

**University of Utah
Division of Plastic Surgery
Competency Based Curriculum**

The University of Utah Division of Plastic Surgery curriculum for the six services based upon 6 General Competencies:

Medical Knowledge	MK
Patient Care	PC
Practice Based Learning & Improvement	PBLI
Interpersonal And Communication Skills	ICS
System Based Practice	SBP
Professionalism	P

Patient Care

Residents must be able to provide care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health

Medical Knowledge

Resident must demonstrate knowledge about established and evolving biomedical, clinical and cognate (e.g. epidemiological and social behavioral) sciences and the application of this knowledge of patient care.

Practiced Based Learning

Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices.

Interpersonal & Communication Skills

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, patient families, and professional associates

System Based Practice

Residents must demonstrate an awareness of and responsiveness to the large context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value

Professionalism

Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

COMPETENCY	SUB-COMPETENCY	ASSESSMENT
I: Patient Care	A) Develop and implement patient care plan B) Technical ability, i.e. procedures C) Apply information technology to optimize patient care D) Evaluation of diagnostic studies	1. Rotations with and attending physician 2. Operative log 3. Operative and clinical supervision 4. Rotation evaluations 5. Verification of Proficiency
II: Medical Knowledge	A) Know current medical information B) Critically evaluate scientific information	1. Medical knowledge will be obtained through teaching conferences 2. Literature review 3. Rotation evaluations 4. In-Service Examination
III: Interpersonal Skills & Communication	A) Communicate with other healthcare professionals B) Counsel and educate patients and families C) Maintain appropriate records documenting practice activities and outcomes D) Function as a team member/leader	1. Faculty Evaluation will ascertain communication with the health care professionals 2. The resident to counsel and educate patients' families 3. The residents will function as team leaders and answer directly to the chief residents or to the faculty 4. Rotation evaluations
IV: Practice Based Learning & Improvement	A) Commitment to practice lifelong learning B) Analyze personal practice outcomes	1. Rotations with attending faculty allow residents to see their own follow-ups and analyze their own personal outcomes 2. Mortality & Morbidity Conference provides an opportunity for residents to self-assess their role in complications, to review related literature, and to develop action plans to avoid complications in future care. Faculty physicians assess residents during these

		<p>presentations.</p> <p>3. M & Ms</p>
<p>V: Professionalism</p>	<p>A) Maintain high standards of ethical behavior</p> <p>B) Demonstrate continuity of care (pre-op, operative, post-op)</p> <p>C) Sensitivity to age, gender, cultural, etc. differences in an atmosphere of mutual respect</p> <p>D) Demonstrate honesty, dependability, and commitment</p>	<p>1. Professionalism will be evaluated by direct faculty observation, feedback from nursing staff, feedback from peers, and feedback from other health professionals. This feedback is shared with the resident by the Program Director</p> <p>2. Patients complete evaluations on resident professionalism. These evaluations are shared with the resident by the Program Director.</p>
<p>VI: System Based Practice</p>	<p>A) Practice cost-effective care without compromising quality (value)</p> <p>B) Know how different practice systems operate to deliver care</p>	<p>1. All residents are expected to practice cost effective care in keeping with the System Based Practice</p> <p>2. Resident's knowledge of cost-effective care and systems based practice is assessed by faculty in small group discussions when these topics arise during Journal Club, M&M Conference, and Teaching Conferences.</p>

APPENDIX

- (1) Describe the anatomy of the skull including sutures, foramina, and cranial nerves.

Identify the anatomy of the facial bones.

Identify the anatomy of the eye including normal dimensions, bony structures, eyelids, extraocular muscles, innervation, vascular supply, and lacrimal apparatus.

Identify the anatomy of the ear including common measurements, relationships to other structures, and the vascular and sensory supply.

Draw the anatomy of the nose and septum including bones, nerves and vascular supply.

Recite the anatomy of the oropharynx including muscular structures and contiguous neurovascular structures.

Recite the physiology of the oropharynx including palatal function, speech, and swallowing.

Explain the general principles of embryology of the head and neck, with special reference to the development of the facial structures and the occurrence of congenital anomalies such as cleft lip and palate.

Recite the basic anatomy of the dental structures and the TMJ.

- (2) Demonstrate intimate knowledge of the common congenital disorders of the head and neck including cleft lip and palate, craniofacial syndromes, vascular malformations, and auricular abnormalities

Discuss the etiology, genetics, embryology and anatomy of congenital disorders of the head and neck.

Be familiar with growth and development of the craniofacial skeleton and its affect on anomalies and their treatment

Be able to recite the diagnostic criteria and discuss the evaluation and treatment for congenital anomalies such as:

craniosynostosis and craniofacial syndromes
hemifacial microsomia
rare craniofacial clefting

- orbital hypertelorism
- Pierre-Robin sequence
- craniofacial tumors
- choanal atresia
- nasal anomalies
- ear anomalies (prominent ear, microtia)
- vascular anomalies
- branchial cleft cysts
- thyroglossal duct cysts
- lymphatic anomalies

Discuss the cephalometric landmarks and analysis in the presurgical planning of patients with congenital head and neck anomalies.

- (3) Describe the priorities involved in treating patients with head and neck injuries.

Describe the mechanical and structural properties of the facial skeleton as they relate to fracture patterns in facial trauma.

Describe the concepts of primary bone healing, malunion, nonunion and osteomyelitis.

Discuss the advantages and disadvantages of various techniques of treatment of facial fractures including:

- nonoperative treatment
- closed reduction
- mandibulomaxillary fixation
- open reduction with and without fixations
- intraoral splints
- external fixation
- bone grafting.

Describe the treatment of facial fracture complications including:

- secondary deformities
- infections and osteomyelitis
- malocclusion
- nonunions
- malunions

Describe the neuroanatomy, cranial nerve anatomy and soft tissue anatomy pertinent to facial fractures.

Recite the treatment of soft tissue injuries of the head and face including:

- parotid gland and duct
- facial nerve
- lacrimal apparatus

Describe the evaluation and treatment of secondary deformities of facial fracture including:

- malocclusion
- enophthalmos
- frontal sinus mucoceles
- facial nerve paralysis
- soft tissue contractures

Discuss the principles of care and the surgical steps in the treatment of the following facial fractures:

- frontal sinus
- naso-orbital ethmoid
- orbital
- zygomatic
- nasal
- maxillary
- mandibular
- pan-facial

- (4) Obtain cephalometric measurements and analyze cephalometric data in the presurgical planning.

Perform a comprehensive head and neck exam followed by facial form analysis.

Utilize radiographic and special diagnostic studies to evaluate head and neck anomalies.

Formulate a definitive short- and long-term treatment plan for common congenital disorders, choosing the most appropriate surgical or nonsurgical modality.

Draw the reconstruction of a cleft lip and palate.

Diagnose and develop a treatment plan for velopharyngeal incompetence.

Coordinate nonsurgical treatment of congenital head and neck disorders.

Participate in the Cleft-Craniofacial Team's multidisciplinary evaluation and treatment planning for congenital disorders of the head and neck.

Provide perioperative care and participate in surgical treatment of patients with craniofacial anomalies.

Evaluate and treats patients with head and neck tumors of a vascular origin.

Perform an orderly and systematic physical examination of the patient with facial trauma.

Interpret radiographic diagnostic studies including panorex films, cephalograms, CT/3D CT scans, MR imaging, and angiography with respect to the head and neck trauma patient.

Perform the staged management of devastating open facial injuries including wound care, debridement and reconstruction.

Perform surgical procedures of facial fracture management including:

- maxillary
- mandibular
- orbital
- frontal sinus
- zygomatic
- zygomatic arch
- nasal
- panfacial.

Perform all surgical techniques of access to the craniofacial skeleton.

Perform a comprehensive examination of the facial nerve.

Perform acute repair of soft tissue facial trauma.

Perform secondary scar revision from facial trauma.

Perform primary facial nerve repair, and associated procedures (i.e. global weight, static, and dynamic reconstruction) for the patient with facial paralysis.

Perform systemic therapy and local injection of steroids for treatment of facial hemangiomas.

Perform laser treatment for vascular malformations.

(5) Discuss the unique treatment of pediatric facial fractures.

Describe the cephalometric analysis of maxillofacial surgery patients.

Discuss the common diagnoses in maxillofacial surgery and their management, including:

- retrogenia
- mandibular excess and deficiency
- vertical maxillary excess
- maxillary deficiency

Discuss the different kinds of occlusion, including:

- overjet
- overbite
- Angle classification
- crossbites

Discuss the use of distraction osteogenesis in maxillofacial surgery.

Discuss maxillofacial surgery in the cleft patient.

Describe the acquired diseases of the TMJ and their management.

Describe the use of dento-facial prosthetics.

Discuss the application of aesthetic principles to the cleft patient

Perform the facial evaluation for orthognathic surgery patients

Participate in the cephalometric analysis, prediction tracing, and preoperative surgical planning of maxillofacial surgery patients.

Participate in preoperative model surgery

Participate in common maxillofacial surgical procedures, including:

- facial fractures
- genioplasties
- sagittal split mandibular osteotomies
- maxillary LeFort I osteotomies
- bimaxillary osteotomies

Participate in the creation and application of dental splints in maxillofacial surgery.

Perform the various local anesthetic facial blocks for procedures done in oral and maxillofacial surgery

- Perform with graduated surgical independence bony fixation of the craniofacial skeleton
- (6) Reconstruction following sternal dehiscence and/or infection
Reconstruction after tumor resection utilizing flaps and grafts
Reconstruction of radiation injury of the thorax and trunk
Abdominal wall fascial reconstruction
Abdominal wound dehiscences and hernias utilizing prosthetic material, grafts, component separation
- (7) Etiology and staging
Prevention
Nonsurgical considerations and management including patient compliance
Pressure sore surgery utilizing local flaps, muscle and myocutaneous flaps, and distant flaps
Complications of surgery
Rehabilitation
- (8) Prevention
Nonsurgical considerations and management including patient compliance
Pressure sore surgery utilizing local flaps, muscle and myocutaneous flaps, and distant flaps
Complications of surgery
Rehabilitation
- (9) Joint injury
Tendon extensor and flexor injury of the hand
Muscle and tendon injury of the arm
Nail bed injuries

Infections

Fingertip and other minor injuries

- (10) Understand the musculature, blood supply, lymphatic drainage and innervation of the trunk, abdominal wall, and breast.

Understand the embryonic development of the trunk, abdominal wall, and breast.

Have knowledge of the glandular structure and function, as well as understand hormonal influence on breast development and function.

Understand the differences in breast structures and function in adolescence, reproductive years, pregnancy, lactation and menopause.

Know the structure and function of the male, as well as female genitalia.

Know the anatomy of the breasts, including:

location of the chest wall

glandular structure: lobes, lobules, alveoli/histology

the nipple and its ducts

variations in anatomy: polymastia, polycythemia

vasculature, innervation and lymphatic drainage

Know the anatomy of the trunk, anterior and posterior abdominal wall, including:

muscles forming the abdominal wall

deep and superficial fascia of the abdominal wall

anatomy of trunk muscles as related to flaps for reconstructive purposes

fat distribution

innervation, blood supply, and lymphatic drainage.

skin and its elastic quality

- (11) Understand the biologic behavior, histologic characteristics, and clinical manifestation of malignancies of the breast.

Understand the plastic surgical options for management of breast reconstruction after mastectomy for carcinoma and the principles of long-term follow-up patients with breast carcinoma.

Understand the diagnostic techniques and treatment methods (surgical and nonsurgical) for management of premalignant disease and other processes of the breast.

Understand the implications of genetic predisposition to breast cancer and the options of prophylactic mastectomy.

Understand the etiology of gynecomastia and be familiar with the surgical options for treatment.

Understand the various treatment protocols (including surgery, radiation, and chemotherapy plus combinations) for management of carcinoma of the breast including sentinel node survey.

Understand the complete treatment of malignancy of the breast including:

- pathology and biologic behavior
- diagnostic techniques
- principles of primary treatment
- techniques of primary treatment
- secondary treatment
- management of the opposite breast after mastectomy

- (12) Know the basic principles of medical and surgical management of common acute traumatic trunk and breast injuries including sternal infections.

Know the etiology and nonsurgical management of pressure sore ulcers (including preventative measures).

Know a detailed knowledge of surgical aspects of pressure sore reconstruction.

Know the surgical aspect of breast reconstruction and the rationale for choices between different methods.

Know the use of prosthetic devices for breast reconstruction, including implants, tissue expanders, and external prosthesis.

- (13) Reconstruction following sternal dehiscence and/or infection

Reconstruction after tumor resection utilizing flaps and grafts

Reconstruction of radiation injury of the thorax and trunk

Abdominal wall fascial reconstruction

Abdominal wound dehiscences and hernias utilizing prosthetic material, grafts, separation of parts.

(14) Etiology and staging of pressure sores

Prevention of pressure sores

Nonsurgical considerations and management including patient compliance

Pressure sore surgery utilizing local flaps, muscle and myocutaneous flaps, and distant flaps

Complications of surgery

Rehabilitation

(15) Tissue expanders

Implants

Flaps

Free tissue transfer

Nipple reconstruction

Other procedures including tattooing

Management of contralateral breast.

(16) Know the anatomy and physiology of the muscles, tendons, ligaments, and bones of the hand, upper and lower extremity.

Know the anatomy of the vascular tree of the upper and lower extremity including relationships to the surrounding structures.

Know the anatomy of the major nerves and their branchings in the upper and lower extremity including relationships to surrounding structures.

Know the detailed radiographic anatomy of the bony structures of the upper and lower extremity.

Utilizes the radiologic techniques, including plain films, CT scan, angiography and MRI of the upper and lower extremities.

Understand the principles of upper and lower extremity biomechanics.

(17) Failure of part formation

Failure of differentiation

Duplication

Overgrowth

Undergrowth

Congenital bands

Generalized musculoskeletal anomalies

(18) Recite the principles and applications of diagnostic techniques for the evaluation of hand and upper extremity trauma.

Describe the techniques for operative management of traumatic injuries of the upper extremity, their indications and contraindications, and their possible complications and the treatment thereof.

Explain the indications for, contraindications to, and techniques in nonoperative management of traumatic injuries of the hand and upper extremity.

Describe the options for soft tissue coverage of upper extremities including:

- skin grafts
- local flaps
- free tissue transfer

(19) Know the surgical and nonsurgical treatment of nerve compression and entrapment syndromes of the upper extremity.

Know the anatomy and physiology of upper extremity contractures and Dupuytren's disease.

Recite the basic pathophysiology of rheumatoid and nonspecific arthritis of the upper extremity.

Describe with the pharmacological therapy of rheumatoid arthritis.

Demonstrate the surgical treatment of rheumatoid arthritis, timing of therapeutic treatment and interactions with medical therapy.

Describe the common circulatory disorders of the upper extremity including, but not limited to: arterial thromboses, aneurysms, embolic disorders, arteriovenous fistulae, vasospastic disease and scleroderma.

Describe the diagnosis and treatment of common pain syndromes including sympathetic dystrophy.

Know the management of upper extremity lymphedema.

- (20) Know the diagnostic techniques for evaluation of function including EMG and conduction studies, arteriography, CT scan, and MRI evaluation.

Know the use of tendon transfers.

- (21) Perform the clinical techniques for physical examination of the hand and upper extremity.

Perform the surgical techniques used to treat congenital and developmental hand anomalies.

Perform postoperative care of patients with congenital and developmental anomalies of the upper extremity.

Apply casts and splints for the preoperative and postoperative care of hand patients.

Performs the procedures for the acute management and participates in the post-operative rehabilitation of traumatic injuries of the upper extremity including:

- fractures and dislocations
- nerve injury including brachial plexus
- major amputation and avulsions
- joint injury
- tendon extensor and flexor injury of the hand
- muscle and tendon injury of the arm
- nail bed injuries
- infections
- fingertip and other minor injuries

Perform the surgical treatment options for contractures.

Perform treatment for tenosynovitis and tendon rupture.

Describe the indications for and perform the techniques of tendon reconstruction including tendon grafting – sources, methods, indications

Perform the management of nerve injuries including primary, delayed primary and secondary repair.

Perform the techniques for reconstruction of the amputated thumb including lengthening, pollicization, free toe to thumb, and free wrap-around techniques.

Perform the technical methods of soft tissue coverage including skin grafts, local flaps, distant flaps, and transfers.

(22) Draw the normal anatomy of the breast and axillae.

Describe the pathologic anatomy and histology of the breast as it relates to mammary hyperplasia and hypoplasia.

Discuss the various surgical techniques for breast reduction, the indications for and contraindications to the procedures.

Discuss the complications of breast reduction, their prevention and management.

Describe the various surgical techniques for breast augmentation, the indications for and contraindications to the procedures.

Discuss the complications of augmentation mammoplasty, their prevention and management.

Discuss the different types of breast implants and the reasons for choosing a particular type for a particular problem.

Describe the basic techniques for mastopexy, the indications for and contraindications to these procedures.

Discuss the complications of mastopexy, their prevention and management.

Discuss techniques for treatment of aesthetic trunk deformity such as panniculectomy and abdominoplasty, the indications for them and contraindications to the procedures.

Discuss the complications of panniculectomies and abdominoplasties and their prevention and management.

Discuss the treatment options for congenital breast anomalies such as Poland's syndrome.

Describe the techniques of suction lipectomy as applied to aesthetic deformities of the trunk, as well as anesthetic management for these procedures.

Recite the principles of selection of mastopexy vs. augmentation mammoplasty.

Recite the principles of selection of abdominoplasty vs. liposuction.

Explain the basic principles and techniques for treating other aesthetic deformities of the breast and trunk such as inverted nipples, localized lipodystrophy, tubular breast deformity, etc.

List the long-term consequences of augmentation mammoplasty such as capsular contraction and its treatment as well as methods for follow-up including special techniques for mammography.

Discuss the post-obesity deformity and the options for body contouring surgery.

(23) Discuss the concepts of beauty and aesthetic principles of the facial structures.

Identify the principles and techniques of aesthetic rhinoplasty as well as the differences in approach between primary and secondary rhinoplasty.

Recite the diagnostic and therapeutic techniques in the management of nasal airway obstruction.

Discuss the application of aesthetic principles to the cleft patient.

Explain the complications of rhinoplasty and septoplasty, their prevention and treatment.

Discuss the varying effects of aging and sun exposure on the facial structures.

Demonstrate the techniques of rhytidectomy, suction lipectomy, genioplasty, blepharoplasty, and other methods for treatment of the aging face.

Discuss the complications of facial aesthetic surgery, their prevention and treatment.

Draw the various aesthetic deformities of the ear and know the techniques of their correction.

Discuss the aesthetic and functional problems of the eyelid, including

blepharochalasis and ptosis; knows the treatment for these diagnoses, complications and prevention.

Discuss the diagnostic methods and treatment options for the patient with facial palsy.

Describe the diagnostic principles and treatment techniques for alopecia pattern baldness including tissue expansion, scalp flaps, and hair transplantation.

Discuss the principles and techniques of orthognathic surgery for the treatment of craniofacial skeletal dysharmony.

Discuss the various ancillary techniques for management of the aging face, including chemical peel, Retin A, dermabrasion, collagen injection, laser resurfacing, injection of filling material, botulinum toxin, hydroxyapatite, hyaluronic acid, and skin care products.

Discuss the use of lasers for the treatment of unwanted hair, tattoo removal, and facial resurfacing, include laser biophysics and safety.

Discuss the various techniques used for face lifting, including the role of platysma, SMAS, subperiosteal, deep plan, composite, etc.

Discuss the different types and appropriate uses of liposuction

(24) Perform complete assessment of patients presenting for facial plastic surgery.

Perform the following breast surgeries with graduated operative independence including:

- reduction mammoplasty
- augmentation mammoplasty
- ptosis correction and mastopexy

Perform the following surgeries including pre-operative markings with graduated operative independence, including:

- suction lipectomy
- panniculectomy
- abdominoplasty
- body lifts
- brachioplasties
- thigh lifts

Perform preoperative markings for reduction mammoplasty.

Perform a comprehensive (internal/external) nasal exam and participate in surgery of the nose including:

- primary and secondary rhinoplasty
- cleft lip nasal deformity
- airway obstruction
- septoplasty

Participate in facial aesthetic surgery including:

- rhytidectomy
- brow lift
- facial liposuction
- blephanoplasty
- gennioplasty
- jaw disharmony

Perform both open and endoscopic surgical therapy for patients with aging face including rhytidectomy and brow lift.

Perform ancillary procedures for the aging face such as chemical peels, skin care, injection of fillers and botox, etc.

Participate in the treatment of patients with facial nerve palsy including:

- nerve grafts
- placement of gold weights
- suspensory static procedures
- dynamic procedures
- free tissue transfer

Evaluate the psychosocial status of the patient presenting for aesthetic plastic surgery and determine whether the patient is an appropriate candidate for surgery.

- (25) Explain the use of the operating microscope and the technical aspects of microvascular anastomosis (artery and vein) and microneural repair.

Discern the indications for, the contraindications to, and the techniques for accomplishing replantation of amputated parts. Recognize the techniques of monitoring the success of replantation.

Discuss the varying types of blood supply to discrete units of tissue (including arterialized flap, musculocutaneous flap, fasciocutaneous flap).

List the terms and types of free tissue flaps – skin, skin/muscle, skin/ muscle/bone, skin/tendon, muscle alone.

List in detail the anatomy for harvesting the most common flaps, including latissimus dorsi, rectus abdominis, radial forearm.

Discern the indications for harvesting various flaps and matching donor sites to specific recipient site needs.

Discuss radiologic techniques for evaluation of both donor and recipient sites.

Discuss the mechanisms and consequences of the no-reflow phenomenon; knows how to treat a failing flap.

Discuss the technologic, pharmacologic and physiologic principles of postoperative monitoring of free flaps.

Recite the basic physiology of nerve injury (axontomesis, neurotomesis, neuropraxia, Wallerian degeneration) and of nerve healing.

Draw the intraneural anatomy and anatomic relationships of structures of the major peripheral nerves.

Explain the principles of repair of nerve injury including need for nerve grafting, the anatomy of nerve graft donor sites, and the physiology, timing and techniques of primary, delayed primary and late nerve repair.

Discuss the principles and techniques of hematologic manipulation of abnormal vascular flow characteristics.

Discuss the technical aspects of microsurgery including:

- microscopes – principles, usage
- sutures – types, indications\
- microvascular coupling devices
- suturing techniques

Discuss the use of electrophysiologic tools in the evaluation of nerve injury