certification by the American Board of Plastic Surgery; and
4. Successful completion of the certification examination in Plastic Surgery.

The 5-year program outlined above is to be regarded as the minimum training requirement. Additional training may be required by the program director to ensure that clinical competence has been achieved.

## **1.4 Royal College Objectives of Training and Specialty Training Requirements**

Click here for the Royal College Objectives of Training and Specialty Training Requirements in Plastic Surgery

[http://rcpsc.medical.org/residency/certification/objectives/plast\\_e.pdf](http://rcpsc.medical.org/residency/certification/objectives/plast_e.pdf)

## **2. Format of the Comprehensive Objective Examination in Plastic Surgery**

Comprehensive objective examinations make it possible to obtain a more complete evaluation of the candidate's strengths and weaknesses. The important feature of comprehensive objective examinations is that candidates do not need to pass the written component in order to take the oral component. Success or failure is based on consideration of all components of the examination. The comprehensive objective examinations are considered a "whole" and cannot be fragmented. Candidates who are unsuccessful at this examination must, if within their period of eligibility, repeat all components of the examination.

### **2.1 Principles of Surgery Examination**

This examination may be taken after a minimum of two years of training that meet the specialty training requirements in one of the surgical disciplines recognized by the College. All candidates must pass this examination to be eligible for the comprehensive objective



## Overview

examination.

## 2.2 Written Component

The written component consists of two, three-hour papers of short answer questions on all aspects of Plastic Surgery.

## 2.3 Oral and Clinical Component

The oral and clinical component consists of two parts of approximately one hour each. This covers within as many of the major areas as possible of Plastic Surgery practice (including core surgery issues). The candidate is asked to comment on a series of short case scenarios or examples of pathology usually illustrated by photographs, etc.

## 3. Structure of Program and Rotations

The Plastic Surgery Program is of a 5-year duration. It includes a 2-year Core Program in Surgery, followed by 3 years of Plastic Surgery training.

The Core Program in Surgery (2 years duration) takes place in Hamilton affiliated teaching institutions, culminating in mandatory success on the Surgical Foundations examination prior to the Plastic Surgery surgical training. Candidates accepted in Plastic Surgery must complete rotations in their PGY1 and PGY2 years, which include the following:

### 3.1 Core Rotations

<u>PGY1</u>	<u>PGY2</u>
General Surgery - 2 blocks	Plastic Surgery – 6 blocks
Pediatric Surgery – 2 blocks	ENT – 1 block
Internal Medicine – 2 blocks	Head and Neck – 1 block
Orthopedics – 2 blocks	ICU – 2 blocks
Plastic Surgery – 3 blocks	Vascular Surgery – 1 block
Emergency Medicine – 1 block	Dermatology – 1 block
Anesthesia – 1 block	Radiology – 1 block

Residents must submit their training to the Royal College of Physicians and Surgeons for approval.

The American Board of Plastic Surgery (U.S.A.) has different training requirements and although residents may apply for Board eligibility, the design of our training may not meet changing eligibility criteria. Each interested candidate must submit application for assessment of training prior to commencing senior years (PGY3).

## 3.2 Senior Plastic Surgery Rotations

### **PGY3:**

Plastic Surgery, Hamilton General Hospital (6 blocks) – Residents are expected to obtain expertise in the management of burns and trauma, including craniofacial trauma and hand injuries. He/she will also be exposed to general elective plastic surgical procedures, as well as hand surgery and microsurgery.

Plastic Surgery, St. Joseph's Hospital (6 block) – Exposure to elective Hand, Breast, and microsurgery.

Oral and Maxillofacial Surgery (1 block) – training in maxillofacial deformities (traumatic, congenital, cosmetic) and treatment

### **PGY 4:**

Plastic Surgery, Hamilton General Hospital (4 blocks) - consolidates his/her inherent knowledge in trauma and burn management as well as reconstructive surgery.

Plastic Surgery, St. Joseph's Hospital (3 blocks) – consolidate knowledge of microsurgery.

Plastic Surgery, McMaster University Hospital (3 blocks) – pediatric plastic surgery with exposure to other pediatric surgical specialties (pediatric neurology, pediatric urology etc.)

Elective (2 blocks) – The elective rotation may be taken in our centre, community practice or in another university, preferably in Canada. This allows for further community experience, subspecialty exposure or additional research exposure.

Community Rotation (1 block) - This allows exposure to patients that may not be encountered in a tertiary hospital setting as well as insight into how community hospitals function. In addition, should they wish to do a community rotation at an alternative site, this is possible provided the appropriate learning environment is provided. Any community rotation at an alternate site must be approved by the Program Director.

### **PGY5:**

It is expected that the consolidation of knowledge occur during the final year of training as the resident prepares for their Royal College Examinations. The resident should be able to function at the level of a competent consultant plastic surgeon. The Chief Residents can participate in surgery in any other hospitals in the city to work with any of the Plastic

## Overview

Surgeons on interesting cases. The following rotations occur in the chief residency year.

Plastic Surgery, McMaster University Hospital (5 blocks)

Plastic Surgery, St. Joseph's Hospital (3 blocks)

Plastic Surgery, Hamilton General Hospital (3 blocks)

Aesthetic Surgery, Oakville-Trafalgar Hospital (2 blocks) – Evaluation, management (including surgery) and follow-up of patients undergoing the full spectrum of aesthetic plastic surgery.

### **Guiding Principles**

The training must take place in the cooperative environment of the University and the participating institutions (with short experience in a non-university, community hospitals) free from discrimination or intimidation. Residents will be given increasing levels of responsibility consistent with their knowledge judgment, technical ability and attitudes at the discretion of the attending staff.

There is an obligation on the part of the Residents to contribute to the function of a Clinical Unit. Satisfactory participation in the pre and post-operative care of a patient is not only the objective of Residency Training, but also the environment within which maximum learning takes place. Residents are discouraged from "honing in" on a specific area of Plastic Surgery to the detriment of other areas.

Throughout their training, Residents must learn to balance their dual roles of trainees and providers of medical service. The program recognizes the primary role of education and strives to balance educational time and activities with service commitments.

The program expects a commitment from the Attending Staff to participate in the educational activities of the program. The Residents will also expect teaching from consultant involvement at:

1. Plastic Rounds
2. Journal Club
3. Plastic Surgery Seminars
4. The Outpatient Clinics
5. The Residency Day presentations and the research leading up to it
6. Involve the Residents in research studies
7. The Senior Resident Core seminars

### **Guidelines Regarding Supervision of Post Graduate Trainees**

These guidelines are in accordance to the CPSO guidelines on Professional Responsibility in Postgraduate Medical Education.

<http://www.cpso.on.ca/policies/policies/default.aspx?id=1846&terms=Professional+Responsibility+in+Postgraduate+Medical+Education>.

## Overview

While on service, the resident has responsibility for patient care including; consultations in emergency and on the ward, peri-operative care including daily rounds, reviewing and revising daily orders, recording progress notes and arranging for investigations, admissions, transfers and/or discharges. All consults, decisions and changes to care are discussed with the attending surgeon. The delegation of responsibility rests with the surgeon and is determined by the resident's level of training, experience and demonstrated competence. Final responsibility for each patient's care belongs to attending surgeon. The resident does not act independently of the staff person or his/her designate.

Residents are not permitted to undertake procedures without the prior approval of the attending surgeon. Patients can not be scheduled for surgery without prior approval and patients can not be taken to the operating room without the surgeon being present in the room for the surgery. The decision as to whether a resident acts as surgeon or assistant is always made by the attending. The attending is required to remain in, or in the immediate vicinity of, the operating room until the surgery is complete and the patient is safely transferred to recovery.

While on call, the resident is characteristically called to offer the first opinion on a new emergency, and subject to the gravity of the case, will solicit the assistance of senior or chief residents and early involvement of the staff person.

NO PATIENT is taken to the operating room by the residents without the staff person being present for the operation. This presence will vary from full participation in the operations as either first assistant or operating surgeon, to presence for advice and reinforcement of decisions made by the resident according to the stage of training.

While functioning in the on-call roster, residents are asked to give surgical opinions to other services, sometimes before the attending staff has been contacted. Such opinions and any procedural activity related to them are acts carried out on behalf of the attending staff person who is informed of the nature of the case and of the resident's opinion and intended action. Should the staff person feel completely satisfied with this he/she is expected to endorse this as a consultation. If the dialogue with the resident generates further actions, further investigations are initiated or further signs are solicited, then an opinion is finally developed. On any occasion should the staff person feel that it is necessary, they would personally attend to confirm all the findings before the opinion is put in writing. Again, on no occasion is the resident expected to pursue technical exercises on patients when consultations have been sought without the staff person being notified.

## **Administration**

The Program Director and his administrative assistant manager of the Plastic Surgery Training Program. They are assisted by the Plastic Surgery Residency Program Committee, which is responsible to the Department of Surgery Chairman, as well as to the Faculty Post Graduate Education Committee.

## Overview

The Plastic Surgery Residency Program Committee consists of the Program Director and the Heads of the three clinical teaching units, the Head of the Academic Division of Plastic Surgery, the Head of Research for Plastic surgery, the Program assistant and elected Plastic Surgery Residents representatives (chief resident, senior, junior, and externally funded residents)

The responsibilities of the Plastic Surgery Training Committee includes:

- 1) selection of trainees
- 2) assignment of rotations compatible with the objectives of the program
- 3) ensuring formal and informal regular evaluation with feedback and promotion
- 4) regular review of rotations, rounds, educational events, or any other program concerns

Faculty and program evaluation is also the task of the Specialty Training Committee. The Committee meets at least quarterly and minutes are kept.

Although the Program Director is available to assist residents as required, as a stress handling mechanism, all residents in the program have a designated mentor, such as a consultant or other resident in whom the resident may confide and help resolve any stressful or personal issues.

### **On Call Schedule**

The specifics of service commitments are contained in the agreement between the Professional Association of Residents of Ontario (PARO) and The Council of Academic Hospitals of Ontario (CAHO). Residents will not be asked to be On Call more often and Attending Staff will honour this agreement. The most senior resident in each hospital will prepare the On Call Schedule. Copies will be distributed to each hospital and PARO (as per collective agreement)

### **Vacation Policy/Professional Leave As per PARO/CAHO Agreement**

11.1 Residents shall be entitled to four (4) weeks paid vacation during each year and 7 days of professional leave.

11.2 Vacations may be taken by housestaff at any time, but, subject to article 11.4, the timing of vacation may be delayed only where necessary, having regard to the professional and patient responsibilities of the hospital department for the time the vacation is requested.

11.3 Housestaff may arrange for their vacation to be taken in one (1) continuous period or in one or more segments of at least one (1) week in duration provided professional and patient responsibilities are met.

11.4 Requests for vacation shall be submitted in writing to the Division Head of the Hospital (for plastic surgery rotations it would be the CTU Director) at least four (4) weeks before the proposed commencement of the vacation and not later than March 1. As an exception to the above, each resident taking a certification examination in the spring shall

## Overview

have until one month prior to the date of the examination to make a written request for one week of his/her vacation entitlement. Vacation requests submitted before March 1, or one month prior to the date of a certification examination, will be considered in priority to those submitted after that time. All vacation requests must be confirmed or alternate times agreed to, in accordance with Article 11.2, within two (2) weeks of the request being made. Where the hospital department rejects the vacation request, it will do so in writing and include the reasons for rejecting the original vacation proposal.

Full approval has to be given before making holiday plans by the Head of Service at least (4) weeks prior to the proposed commencement of the vacation. Signatures required included that of the program assistant (to confirm the resident has the remaining vacation time), the CTU supervisor of the service, the resident responsible for the call schedule and the Program Director prior to the vacation request being granted.

## Research

The academic and scholarly aspects of the program must be commensurate with the concept of a university Post Graduate education. This includes research and publications by Residents and Faculty. Residents are encouraged and expected to mount individual projects in clinical research or basic laboratory research as a part of their regular training activities. The following is available to residents:

1. The microvascular laboratory based at St. Joseph's Hospital in the Father Sean O'Sullivan Research Centre is available for the Residents interested in basic science or experimental research related to microsurgery.
2. Collaborative lab projects with medical sciences investigators in the Departments of Anatomy, Neuroscience, and Molecular Medicine can also be coordinated.
3. Fresh Cadaver Laboratory in the Anatomy Department is available for anatomic research.

To facilitate research productivity, each resident actively involved in a research project will be relieved of clinical duties one half day per week to pursue projects on a longitudinal basis in which the experimental work needs to be done during working hours. It is expected that the resident provides a list of goals and objectives for that time and their research supervisor is in agreement prior to obtaining approval for this from the Program Director.

It is expected that each Resident will be active in research throughout their Plastic Surgery Residency. Each resident is expected to present yearly at the annual research day. For PGY 1, this may be a project that they had completed as medical students. For the other years, it will be a new research project or an update if the project is complex enough to warrant more than one year for completion. Other forums for presentation included the "Annual Surgical Residents' Research Day", the Senior Plastic Surgery Residents' Meeting usually held in the U.S.A., the Annual Meeting of the Canadian Society of Plastic Surgeons, the A.S.P.R.S. and the Plastic Surgery Research Council Meeting, etc. It is

## Overview

expected that such research is noteworthy and is published in a peer-reviewed Plastic Surgery journal (ASRM, ASPN, AAHS).

The Division of Plastic Surgery has funds available via the "Plastic Surgical Educational Fund", as well as Regional Medical Associates Scholarships and Department of Surgery Fund to support small clinical or laboratory research projects. Furthermore, funds are available to pay for some expenses incurred in presenting papers at meetings.

## 4.5 Academic Objectives

The academic program is comprised of many varied activities.

### Teaching and Clinical Activities

1. Consultations in the Emergency Room at all institutions. These are then discussed with the Chief Resident and/or with the attending staff member.
2. Plastic Surgery Resident Clinics at both the Hamilton General Hospital on Friday afternoons from 1:00pm to 3:00pm, and at St. Joseph's Hospital on Fridays from 8:00am to 9:00am.
3. Staff Clinics:
  - i. Dr. Thoma: Outpatient Hand Clinic, St. Joseph's Hospital Fridays 9:00 to 11:30 am and Wednesdays 1:00-4:00 pm at the St Joseph's Center for Ambulatory Care.
  - ii. Dr. Levis: Out-Patient Clinic, St. Joseph's Health Hospital Monday 9:00am to 12:00pm and Wednesdays 9:00am to 3:30pm. Pediatric Clinic, McMaster Monday 1:00 – 5:00pm.
  - iii. Dr Avram: Skin and Breast Tumour Clinic, Juravinski Cancer Center (JCC) on Tuesdays from 1:00- 4:00 pm.
  - iv. Dr. Hynes: Outpatient Clinic, St. Joseph's Hospital Mondays 1:00-3:00 pm .
  - v. Dr. Strumas: Outpatient Clinic, McMaster Monday all day, Tuesday 9:00 – 12:00, Pediatric Out-Patient Clinic, Friday from 9:00 – 12:00. New cleft lip and palate patients are seen at the Cleft Clinic once a month at Chedoke during cleft lip and palate clinic.
  - vi. Dr. Bain: Pediatric Outpatient Clinic, MUMC 1<sup>st</sup> and 3<sup>rd</sup> Mondays. Brachial plexus Clinic, McMaster, 2<sup>nd</sup> and 4<sup>th</sup> Monday of the month. Adult Clinic McMaster, Wednesday 9:00-12:00 and 1:00-5:00.
  - vii. Dr. Avram: Outpatient clinic, Hamilton General, Wednesday 9:00-12:00 and Thursday 1:00-4:00 pm.

In addition, both junior and senior residents attend Clinics in the private offices of the attending physicians. This is mandatory. This allows the residents to see patients for the first time through the selection process, preparation for surgery and then later, follow them in the consultant's office for after care. The Out-Patient Burn Clinic operates daily.

4. Vascular Anomalies Clinic – 1st Tuesday of the Month MUMC
5. Residents perform in-patient consultations and then review with staff

## Overview

### Rounds and Seminars

1.	Plastic Surgery Grand Rounds, MUMC	Wednesday (weekly)	7:30am to 8:30am
2.	Journal Club (staff members home)	Monthly	7:00pm to 10:00pm
3.	Surgical Foundations (PGY1&PGY2)	Wednesday (weekly)	9:00am to 12:00pm
4.	Senior Seminar Sessions (PGY3-5)	Wednesday (weekly)	9:0am to 12:00pm
5.	MAD Days (all residents)	Wednesdays (quarterly)	1:00pm to 5:00pm
6.	Combined Ortho/Plastics Hand and Upper Limb Rounds	Wednesdays (q2-3 months)	7:30am to 8:30am
7.	Skin Tumour Clinic Juravinski Cancer Centre	Tuesday	1:00pm to 3:00pm
8.	Walking Rounds, HHS General Site	Friday (weekly)	following resident's clinic
9.	Burn Rounds, Hamilton General Hospital	Tuesday (weekly)	3:30pm to 4:30pm
10.	Walking Rounds, St. Joseph's Hospital	Thursday (weekly)	7:30am
11.	Plastic Surgery Residency Clinic, St. Joseph's Health Care	Friday (weekly)	8:00am to 9:00am
12.	Hand Clinic, St. Joseph's Health Care	Friday (weekly)	9:00am to 12:00pm and 1:00pm to 3:30pm
13.	Resident's Plastics Clinic, Hamilton General Hospital	Friday (weekly)	1:00pm to 3:00pm

### Technical Skills Development

#### Microsurgical Course

The Resident in the beginning of the program and at a mutually arranged time with the Head of the Plastic Surgery Service of the hospital will take an intensive one-week (clinical duty free) course in microsurgery at the Microsurgery Laboratory. In this course, he/she is expected to familiarize himself with the operating microscope, micro instruments and micro sutures. He/she is expected to master the microvascular anastomosis of 1 mm vessels in rat arteries and veins, perform interpositional vein anastomosis and finally perform end-to-side anastomosis (Mandatory).

#### Anatomic Dissection

Residents are able to perform anatomical dissections on cadavers to familiarize themselves with the commonly used flaps, including pedicled and free flaps and to include not only reconstructive but also cosmetic procedures.

#### AO Fixation

In conjunction with industry a skills lab is held every 1 to 2 years to familiarize the resident with the craniofacial and hand fracture management equipment. Combined didactic and practical experiences are obtained.

#### Endoscopic Surgery



## Overview

Through the Centre for Minimal Access Surgery (CMAS) a Program for developing endoscopic skills relevant to plastic surgery is being developed. Once every three years a course for senior residents will be pursued.

The Attending Staff are aware of these commitments to education and are expected not to detain the residents in competition with the mandatory academic sessions. Service duties should rarely be reason for missing sessions. Only in life or limb threatening emergencies are residents excused from the academic activities. Constructive criticism of the program is expected; nonattendance is unacceptable.

As well as the structured activities, personal reading is imperative to round out one's knowledge.

### **Specific Objectives**

A comprehensive knowledge of:

1. The histology, physiology and biochemistry of the skin and adnexae, as well as muscles, tendons, ligaments, bones, blood vessels, lymphatics and nerves.
2. Wound healing, normal and abnormal.
3. The pathophysiology and management of all aspects of thermal injury.
4. The principles of immunology as they relate primarily to tissue transplantation and burns.
5. The genetics, embryology, anatomy and pathophysiology of congenital deformities commonly managed by Plastic Surgeons.
6. Sepsis as it especially applies to operative care (wound and systemic).
7. The pharmacology, including the principles of metabolism, action and toxicity of drugs commonly used in the specialty.
8. The pathology and treatment of neoplasia of the skin and soft tissues.
9. Medical-legal and ethical aspects of Plastic Surgery.
10. An approach to reconstruction of commonly encountered conditions.

## Overview

### **Suggested Learning Resources**

#### Comprehensive/Overview:

Mathes Plastic Surgery  
Grab and Smith's Plastic Surgery

#### Hand Surgery:

Green's Operative Hand Surgery  
Care of the Rheumatoid Hand – Adrian Flatt

#### Microsurgery:

Reconstructive Surgery – Mathes and Nahai  
Serafin – Atlas of Microsurgical Composite Tissue Transfer (out of print but good reference if you come across it)

#### Craniofacial:

Local Flaps in Head and Neck Reconstruction – Ian Jackson

#### Journals:

1. Journal of Plastic and Reconstructive Surgery (PRS)
2. Clinics in Plastic Surgery
3. Annals of Plastic Surgery
4. British Journal of Plastic and Reconstructive Surgery
5. Journal of Hand Surgery (Am.) or (Br.)
6. Canadian Journal of Plastic Surgery

### **Educational Role of Chief Resident**

The Chief (senior) Residency is a period in which the Resident assumes increasing responsibility for professional activities in order to effect a smooth transition from trainee to independent specialist consultant.

The Senior Residency is characterized by increasing levels of independent decision-making on the part of the trainee within the context of the supervision and counsel of the Teaching Staff who maintain ultimate responsibility for the professional services provided. The Chief Resident should be given the opportunity to demonstrate a level of knowledge, skills, technical skills and attitudes consistent with independent consultant practice.

In order to achieve this level of responsibility, the Senior Resident must have direct access to and report to the supervising Staff Physician. In instances where clinical or research fellows are part of the team, they must not be interposed between the Senior Resident and the supervising Staff Physician.

The Senior Resident will be responsible for the supervision of more junior trainees and students. Similarly, the Senior Resident may undertake administrative responsibilities.

## Overview

However, it must be clearly understood that although these activities are important, the essence of the Senior Residency is the further development and refinement of decision-making skills in preparation for independent specialist practice

## 5. Attitudes

The ability to communicate effectively with the patient and the family, a compassionate interest and overall understanding of the patient, the ability to recognize the psychological needs of the patient requiring plastic surgery, the ability to function as a member of multidisciplinary health care team, an understanding and acceptance of the obligation of continuing self-education and the teaching of others, an appreciation of the important role that basic and clinical research plays in the critical analysis of current scientific developments related to the specialty, an awareness of the acceptable and expected result as well as the unacceptable and unexpected clinical result will be developed.

Honesty is fundamental to the teaching and learning process. If a mistake is made that is not honestly dissected into its fundamental anatomy and recognized, then the same mistake will be made again. The "end-result system" introduced by Dr. E.A. Codman from the Massachusetts General Hospital is highly recommended for both Residents and Staff. In this method of introspective analysis, each patient complication is assigned by the Surgeon into one of a number of subcategories. These categories include:

Errors in:

- 1) Diagnosis
- 2) Judgment
- 3) Management
- 4) Technique
- 5) Communication

With the clarity of this definition, it becomes easy for the Resident and consultant to understand what went wrong and why it went wrong.

In view of the unmasking of sexual abuse of patients by physicians in the last 2 decades and the expectation of zero-tolerance for sexual abuse, it is mandatory that all Residents read "The Final Report: Task Force on Sexual Abuse of Patients", C.P.S.O., November 25, 1991, and understand clearly the classifications of sexual abuse and ramifications.

With regards to medical ethics, it is mandatory that all residents in our program read Dr. C.M. Ward's essays on this subject published in the British Journal of Plastic Surgery:

1. Defining Medical Ethics, Vol 46:647, 1993 Consenting to Surgery, Vol 47:30, 1994
2. Surgical Research, Experimentation and Innovation, Vol 47:90, 1994 On Learning Medical Ethics, Vol 47: 507, 1994
3. An Ethical and Legal Perspective on Foetal Surgery, Vol 47:411, 1994
4. Advertising and Boundary Disputes, Vol 47:381, 1994 Teaching, Training and Travelling, Vol 47:280, 1994

## 6. Staff Evaluation

Staff evaluation is a continuous process. Ongoing dialogue between the Resident and the supervising staff is a critical component of this evaluation. At the completion of each rotation, the resident must complete Faculty Evaluations on WebEval. We expect the residents to evaluate each Faculty member on their performance. As well, there are several more formal components.

## 7. Resident Evaluation

1. Rotations evaluations based on the CanMEDS competencies are performed using the web based WebEval. The term average in this context indicates that the Resident is performing at a clearly satisfactory level for his stage of training. Given the very highly capable group of which a candidate is a member, the term "meets expectations" implies a very high level of performance.

Although this evaluation bears a substantial subjective component on the part of the Attending Staff, experience has shown that a cumulative record of average performance or better, on sequential evaluations, tends to be an accurate assessment of an individual's present and future performance. (A "below expectations" evaluation has similar implications.)

Attention is given during this process to completion of the objectives for the individual rotation, as well as the overall objectives for progress in the program.

2. All Residents are required to participate in the annual PSEF In-training Examination and the Canadian In Service Exam. Individual components of the exam serve as a reminder of areas of strength and weakness. Persistent failure in any given area should be taken under advisement and attention given to correct it.
3. A biannual oral examination is conducted for all residents - one for junior and one for seniors. This examination is intended to:
  - a) assess current clinical ability and awareness
  - b) assess general knowledge relevant to the subject
  - c) assess specific knowledge
  - d) provide experience for the Resident to gain confidence in the examination as required by the R.C.P.S.C.
4. A monthly or more frequent oral examination will be given to the Chief Plastic Surgery residents. This is intended to prepare the resident for the oral component of the Royal College of Surgery Exam in Plastic Surgery.
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## Overview

### Royal College of Surgery Exam in Plastic Surgery.

6. The cumulative impression gathered by such examinations has a successful track record of identifying candidates who will or will not succeed, both in final examination terms and career performance. Therefore, persistent failure in such examinations will be given considerable weight when a candidate's future is being assessed, both in terms of grounds for termination of training or to adjudicate a plea for favorable consideration in the face of other negative data.
7. Semi-annual review with the Program Director takes place to discuss the progress and evaluations to date and to discuss any conflicts faced by the Resident and possible remedies. At all levels of training, progress implies (and depends on) demonstration of progressive maturity in the exercise of clinical judgment and an advancing expression of technical skill. Personal confidence in the performance of surgical procedures should grow with time. Knowledge and personal attitudes should likewise reflect continuous evolution to the levels demanded of a consultant surgeon.
8. Feedback from the resident of each rotation will be welcomed and used to improve the program. The Final In Training Evaluation Report will be prepared by the Program Director and Attending Staff at the time of a candidate's application for the Certifying Examination in Plastic Surgery. The final ITER is expected to attest to satisfactory achievement of the aforementioned goals; under no circumstances will a candidate be advanced to the final examination if the Program Director and the Plastic Surgery Evaluation Committee is not confident of a satisfactory level of achievement in each and every category.

## 8. Three Year Senior Plastic Surgery – Resident Seminar Topics at Academic Half Days

1. Discuss the management of excess fat, body sculpturing, and liposuction
2. Discuss cosmetic rhinoplasty
3. Discuss nasal reconstruction and nasal physiology
4. Discuss lip and cheek reconstruction
5. Discuss cleft lip and nose management of this deformity
6. Outline the embryology of the nose. Classify and discuss nasal anomalies and their treatment in children
7. Discuss the total management of the cleft palate child
8. Discuss cleft lip:
  - a. classification
  - b. primary and secondary surgical procedures
9. Discuss the pathology and current concepts in management of carcinoma of the female breast
10. Give a classification of benign breast disease. Discuss the management of fibrocystic disease. Discuss subcutaneous mastectomy and discuss anatomy of embryology and development of the breast .
11. Discuss post mastectomy reconstruction
12. Discuss augmentation mammoplasty
13. Discuss gynecomastia and mastopexy
14. Discuss reduction mammoplasty
15. Discuss the anatomy and physiology of skin
16. Describe the normal and abnormal healing of skin. Discuss various modifying factors which may alter this process
17. Give a classification of cutaneous scars. Describe the basic principles of prevention and treatment of abnormal scars
18. Describe the healing of various types of skin grafting. Discuss muscle and fat grafts
19. Describe the healing of bone and cartilage. Discuss bone cartilage and perichondrial grafts
20. Discuss the healing of tendon and nerve. Discuss tendon grafts and nerve grafting and vascularized nerve grafts
21. Discuss skin flaps under the following:
  - a. Classification
  - b. Anatomy
  - c. Physiology
  - d. Complications
22. Discuss the basic design of flaps. Discuss fasciocutaneous flaps
23. Discuss myocutaneous flaps. Describe their application in reconstructive surgery
24. Discuss the principles of microsurgery:
  - a. Technique
  - b. Physiology
  - c. Pharmacology

## Overview

- d. Failure
25. Discuss the common free flaps
26. Discuss the physiology of inflammation and edema and modifying factors
27. Discuss the pathophysiology of seroma, hematoma, and coagulation
28. Discuss local anesthetics, adrenaline, steroids, and regional blocks
29. Discuss commonly used antibiotics under the following:
  - a. Classification
  - b. Mode of action
  - c. Spectrum
30. Discuss topical antimicrobials, dressings and skin preps
31. Discuss soft tissue tumors:
  - a. Classification
  - b. Pathology
  - c. Basic principles in treatment
32. Discuss cyst and benign tumors of the neck and embryology of head and neck
33. Discuss the investigations, diagnosis and management of a lump in the neck
34. Discuss the diagnosis and management of premalignant and malignant disease of the head and neck (exclude reconstruction)
35. Discuss reconstructive procedures and flaps in head and neck cancer surgery
36. Outline the basic principles in mandibular reconstruction
37. Discuss tumors and cysts of the mandible
38. Discuss salivary gland tumors
39. Discuss the management of facial nerve paralysis
40. Discuss the management of TM joint problems
41. Discuss the functional anatomy and examination of the hand
42. Discuss the early and late management of finger tip injuries and nail bed Injuries
43. Discuss the management of flexor tendon injuries
44. Discuss the management of extensor tendon injuries
45. Discuss RSD in the upper extremity
46. Discuss the management of fractures and dislocations
47. Discuss hand infections
48. Discuss the management of amputations in the hand and replantation
49. Discuss thumb reconstruction
50. Discuss Dupuytren's, trigger finger, de Quervain's disease
51. Discuss hand tumors
52. Discuss the early and late management of the burned hand
53. Discuss injection injuries
54. Discuss the management of brachial plexus injury
55. Discuss the rheumatoid hand
56. Discuss congenital hand anomalies; discuss embryology of the upper limb
57. Discuss compression neuropathies
58. Discuss tendon transfers in the upper extremity
59. Discuss common wrist problems in plastic surgery
60. Outline the embryology of the external ear and discuss correction of the common congenital anomalies

## Overview

61. Discuss treatment of the burned ear. Outline the basic principles in reconstruction of acquired defects of the ear.
62. Discuss reconstruction of defects of the eyelid
63. Discuss entropion, ectropion, ptosis of the eyelid
64. Discuss fractures of the middle 1/3 of the face, maxilla, palate, nose, zygoma and principles of fixation
65. Discuss fractures of the orbit, frontal sinus and nasoethmoidal-complex
66. Discuss fractures of the mandible
67. Discuss vascular anomalies
68. Discuss lymphedema
69. Discuss burns, fluid and electrolytes, resuscitation, pathophysiology
70. Discuss burns, burn wound management, infection control, inhalation injury
71. Discuss electrical and chemical burns and commissure burns
72. Discuss radiation and radiation injury
73. Discuss frostbite and cold injury
74. Discuss burn immunology
75. Discuss nutrition in the burn and surgical patient
76. Discuss pigmentation physiology and pigmented nevus
77. Discuss malignant melanoma
78. Discuss pre-malignant lesions of the skin
79. Discuss basal cell and squamous cell carcinoma
80. Discuss benign lesions of the skin
81. Discuss the paraplegic patient and pressure ulcers as it pertains to plastic surgery
82. Discuss the aging process of the face.
83. Discuss rhytidectomy
84. Discuss blepharoplasty and brow lift
85. Discuss ancillary procedures in facial esthetic surgery:
  - a. Facial peel
  - b. Dermabrasion
  - c. Collagen
  - d. Implants
  - e. Liposuction, etc
86. Discuss hyperhidrosis, hidroadenitis suppurativa, AIDS and hepatitis
87. Discuss:
  - a. Aspiration
  - b. Cardiac arrest
  - c. Bleeding
  - d. Neuroleptics
88. Discuss scalp reconstruction and management of baldness
89. Discuss compartment syndrome
90. Discuss tissue expansion
91. Discuss the use of alloplastic material in plastic surgery
92. Discuss trunk, groin, abdomen, chest and back reconstruction and groin and axillary node dissection
93. Discuss reconstruction of the lower limb from both tumor (i.e. sarcoma) and



## Overview

- trauma
- 94. Discuss teeth, occlusion, implants, and principles of orthognathic surgery
- 95. Discuss cranial synostosis, isolated and syndromes i.e. Crouzon's, Apert's
- 96. Discuss congenital facial clefts and other anomalies:
  - a. Pierre Robin
  - b. Mobius
  - c. Hemifacial microsomia
  - d. Romberg's
- 97. Discuss embryology of the external genitalia and hypospadias
- 98. Discuss intersex and Transsexualism
- 99. Discuss reconstruction of the external genitalia, male and female
- 100. Discuss dermatology conditions that relate to plastic surgery - include TEN, bullous disease, Karposi's, acne, tattoos, connective tissue disease (e.g. cutis laxa, ehlers)
- 101. Discuss vascular disease as it pertains to plastic surgery, venous disease, venous ulcers, arterial ulcer, diabetic foot
- 102. Discuss OA of the hand, osteomyelitis and disorders
- 103. Discuss laser in plastic surgery