

# *Medical Student Electives Catalog*



COLLEGE OF  
**MEDICINE**

CENTRAL MICHIGAN  
UNIVERSITY



## Introduction to CMU Medical Student Electives

The Central Michigan University College of Medicine provides the opportunity for students to complete clinical and non-clinical electives. Elective clerkships afford students exposure to a breadth of medical specialties and sub-specialties and an opportunity to further their education and experience in these areas. They also play an important role in the residency selection process for medical students.

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<b>Elective Title</b>	<b>Discipline</b>	<b>Prerequisite</b>	<b>Duration</b>
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<a href="#"><u>Allergy and Immunology – Pediatric</u></a>	Medicine	M3 status	2 or 4 weeks
<a href="#"><u>Ambulatory Clinic Administration</u></a>	Not Patient Care	M3 status	4 weeks
<a href="#"><u>Anesthesiology</u></a>	Surgery	M3 status	2 or 4 weeks
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<a href="#"><u>Extramural - International</u></a>	Varies	M4 status	4 weeks
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<a href="#"><u>Geriatrics</u></a>	Medicine	M3 status	2 or 4 weeks
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<a href="#"><u>Health Care Administration</u></a>	Not Patient Care	M3 status	4 weeks
<a href="#"><u>Hematology and Oncology</u></a>	Medicine	M3 status	2 or 4 weeks
<a href="#"><u>Hematology and Oncology - Pediatric</u></a>	Medicine	M4 status	4 weeks
<a href="#"><u>Hospice and Palliative Care</u></a>	Medicine	M3 status	4 weeks
<a href="#"><u>Infectious Disease</u></a>	Medicine	M3 status	2 or 4 weeks
<a href="#"><u>Infectious Disease - Pediatric</u></a>	Medicine	M4 status	4 weeks

<b>Elective Title</b>	<b>Discipline</b>	<b>Prerequisite</b>	<b>Duration</b>
<a href="#"><u>Internal Medicine - Advanced</u></a>	Medicine	M4 status	4 weeks
<a href="#"><u>Medical Critical Care (MICU)</u></a>	Medicine	M4 status	4 Weeks
<a href="#"><u>Neonatology (NICU)</u></a>	Medicine	M4 status	4 weeks
<a href="#"><u>Nephrology</u></a>	Medicine	M3 status	2 or 4 weeks
<a href="#"><u>Nephrology - Pediatric</u></a>	Medicine	M3 status	4 weeks
<a href="#"><u>Neurology</u></a>	Medicine	M3 status	2 or 4 weeks
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<a href="#"><u>Neurosurgery</u></a>	Surgery	M3 status	2 or 4 weeks
<a href="#"><u>Obstetrics-Gynecology - Advanced</u></a>	Surgery	M4 status	4 weeks
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<a href="#"><u>Pulmonary Medicine</u></a>	Medicine	M3 status	2 or 4 weeks
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<a href="#"><u>Radiation Oncology</u></a>	Medicine	M3 status	2 or 4 weeks
<a href="#"><u>Radiology</u></a>	Medicine	M3 status	2 or 4 weeks
<a href="#"><u>Radiology – Pediatric</u></a>	Medicine	M3 status	2 weeks
<a href="#"><u>Research</u></a>	Not Patient Care	None	4 weeks
<a href="#"><u>Rheumatology</u></a>	Medicine	M3 status	2 or 4 weeks
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<a href="#"><u>Social Determinants of Health (Online)</u></a>	Not Patient Care	M3 status	4 weeks
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<a href="#"><u>Surgery - Advanced General</u></a>	Surgery	M4 status	4 weeks
<a href="#"><u>Surgery - Bariatric</u></a>	Surgery	M4 status	4 weeks
<a href="#"><u>Surgery - Breast and Skin</u></a>	Surgery	M3 status	4 weeks
<a href="#"><u>Surgery - Cardiothoracic</u></a>	Surgery	M4 status	4 weeks
<a href="#"><u>Surgery - Colorectal</u></a>	Surgery	M4 status	2 or 4 weeks
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[Wound Care and Hyperbaric Medicine](#)

<b>Discipline</b>	<b>Prerequisite</b>	<b>Duration</b>
Surgery	Site Specific	4 weeks
Not Patient Care	M3 status	2 or 4 weeks
Surgery	M4 status	4 weeks
Medicine	M3 status	2 or 4 weeks
Surgery	M4 status	4 weeks
Surgery	M4 status	4 weeks
Surgery	M4 status	4 Weeks
Medicine	M3 status	4 weeks
Surgery	M4 status	4 weeks
Surgery	M3 status	2 or 4 weeks

## Addiction Medicine

**Course ID: MED 997CW**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Online**

**Duration: 2 weeks**

### Description

The overall goal of this course is to introduce students to the fundamentals of Addiction Medicine and aims to increase knowledge and awareness of substance use disorders (SUDs), along with the basics of diagnosis and medical care of persons with SUD and substance-related health conditions. This course will provide an overview of the pharmacology and subsequent changes in neurobiology for multiple substances that are frequently misused, as well as symptoms of intoxication and withdrawal from substances. This course will also provide an overview of medicated assisted therapy (MAT), safer medication prescribing for pain management, and prevention and treatment of overuse disorder of multiple substances. It is designed to be completed primarily through independent learning via asynchronous, online learning modules coordinated through the Michigan Collaborative Addiction Resources & Education System (MI CARES) covering the following substances: Opioids, Alcohol, Stimulants, Nicotine, Cannabis, Sedatives, and Club Drugs. Learners are expected to engage in online Providers Clinical Support System (PCSS) Addiction/SUD 101 education training, Michigan Opioid Collaborative (MOC) webinars, Scope of Pain supplemental trainings, and CARE (Course on Addiction and Recovery Education) courses distributed by Aquifer. Students will have the option to participate in an on-site addiction relevant meeting and are required to complete a self-reflection exercise.

### Key Objectives

- To recognize addiction medicine as a field.
- To understand the underlying pharmacology of substances of misuse and recognize the symptoms of intoxication and withdrawal.
- Understand the underlying neurobiology that accompanies addiction, intoxication, and withdrawal of various substances.
- Discuss medicated assisted therapy (MAT), safer medication prescribing for pain management, and prevention and treatment of overuse disorder of multiple substances.
- To manage the treatment of co-occurring substance use and mental health disorders.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Allergy

**Course ID: MED 997A**

**Discipline: Medical**

**Prerequisites: M3 Status**

**Available Sites: Oakland County, Lakeland, Genesys**

**Duration: 2 or 4 weeks**

## Description

The purpose of the allergy and clinical immunology rotation is to prepare students to recognize and treat commonly encountered problems in allergy and immunology. Students will gain familiarity with the diagnostic techniques used in the field, and to determine when it is appropriate to initiate a referral to an allergist/clinical immunologist.

## Key Objectives

- To understand the clinical features, physiology and treatment of common allergy conditions such as, asthma, allergic rhinitis, care of pregnant patients with asthma and/or allergic rhinitis, contact dermatitis, atopic dermatitis, urticarial, angioedema, anaphylaxis, insect venom allergy, food allergy, and drug allergy.
- To understand the rationale and basics of allergy testing in the office setting.
- To understand the action and pharmacology of common allergy and immunology medications including inhaled medications, corticosteroids, and other anti-inflammatory agents.
- Complete a comprehensive allergy/immunology consultation.
- Describe the key elements of managing asthma.
- Interpret allergy and immunology testing, including skin RAST, patch tests, and common immunology serology.
- Communicating with primary care physicians as a consultant.
- Communicating effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.
- Work with the technicians who perform allergy testing as a team member.
- Incorporate considerations of cost effectiveness into diagnostic and therapeutic plans.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Allergy and Immunology - Pediatric

**Course ID: MED 997CO**

**Discipline: Medical**

**Prerequisites: M3 status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 2 or 4 weeks**

## Description

The Allergy and Immunology rotation will provide the medical student with an opportunity to learn and develop the skills necessary in the diagnosis and management of allergic and immunologic diseases. The focus of this rotation will be on the approach to conditions commonly seen in primary care, such as anaphylaxis, asthma, rhinitis, food allergies, drug allergies, urticaria, angioedema, dermatitis, eosinophilic diseases and primary immunodeficiency disorders. The medical student will become familiar with Allergy procedures such as skin testing, immunotherapy, pulmonary function testing and drug/food challenges. Finally, the medical student will understand appropriate indications for allergy and immunology referral.

## Key Objectives

- Medical students will understand the basic scientific principles involved in allergic and immunologic diseases and learn the pathophysiology, clinical presentation, natural history, and therapy for these diseases including: (2.2, 2.3)
  - Anaphylaxis
  - Aspirin idiosyncrasy
  - Stinging insect hypersensitivity
  - Desensitization therapy
  - Serum sickness
  - Undifferentiated anaphylaxis
  - Asthma
  - Exercise induced bronchospasm
  - Allergic bronchopulmonary aspergillosis
  - Nasal polyps and aspirin sensitivity
  - Occupational asthma
  - Asthma and pregnancy
  - Asthma mimics (including vocal cord dysfunction)
  - Undifferentiated asthma
  - Rhinitis, sinusitis, conjunctivitis
  - Allergic rhinitis
  - Acute and chronic sinusitis
  - Allergic conjunctivitis
  - Upper airway cough syndrome
  - Food allergy
  - Urticaria and angioedema
  - Hereditary angioedema
  - Drug-induced urticaria and angioedema
  - Skin disorders



- Atopic dermatitis
  - Contact dermatitis
  - Primary immunodeficiency disorders
  - Humoral immunodeficiency
  - Cellular immunodeficiency
  - Combined immunodeficiency
  - Innate immune system deficiency
  - Complement deficiency
  - Mast cell activating syndromes
  - Eosinophilic diseases
  - Eosinophilic esophagitis
  - Eosinophilic lung and GI diseases
- For the conditions above, describe medications and therapies utilized in management (2.3)
  - Counsel patients on testing and therapeutic options (1.5)
  - Generate an asthma action plan and provide asthma education including the use of an inhaler and spacer device (1.3, 3.5)
  - Generate an anaphylaxis action plan and provide anaphylaxis education including the use of an epinephrine auto-injector (1.3, 3.5)
  - Recognize health disparities, social and economic impact of allergic and immunologic conditions on patients and their families (6.3)
  - Describe indications to obtain consultation and refer patients to allergy and immunology services (1.6)
  - Perform a complete history pertinent to the allergic and immunologic condition including symptom severity, exposures/triggers, prior treatments, family and social history, and medications (1.1)
  - Obtain complex medical histories and identify barriers to patient compliance and care (2.4)
  - Perform a targeted physical exam and understand the common physical exam findings seen in patients with allergic and immunologic diseases (1.1)
  - Demonstrate understanding of common procedures in asthma and allergy care including the indications, limitations and interpretation of the spirometry, skin testing and oral food challenges (1.7)
  - Demonstrate knowledge and understanding of public health methods and research applications to improve the care of patients with asthma, allergy and immunodeficiency disorders (6.1)
  - Gain awareness of the current clinical practice parameter guidelines through the American Academy of Allergy, Asthma & Immunology and apply evidence-based care (3.4)
  - Function as part of a team to optimize patient care (7.1)
  - All medical students are expected to demonstrate organized written electronic and verbal communication skills to convey information to other health care providers and the patient care team (4.3)
  - All medical students are expected to develop skills to educate and counsel patients, and where appropriate, promote behavioral change using a shared-decision making model respectful of gender, cultural, religious, economic, and educational differences on choices regarding their care. (1.4, 5.4)
  - All medical students should be able to use time efficiently in the clinic to see patients and complete clinic charts (5.2)
  - Receive feedback and incorporate into future practice (3.3, 5.7)



## Assessment Method

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## Scheduling Information

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## Ambulatory Clinic Administration

**Course ID: MED 997CV**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

This elective rotation is a four (4) week experience providing exposure to the administrative and operational processes that support ambulatory patient care. Students will participate in various administrative and operations meetings, quality improvement teams, huddles, etc. to identify the key operational, quality, professional billing, etc. driver and watch metrics utilized in a large ambulatory clinic practice. Students will participate in at least two organization-wide QI projects and will be able to lead one new, small project. The schedule can be tailored to the student's specific interests, with assigned workload of approximately 40 hours/week.

### Key Objectives

Objective	Program Objective #
Identify and understand the key quality metrics common among payors in the region.	7.1
Describe information captured in the EHR and submitted annually under the Merit-based Incentive Payment System.	7.2
Identify clinic-specific opportunities through interpretation of the Epic Population Health dashboard.	6.2
Participate in the review of payor-specific gap reports and understand the retrospective versus prospective method of gap closure.	6.2
Identify and describe current clinic quality improvement drivers, and the current processes utilized to pull, track, monitor, report, improve, etc. those drivers and related watch metrics.	7.4
Identify reimbursement and scholarly activity limitations based on documentation methods and use of discrete data.	4.3
Participate in one or more of the following administrative or operations meetings: Administrative Team <ul style="list-style-type: none"><li>• A-Team Finance</li><li>• Value Based Reimbursement</li><li>• MCT2D (diabetes control)</li><li>• Altarum Healthy Hearts (blood pressure control)</li><li>• Risk &amp; Environment of Care</li><li>• Compliance and Privacy Committee</li></ul>	7.1

<p>Based on opportunities identified through corporate strategic objectives and/or payor quality metrics, incident reports, or other established reports, select one QI project for which one PDSA cycle could be accomplished in three weeks, and follow institutional process to write-up and receive approval for the activity</p> <ul style="list-style-type: none"> <li>• Develop a hypothesis</li> <li>• Identify baseline data</li> <li>• Select a SMART goal</li> <li>• Propose and implement an intervention (process change)</li> <li>• Evaluate to determine whether the intervention is occurring</li> <li>• Determine the impact of the intervention on the outcome</li> </ul>	6.3, 7.4
<p>Describe the role of Medicaid in the US health system, and identify strategies to serve this insured population and maintain profitability</p>	7.6

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Anesthesiology

**Course ID: MED 997S**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Lapeer, Midland, Saginaw, Lakeland, Genesys**

**Duration: 2 or 4 weeks at Lakeland, Midland and Genesys; 4 weeks at all other sites**

## Description

This elective rotation is a four (4) week experience in anesthesiology. It is designed to provide the student with experience in airway management, procedural sedation and analgesia, venous access, hemodynamic monitoring and evidence-based care of the operative/peri-operative patient. Individualized instruction will occur in anesthesia subspecialties, including cardiovascular, neurosurgical, obstetrical, and pediatric anesthesia.

## Key Objectives

- Demonstrate knowledge of the anatomy of the upper airway.
- Describe and identify predictors of a difficult airway
- Demonstrate skill in laryngeal mask airway (LMA) and orotracheal intubation as well as indications and complications for each technique.
- Identify relevant patient pre-operative history and physical exam information.
- Describe the mechanism of action, and contrast pharmacologic agents used for sedation, anesthesia, analgesia, and amnesia.
- Gather a complete preoperative history and physical exam for at least 5 patients scheduled for anesthesia, including ability to evaluate for airway complications, difficulty and cardiorespiratory system.
- Perform and interpret hemodynamic intraoperative monitoring including cardiac monitoring, pulse oximetry, invasive/non-invasive blood pressure, CVP, inhalational agents, and expired CO<sub>2</sub>.
- Perform peripheral IV access on at least 20 real or simulated patients
- Demonstrate correct use of the bag-valve-mask device.
- Perform at least 20 simulated direct laryngoscopy and endotracheal intubations as well as perform direct laryngoscopy on at least 15 patients.
- Demonstrate the ability to communicate well with patients and family. The student should demonstrate respect for the health beliefs of other cultures and understand how differing health beliefs affect behavior and medical care.
- Present preoperative plans clearly and concisely to their resident and attending physician mentors.
- Be aware of the teamwork necessary to provide high-quality medical care in the perioperative setting.
- Understand the anesthesiologist's perioperative role, which extends through preoperative evaluation, the administration of anesthesia and postoperative recuperation.
- Recognize the contributions of all members of the care team in the perioperative and intraoperative arena and identify a unique situation of simultaneous co-management of a patient by the surgical and anesthetic teams.

- Demonstrate respectful communication with patients, faculty, and staff.
- Recognize the impact of patient and family culture on anesthetic decision-making.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Anesthesiology - Pediatric

**Course ID: MED 997CK**

**Discipline: Surgery**

**Prerequisites: M3 status**

**Available Sites: Children's Hospital of Michigan**

## Description

Anesthesia for neonates, infants, and children requires an understanding of the physiologic and pharmacologic differences from adults and their impact upon the anesthesiologist's ability to provide acceptable operative conditions and homeostasis during surgery and the postanesthetic recovery period. The medical student is expected to attain a basic understanding of the physiology of neonates, infants, and children as well as the pathophysiology of their illnesses.

## Key Objectives

- Describe pediatric physiology of the nervous system, including such topics as sympathetic/parasympathetic development, reflexes and blood-brain barrier development (2.1)
- Describe pediatric physiology of the respiratory system, including the airway of the neonate, infant, and child, pulmonary physiology as related to growth, reactive airway disease, and normal respiratory values (i.e., lung structure, lung volumes, and respiratory mechanics) (2.1)
- Describe pediatric physiology of the cardiovascular system, including the cardiac output relation to pulse, hemodynamic changes at birth, normal hemodynamic values and physiologic anemia (2.1)
- Contrast normal physiology with abnormal pathophysiology of congenital heart disease including fetal circulation, circulatory changes at birth, and the classification and incidence of congenital heart disease (2.2)
- Describe pediatric physiology of the hepatic system, including drug metabolism, synthetic functions, glycogen storage, neonatal jaundice, and kernicterus (2.1, 2.2)
- Describe pediatric physiology of the renal system, including water and solute handling, developmental changes of GFR, maintenance fluids, and normal blood volumes (2.1)
- Describe the pediatric physiology of glucose homeostasis, NPO guidelines, and GFR (2.1)
- Describe pediatric physiology of temperature regulation, including heat loss during anesthesia, non-shivering thermogenesis, and heat conservation (2.1)
- Demonstrate basic knowledge and aptitude in pre-anesthetic evaluation and preparation for surgery, i.e., preoperative fasting, routine laboratory tests, psychological preparation and pharmacological premedication (1.1)
- Discuss basic management of routine and complex preoperative problems, including the infant with an upper respiratory infection, pre-anesthetic labs, heart murmur, difficult airways, mediastinal mass, and outpatient surgery and the ex-premature infant (1.1)
- Describe the basic psychological aspects of pediatric anesthesia, including separation anxiety, body image, psychological preparation of the toddler and adolescent (4.5)
- Describe basic pediatric sedation techniques, via the oral, nasal, transmucosal, IM, IV and rectal routes (2.3)
- Demonstrate basic knowledge of common preexisting medical conditions (such as anemia, RDS

& BPD, hemophilia, diabetes mellitus, cystic fibrosis, asthma, upper respiratory tract infection, etc.) and their potential anesthetic implications (2.2)

- Discuss the basic application of the general principles of pediatric pharmacology, including dosage formulas for children, administration of inhalational anesthetic agents (uptake, elimination, induction, emergence, etc.), intravenous agents (induction, maintenance, antagonists), muscle relaxants (neuro-muscular physiology, depolarizing relaxants, nondepolarizing relaxants, reversal), anticholinergic drugs, and medications for treating post-operative analgesia. (2.3)
- Learn and discuss pediatric induction techniques, including inhalation, IM, IV, rectal and the use of induction rooms (1.2)
- Define appropriate endotracheal tube size and insertion depth (1.7)
- Describe different blade options for pediatric endotracheal intubation (1.7)
- Outline the unique alternatives in management of difficult/problematic airways (e.g., Pierre-Robin, pyloric stenosis, foreign body aspiration, etc.) (2.3)
- Gain familiarity with basics of pediatric regional anesthesia, including caudal, truncal, and upper and lower extremity nerve block (2.3)
- Demonstrate the proper use of pediatric anesthesia circuits, based on an in-depth understanding of their classification, and facility with pediatric mechanical ventilation. (1.7)
- Perform a pre-anesthetic assessment and prepare an anesthetic plan for an ASA 1 or 2 pediatric patient (1.1, 1.2)
- Assist with management of children with a normal pediatric airway utilizing appropriate face mask, bag and oral airway (1.7)
- Intubate children with a normal pediatric airway with skill and speed using appropriate blade and endotracheal tube (1.7)
- Obtain appropriate intravenous access with direct supervision (1.7)
- Assemble blood warming equipment and filters for transfusion in pediatric patients (1.7)
- Assist in the management of an appropriate anesthetic for routine pediatric cases, i.e., hernia repair, tonsillectomy, myringotomy tube placement, etc. (1.7)
- Demonstrate respect and dignity for patients and colleagues (5.1)
- Demonstrates reliability, conscientiousness, responsibility and reliability (5.2)
- Demonstrates relationship building through listening, verbal and nonverbal skills (4.1)
- With supervision, discuss with patients and family members the advantages and disadvantages of the different anesthetic options (3.5)
- Establish good rapport with patients and families, addressing patient and family concerns and anxieties (4.5)
- Use active listening skills to elicit appropriate clinical information (4.1)
- Work effectively with others in the interdisciplinary health care team (7.1)
- Establish working relationships with operating room staff, surgeons, resident and attending anesthesiologists (7.1)
- Demonstrate a commitment to ethical principles pertaining to provision of clinical care, confidentiality of patient information, informed consent, and business practices (5.3)
- Demonstrate sensitivity and responsiveness to patients' culture, age, gender and disabilities (5.4)
- Practice cost-effective health care (7.2)
- Advocate for quality patient care and assist patients in dealing with system complexities (7.3)



- Locate, appraise, and assimilate evidence from scientific studies related to pediatric anesthesia (3.4)
- Use information technology to manage information, access on-line medical information, and support their education
- Accept feedback in incorporate into future practice (3.3, 5.7)

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Cardiology

**Course ID: MED 997C**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Bay City (may travel to Midland, Standish, and/or West Branch), Ascension St. John Hospital, Midland, Mount Pleasant, Saginaw, Lakeland, Genesys**

**Duration: 2 or 4 weeks, ASJH and Genesys 4-week increment only**

## Description

The purpose of the cardiology elective is to prepare the student to recognize and treat commonly encountered problems in cardiology and to become familiar with diagnostic techniques used to diagnose cardiac disorders including stress testing, cardiac ECHO and cardiac catheterization. Students will also learn when it is appropriate to initiate a referral to a cardiologist.

## Key Objectives

- Describe the clinical features, physiology, and treatment of common cardiac disorders, such as coronary artery disease, atrial and ventricular arrhythmias, heart failure, myocardial infarction, peripheral vascular disease and preoperative cardiac assessment.
- Describe the action and pharmacology of common medications used to treat cardiac disorders including, anti-arrhythmics, nitrates, anti-platelet agents, angiotensin converting enzyme (ACE) inhibitors, angiotensin II receptor blockers, beta blockers, calcium channel blockers, cholesterol lowering preparations, digitalis preparations, diuretics, and vasodilators.
- Complete a comprehensive cardiology consultation.
- Interpret basic cardiology testing, including EKG, lab testing for myocardial infarction and heart failure, and heart size and shape on chest x-ray.
- To observe and gain experience in interpreting nuclear stress testing, cardiac MRIs (magnetic resonance imaging), coronary CTAs (Computerized tomography angiogram), and coronary catheterization.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.
- Work with the technicians who perform testing as a team member.
- Incorporate considerations of cost effectiveness into diagnostic and therapeutic plans.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Cardiology - Pediatric

**Course ID: MED 997BN**

**Discipline: Medical**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Saginaw, Children's Hospital of Michigan**

**Duration: 4 weeks**

## Description

This elective will provide the medical student with exposure to commonly encountered diseases of the pediatric cardiovascular system and an opportunity to explore the subspecialty of Pediatric Cardiology.

## Key Objectives

- Describe the incidence, prevalence of commonly encountered diseases of the pediatric cardiovascular system
- Describe treatments for common disease of the pediatric cardiovascular system
- Differentiate between minor and significant heart defects
- Understand the limitations of history and physical examination in the detection of cardiac disease
- Develop basic skills required in the diagnosis of pediatric cardiovascular disease, including thorough history and physical examination, EKG interpretation, and radiographic study interpretation
- Recognize abnormal heart sounds
- Recognize innocent pediatric heart murmurs
- Recognize life threatening cardiac diseases
- Describe and participate in the care of the following pediatric complaints:
  - Chest pain
  - Syncope
  - Palpitations
- List the indications for referral to a pediatric cardiologist
- Describe the indications and limitations of cardiac testing
  - 12 lead ECG
  - Rhythm strips
  - Ambulatory ECG monitoring
  - Event recording
  - Echocardiography
- Recognize ECG patterns of common arrhythmias
- Describe risk factors for the development of common pediatric cardiovascular diseases
- Describe the incidence, prevalence of commonly encountered diseases of the pediatric cardiovascular system

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Child Protection

**Course ID: MED 997CM**

**Discipline: Medical**

**Prerequisites: M3 status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 2 or 4 weeks**

## Description

In 2018, Child Protective Services in the United States received reports of alleged child maltreatment involving 7.8 million children; approximately 10% of the child population. Primary care physicians are often asked to evaluate children for signs of possible maltreatment. This rotation was designed to expose students to the field of Child Abuse Pediatrics, and teach them how to recognize/evaluate children who are suspected victims of child maltreatment.

Both 2-week and 4-week electives are offered depending on the breadth of exposure sought. Most learners will find the 2-week elective sufficient to learn the standard of care approach in assessing this patient population. The 4-week elective should be reserved for students interested in pursuing a career in Child Abuse Pediatrics, General Pediatrics, Pediatric Emergency Medicine, or Pediatric Trauma Surgery.

## Key Objectives

- Describe the warning signs of child maltreatment (2.2)
- Outline process for inpatient and outpatient evaluation for suspected abuse (1.6, 7.3)
- Outline the legal process in child abuse investigations including medical record documentation, chain of evidence collection, interacting with the Children's Protective Services, law enforcement, attorneys and courts, and testifying in court on matters related to child abuse and neglect. (1.6, 7.1)
- Become familiar with the contents of the Michigan Sexual Assault Forensic Examination (SAFE) Kit and learn how to collect evidence; including required chain of evidence procedures. (1.7)
- Describe the indications for and specific diagnostic evaluation options for children with suspected abuse/neglect. (1.6, 6.3)
- Understand Michigan Child Protection Law and Children's Protective Services Policy as it pertains to medical providers' responsibilities in the care of abused/neglected children and suspected victims of abuse/neglect. (1.6, 2.4)
- Discuss the impact of human trafficking legislation in order to approach and detect patients who you suspect of being involved in this activity. (7.4)
- Develop skills in obtaining histories and performing developmentally-appropriate exams of pediatric patients (inpatient/outpatient) who are suspected victims of child abuse and neglect. (1.1)
- Demonstrate compassion and sensitivity in the medical care of children /families involved in suspected child abuse and or neglect as well as maintain confidentiality in concordance with the Michigan Child Protection Law and HIPAA. (4.4, 5.3)
- Demonstrate respect and dignity for patients and colleagues. (5.1)

- Demonstrates reliability, conscientiousness, responsibility and reliability. (5.2)
- Demonstrates relationship building through listening, verbal and nonverbal skills. (4.1)
- Establish an effective therapeutic relationship with patients and families. (4.5)
- Demonstrate ability to educate and counsel families and patients. (3.5)
- Arrive to work in a timely fashion and be prepared to work. (5.2)
- Demonstrate willingness to acknowledge errors and readily accept feedback in constructive manner. (3.3, 5.7)
- Describe the role and importance of medical documentation of children who are suspected victims of abuse/neglect. (4.3)
- Learn as a medical provider how to be an effective team member in a multidisciplinary approach to managing cases of child abuse, neglect and maltreatment. (7.1)
- Describe societal risk factors for child abuse and neglect (6.3)

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Clinical Pathology

**Course ID: MED 997AT**

**Discipline: Medical**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Midland, Saginaw, Lakeland, Genesys**

**Duration: 4 weeks only at ASJH, 2 or 4 weeks in Lakeland, Midland and Genesys, 2 weeks only in Saginaw**

## Description

Students will gain experience working in clinical laboratory and pathology department. Through the perspective of the hospital laboratory and pathology service, the student will be exposed to laboratory test interpretation, diagnostic interpretation of surgical pathology, cytopathology techniques. In addition, student will discuss prognostic value of techniques such as cytopathology and flow cytometry analysis.

## Key Objectives

- Observe and describe gross findings in organs
- Differentiate normal and abnormal gross findings
- Recognize the microscopic characteristics of common diseases
- Correlate clinical manifestations of the patient with cytologic or histologic changes
- Formulate a final diagnosis based on clinical history, cytologic or histologic findings, ancillary studies and laboratory results
- Describe the impact of common population screening tests such as PSA and lipid screening on disease prevalence and severity
- Through the regular attendance of morbidity/mortality conference and tumor board, seek ongoing improvement of medical knowledge and patient care practices.
- Describe the role of the clinical pathology and laboratory medicine service in the community setting.
- Describe the evolving role of telepathology and its potential impact on community and rural practice.
- Demonstrate effective communication among the laboratory medicine team
- Observe and demonstrate effective communication strategies for the exchange of diagnostic and prognostic information to consulting providers

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Dermatology

**Course ID: MED 997K**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Bay City (may travel to Sebewaing), Lakeland**

**Duration: 2 or 4 weeks**

### Description

The purpose of the Dermatology rotation is to prepare the student to recognize and treat commonly encountered problems in dermatology and to become familiar with diagnostic techniques used to diagnose dermatologic disorders. Students will also learn when it is appropriate to initiate a referral to a dermatologist.

### Key Objectives

- To learn the clinical features, pathophysiology, and treatment of common dermatologic diseases such as acne, papulosquamous disorders, skin cancer, autoimmune skin rashes, and skin infections.
- To learn the rationale and basics of diagnostic procedures for dermatologic diseases including skin biopsy.
- To learn the action and pharmacology of common medications used to treat dermatologic diseases topical corticosteroids and other topical agents, immunotherapy for autoimmune skin infections, and acne treatments.
- Complete a comprehensive dermatology consultation.
- Describe the key elements of managing common dermatologic diseases.
- To be develop skills to distinguish the morphologic features of common dermatologic disorders.
- To observe and gain experience in the utility of skin biopsies in diagnosing dermatologic diseases.
- Communicating with primary care physicians as a consultant.
- Communicating effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.
- Incorporate considerations of cost effectiveness into diagnostic and therapeutic plans.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Emergency Medical Service (EMS)

**Course ID: MED 997BG**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

The purpose of the EMS rotation is to provide the medical student with a broad experience in the delivery of health care in the prehospital setting. They will also develop understanding of the roles and responsibilities of the prehospital care team including dispatchers, first responders, EMTs, paramedics and EMS Physicians. They will become familiar with the challenges of caring for patients in an uncontrolled, dynamic environment.

### Key Objectives

- Understand the care of medical and trauma patients before their arrival to the emergency department
- Formulate an appropriate differential diagnosis and management plan for prehospital patients
- Develop a core of knowledge about the medical body of knowledge of prehospital emergency medicine
- Obtain a focused history and physical examination in a prehospital patient with an undifferentiated illness or injury
- Recognize seriously ill patients and how to treat immediate life threats
- Learn skills essential to the general practice of prehospital emergency medicine
- Discuss ways in which modifications to the existing EMS system could assist in meeting the health care needs of the medically underserved populations.
- Evaluate patient care practices and understand and explore how these will be affected by the dynamic and uncontrolled prehospital environment
- Develop a deeper understanding of a focused EMS topic, examine how this applies to the student and the system, develop a plan for integration of any necessary changes, and share these findings with the EMS office (the end of rotation presentation).
- Understand how prehospital clinical information is presented to receiving facilities
- Participate in the presentation of clinical information to receiving facilities
- Describe and understand EMS system design and function
- Understand how physician medical directors provide medical oversight to prehospital providers
- Develop understanding of the National Incident Management System (NIMS) and how this is applied to disaster situation
- Describe the role of members of the prehospital healthcare team
- Communicate and collaborate effectively and respectfully with patients, families, physicians, other health care professionals, and colleagues in the medical team environment and across the continuum of care
- Interact appropriately and professionally with members of the prehospital health care team
- Interact appropriately and professionally with patients in an uncontrolled, dynamic environment
- Maintain professionalism in challenging and uncontrolled environments

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Emergency Medicine - Advanced

**Course ID: MED 997AH**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital, Midland, Lakeland, Detroit Medical Center (Sinai Grace & Detroit Receiving Hospital), Genesys**

**Duration: 4 weeks**

### Description

The Emergency Medicine (EM) rotation is a unique opportunity in medical education where students can be the first to examine then develop an evaluation and treatment plan for the patient with an undifferentiated complaint. The Emergency Department (ED) has patients with complaints across all of disciplines of the medical field and requires diagnostic test interpretation of all kinds (including laboratory, ECG, and radiologic studies) as well as treatment plans in which the practitioner must be understanding of medication, procedural techniques and accessing resources from elsewhere in the medical system.

### Key Objectives

- Obtain a concise, accurate history and physical exam focused on the chief complaint
- Recognize immediately life-threatening conditions based on the initial complaint and assessment
- Develop a differential diagnosis that includes both “most likely” and “worst-case” diagnoses
- Develop an evaluation and treatment plan for the undifferentiated complaint, common diagnoses, and life-threatening presentations
- Understand the indications, costs, risks, and evidence behind commonly performed emergency department studies and procedures
- Present cases (to resident, attending, admitting and/or consultant physicians) in a concise and organized fashion
- Monitor the response to interventions and communicate findings with the treatment team
- Communicate effectively with patients, their family members, and emergency department personnel in ways that demonstrate respect, compassion, honesty, and collegiality
- Formulate disposition and follow-up plans for discharged patients with regard to their access to medical resources and available social support
- Provide patients and families anticipatory guidance related to presenting complaint, and assess their comprehension of discharge instructions prior to disposition

### Assessment Method

Daily shift assessments will be obtained from supervising residents or attending. These will be compiled to complete the College of Medicine standard elective assessment form.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Emergency Medicine – Clinical Quality Improvement

**Course ID: MED 997BF**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

The purpose of the CQI rotation is to prepare the student to recognize, evaluate, and problem-solve barriers that may hinder hospital processes and develop methods for Quality Improvement related to those processes in the clinical setting. Students will also become familiar with the process of formally initiating a clinical study in the hospital setting and methodology for evaluating your own study. Furthermore, students will be introduced to hospital-based process-improvement processes and participate in goal-directed activities through a week-long rapid improvement project.

### Key Objectives

- Student should demonstrate understanding of basic tenets of patient-centered and evidence-based care.
- Student should be able to identify barriers to patient care.
- Student should be able to develop method for process improvement based on identified barriers.
- Discuss solutions for identified health care disparities.
- Discuss demographic influences on the delivery of quality and effective health care services.
- Discuss ways in which a physician could assist in meeting the health care needs of the medically underserved populations.
- Students should be able to evaluate practice patterns in the hospital setting and identify deviations from standard of care or from evidence-based treatment guidelines.
- Students should be able to suggest ways to study these deviations and develop and implement strategies for quality improvement based on these findings.
- Communicate and collaborate effectively and respectfully with patients, families, physicians, other health care professionals, and colleagues in the medical team environment and across the continuum of care
- Demonstrate skilled listening and responding in communicating with other caregivers and colleagues
- Demonstrate the ability to effectively implement a study in the hospital setting via effective communication and teaching of all relevant personnel involved.
- Demonstrate compliance with all patient privacy standards.
- Demonstrate ethical study methods and implementation of study interventions.
- Demonstrate respect for colleagues during the process of study completion in the healthcare setting.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.



## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Emergency Medicine - Pediatric

**Course ID: MED 997W**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

This elective provides students interested in Emergency Medicine an opportunity to improve their ability to care for infants, children, and adolescents with acute, unscheduled, undifferentiated illness and injury. Emergency Department shifts will be performed in a high-volume, urban, pediatric emergency department.

### Key Objectives

- Define ranges of normal vital signs by age group and identify abnormal triage vital signs.
- Describe the evaluation of neonates (<28 days old), infants between 28 and 90 days old, and infants greater than 90 days old with fever.
- Describe the evaluation, treatment, and disposition of infants and children with common respiratory illnesses (e.g., asthma, pneumonia, croup, and bronchiolitis)
- Identify serious causes of abdominal pain and vomiting in infants and children (including intussusception and appendicitis), and describe their diagnosis and treatment
- Describe the indications, contraindications, possible complications, relevant anatomy, and interpretations of the following procedures:
  - Lumbar puncture
  - Suprapubic tap
  - Reduction and splinting of extremity fractures (including radiograph interpretation and knowledge of the Salter-Harris classification system)
- Describe the treatment of patients with diabetic ketoacidosis using a structured approach
- Identify reporting requirements for suspected cases of non-accidental trauma (NAT), and recognize suspicious patterns of injury
- Interpret chest radiographs in pediatric patients with respiratory complaints
- Use decision instruments to determine the need for brain injury in children and infants with head trauma
- Fluid resuscitate volume-depleted infants and children using appropriate weight-based doses and appropriate electrolyte solutions
- Provide education and anticipatory guidance to pediatric patients and their families regarding fever management, oral rehydration, and injury prevention
- Follow up on a sample of at least four patients seen during the elective, and complete four pediatric EM write-ups using a structured form.
- Present patient histories, examinations, and treatment plans to supervising resident and attending physicians in a structured fashion.
- Communicate treatment and disposition plans and the results of diagnostic tests to patients, their families, and nursing staff.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Emergency Medicine - Rural

**Course ID: MED 997AF**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Lapeer, Mount Pleasant, Standish, Owosso, Clare/Gladwin (Midland branch campus)**

**Duration: 4 weeks**

### Description

This elective provides students interested in emergency medicine an opportunity to improve their ability to care for patients in limited resource settings, and better understand patterns of disease and injury in rural communities. Students will learn and be required to: Interpret chest radiographs, pelvic radiographs and head CTs in acutely ill and injured patients; List the indications and contraindications for thrombolytic therapy in acute ischemic stroke; Explain the classification system for trauma center designations; List the requirements for transferring patients under EMTALA; Define the distinguishing characteristics of ALS and BLS ambulance services; Interpret chest radiographs, pelvic radiographs and head CTs in acutely ill and injured patients.

### Key Objectives

- Obtain a concise, accurate history and physical exam focused on the chief complaint
- Recognize immediately life-threatening conditions based on the initial complaint and assessment
- Develop a differential diagnosis that includes both “most likely” and “worst-case” diagnoses
- Develop an evaluation and treatment plan for the undifferentiated complaint, common diagnoses, and life-threatening presentations
- Understand the indications, costs, risks, and evidence behind commonly performed emergency department studies and procedures
- Present cases to clinical staff and/or consultant physicians in a concise and organized fashion
- Monitor the response to interventions and communicate findings with the treatment team
- Communicate effectively with patients, their family members, and emergency department personnel in ways that demonstrate respect, compassion, honesty, and collegiality
- Formulate disposition and follow-up plans for discharged patients with regard to their access to medical resources and available social support
- Provide patients and families anticipatory guidance related to presenting complaint, and assess their comprehension of discharge instructions prior to disposition
- Become familiar with the indications and processes required to initiate transfer of an acutely ill patient to a tertiary care center.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Emergency Point of Care Ultrasound

**Course ID: MED 997J**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Lakeland**

**Duration: 4 weeks in Saginaw, 2 or 4 weeks in Lakeland**

### Description

This rotation is a specialized opportunity for students interested in learning the basics of bedside ultrasound as it is used in the emergency department. With the availability of highly portable ultrasound systems, bedside ultrasound has become an invaluable tool in the evaluation of the acutely ill. Multiple urgent procedures now rely on ultrasound guidance to maximize patient safety. During this rotation, the student will work closely with Covenant Healthcare Emergency Medicine faculty and residents as an integrated member of the Ultrasound Team. This elective will provide a foundation in point-of-care ultrasound for students planning training in any medical specialty.

### Key Objectives

- Describe the basic physical principles of bedside ultrasound.
- Demonstrate familiarity with basic ultrasound “knobology” and image acquisition of up to 11 common bedside ultrasound scans.
- Recognize indications, risks, and evidence behind performance of bedside ultrasound studies.
- Demonstrate skill in performance of the EFAST exam (Extended Focused Assessment with Sonography in Trauma).
- Assist in performance of ultrasound guided procedures (central venous catheter placement, I+D).
- Present findings of bedside ultrasound studies to faculty in a concise and organized fashion.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Endocrinology

**Course ID: MED 997M**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Midland**

**Duration: 4 weeks**

## Description

The purpose of the Endocrinology rotation is to prepare the student to recognize and treat commonly encountered disease of the endocrine system and to become familiar with diagnostic techniques used to diagnose these disorders. Students will also learn when it is appropriate to initiate a referral to an Endocrinologist.

## Key Objectives

- Describe the clinical features, pathophysiology, and treatment of common endocrine diseases such as diabetes mellitus, hypertension, thyroid disease, and metabolic bone diseases.
- Gain familiarity with the rationale and basics of diagnostic procedures for endocrine disorders including special testing for diabetes mellitus, hypertension, thyroid disease, and metabolic bone diseases.
- Recall the action and pharmacology of common medications used to treat endocrine diseases including medications used to treat diabetes mellitus, hypertension, thyroid disease, and metabolic bone diseases.
- Complete a comprehensive endocrinology consultation.
- Describe the key elements of managing common endocrine diseases.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Endocrinology - Pediatric

**Course ID: MED 997CA**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Children's Hospital of Michigan, Ascension St. John Hospital**

**Duration: 4 weeks**

## Description

This clerkship is designed to expose students to various pediatric endocrine conditions.

## Key Objectives

Diagnose, explain the pathophysiology of, and manage the following endocrine conditions:

- Abnormal newborn metabolic screening, including hypothyroidism, congenital adrenal hyperplasia, PKU, and galactosemia
- Premature adrenarche
- Premature thelarche
- Delayed puberty due to chronic disease or anorexia nervosa
- Exogenous obesity
- Familial short stature, constitutional delay of growth or puberty
- Short stature variants not meeting criteria for hormone therapy
- Gynecomastia in a pubertal male
- Infant of mother with gestational diabetes
- Transient hypocalcemia of a newborn
- Transient hypoglycemia of a newborn

Identify, explain the pathophysiology of, provide initial management for, and refer to a subspecialist the following endocrine conditions:

- Adrenal insufficiency
- Ambiguous genitalia, hypogonadism, and micropenis
- Central and nephrogenic diabetes insipidus and psychogenic polydipsia
- Congenital adrenal hyperplasia
- Delayed or precocious puberty
- Diabetes mellitus type I (diabetic ketoacidosis (DKA), long-term management)
- Endocrine and genetic causes of obesity
- Genetic syndromes and familial inheritance patterns with endocrine abnormalities
- Hirsutism, hyperandrogenism, and polycystic ovaries
- Hypoglycemia in childhood and adolescence
- Metabolic bone disease including rickets and skeletal dysplasias
- Abnormalities of calcium, phosphorus, or magnesium homeostasis
- Short stature variants meeting criteria for hormonal treatment
- Tall stature and excessive growth syndromes
- Thyroid dysfunction and goiters
- Diabetes mellitus type I and II



Identify the individual at risk for developing endocrine dysfunction through routine endocrine counseling and screening of all patients and parents, addressing:

- Normal variations in growth (including genetic short stature and constitutional growth delay)
- Expected and normal variations in body changes during puberty (information should be ethnic group specific)
- The importance of vitamin D supplements in breast-fed infants and select populations with low intake of vitamin D, calcium, or phosphorus
- Diabetic screening for patients with symptoms of polyuria, polydipsia, and polyphagia
- Diabetic, hypercholesterolemia and hypertriglyceridemia screening for any child who is obese
- Newborn metabolic screening, when appropriate
- List the findings on clinical history and examination that suggest a diagnosis of diabetes mellitus and/or diabetic ketoacidosis.
- Differentiate Type I and Type II diabetes on the basis of findings from the clinical history, physical examination, and laboratory tests.
- Diagnose diabetes mellitus and diabetic ketoacidosis from presenting symptoms and confirmatory lab tests.
- Outline appropriate initial dosages of insulin, based on both clinical and laboratory findings, and adjust subsequent dosages based on serum glucose levels.
- Describe appropriate IV and PO fluids to manage ketoacidosis and initial hyperglycemia with or without ketosis, realizing that insulin therapy may be required in the initial treatment of Type II diabetes.
- Recognize immediate life-threatening complications associated with the diagnosis and treatment of diabetic ketoacidosis and steps for initial treatment and stabilization. Refer for intensive care as indicated
- Explain the findings on clinical history, examination, and laboratory tests that suggest the presence of a thyroid disorder (hypo- or hyper-thyroidism), including abnormal growth patterns, goiter, etc.
- Compare and contrast the different treatment options for hyperthyroidism, including oral medications, irradiation, and surgery, and discuss the selection criteria for each treatment modality.
- Create an education, treatment, and follow-up plan for a patient with a thyroid disorder that includes treatment, monitoring, potential complications, and long-term follow-up.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Extramural International Electives

### Description

Visit [www.studyabroad.cmich.edu](http://www.studyabroad.cmich.edu) for more information.

### Scheduling Information

**Schedule an appointment with the Study Abroad team at**

[https://www.cmich.edu/office\\_provost/InternationalAffairs/abroad/Pages/Schedule-an-Appointment.aspx](https://www.cmich.edu/office_provost/InternationalAffairs/abroad/Pages/Schedule-an-Appointment.aspx).

**Interested students may also contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Extramural Elective – Medical Discipline

**Course ID: MED 997VM**

**Discipline: Medical**

**Prerequisites: Dependent on requirements of the host institution.**

**Available Sites: Various Sites**

**Duration: 2 or 4 weeks**

### Description

The purpose of the Extramural (“Away”) Elective in Year 4 is to offer the student the opportunity of an in-depth and robust experience in a medical discipline or specialty that is not offered at CMU College of Medicine. The Extramural Elective may allow the student to experience a new hospital and residency environment, serve as an “audition” elective for a particular residency program and provide additional experiential data for the student to decide their medical specialty.

### Key Objectives

- Objectives will be obtained from the host institution and submitted to the office of Distributed Clinical Education on the “Extramural Elective Approval Form.” This form must be submitted to the Office of Research at least 8 weeks in advance of the elective.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Extramural Elective – Surgical Discipline

**Course ID: MED 997VS**

**Discipline: Surgical**

**Prerequisites: Dependent on requirements of the host institution.**

**Available Sites: Various Sites**

**Duration: 2 or 4 weeks**

### Description

The purpose of the Extramural (“Away”) Elective in Year 4 is to offer the student the opportunity of an in-depth and robust experience in a surgical discipline or specialty that is not offered at CMU College of Medicine. The Extramural Elective may allow the student to experience a new hospital and residency environment, serve as an “audition” elective for a particular residency program and provide additional experiential data for the student to decide their surgical specialty.

### Key Objectives

- Objectives will be obtained from the host institution and submitted to the office of Distributed Clinical Education on the “Extramural Elective Approval Form.” This form must be submitted to the Office of Research at least 8 weeks in advance of the elective.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Family Medicine

**Course ID: MED 9970**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Midland, Lakeland, Genesys (auditions only)**

**Duration: 2 or 4 weeks at Genesys, other sites 4 weeks**

## Description

The purpose of the Family Medicine elective is to model the principles of Family Medicine in an academic setting; these principles include the biopsychosocial model and care that is comprehensive, contextual, coordinated, and involves a variety of complexities. The rotation will expose students to Family Medicine Residency training and allow them to participate in the care of patients and the activities of the residency program under the supervision of residents and faculty.

## Key Objectives

- Demonstrate patient-centered communication skills.
- Provide patient education that is attuned to patient needs and abilities.
- Formulate clinical assessments using evidence-based resources.
- Demonstrate understanding of the role that family plays in health and wellness.
- Demonstrate understanding of community factors that impact health.
- Discuss how culture can impact health and access to health care.
- Describe the roles of team members in the care of patients.
- Perform focused histories and focused physical exams.
- Describe cost effective workups of common acute problems.
- Find and apply diagnostic criteria for common chronic problems.
- Utilize evidence-based resources to determine chronic disease management.
- Provide patient specific, respectful education about chronic diseases.
- Apply appropriate health promotion and disease prevention guidelines for all patients.
- Identify and perform age appropriate screenings and exams.
- Document office visits in the EMR.
- Compare health outcomes in areas with adequate access to primary with those lacking in access to primary care.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Family Planning

**Course ID: MED 997CG**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Scottsdale Women's Center, Detroit MI**

**Duration: 4 weeks**

## Description

The purpose of the Family Planning elective is to understand the contraceptive options available to women, and to gain experience counseling patients about these options. The rotation will provide students with the opportunity to learn the reasons why women face unplanned pregnancy and the available methods of pregnancy termination.

## Key Objectives

- Explain the epidemiology of unintended pregnancy and abortion
- Describe the pharmacology of contraception, emergency contraception and medication assisted abortion
- List and describe etiologies of sexual dysfunction
- Describe the diagnosis and management of spontaneous abortion
- Describe the management of sexual dysfunction
- Demonstrate knowledge and skill in providing contraceptive options counseling to patients in various circumstances, including post-partum
- Provide supportive and non-judgmental counseling to patients exploring pregnancy options, including providing gender affirming counseling to trans, non-binary, and gender nonconforming patients.
- Explain the societal impact/cost of unintended pregnancy
- Describe the epidemiology of unintended pregnancy and abortion
- Outline ethical and legal issues surrounding abortion and physician responsibility

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Foundations of Simulation

**Course ID: MED 997BQ**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

This elective rotation is a four (4) week introductory, structured experience designed to provide the student experience in principles of Simulation Education and provide an opportunity to develop simulation scenarios. Students will also be exposed to evidence-based practices for the care of critically ill medical and trauma patients. This elective will provide students the opportunity to obtain certification in Advanced Cardiac Life Support (ACLS) and Pediatric Advanced Life Support (PALS) if available during the rotation. Course fees apply.

### Course Fees Apply

When courses available, course fees for ACLS and PALS apply. A discount will be provided to the students who register for these courses. Interested students should contact CMED's Office of Students Affairs to obtain discount code.

### Key Objectives

- Consistently apply an organized diagnostic approach to the care of critically ill patients
- Describe basic ventilator function, initial ventilator settings and interventions for commonly encountered lung pathology
- Demonstrate competency in the following simulated procedures: Cardiac monitoring, peripheral IV placement, urinary catheterization, endotracheal intubation, central line placement and arterial line placement
- Recognize acute life-threatening patient presentations and institute fundamental life support
- Successfully prepare for American Heart Association ACLS certification (certification not required)
- Successfully prepare for American Heart Association PALS certification (certification not required)
- Perform medical care and invasive procedures proficiently under appropriate supervision in a simulated environment. Demonstrate compassionate and empathic patient care during all laboratory events and training
- Describe and demonstrate characteristics of high functioning medical resuscitation teams
- Demonstrate professional behaviors
- Use information technology to manage information, access online medical information and support one's own education
- Define the following concepts: situational awareness, shared mental model, check-back, huddle, call-out, mutual support, closed-loop communication, advocacy and inquiry, deliberate practice, inter-professionalism, mastery learning

- Use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning and writing skills
- Work effectively with others as a member or leader of a health care team or other inter-professional group

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Foundations of Telehealth (Online)

**Course ID: MED 997BY**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Online**

**Duration: 4 weeks**

### Description

Telehealth is a new and rapidly evolving discipline utilizing technology that is changing the way medicine is practiced across the globe. Its expected growth and rapid adaption by physicians, patients and hospital systems necessitates that students have a fundamental understating of the underlying technologies in order to provide optimal patient care. Telehealth allows physicians to provide care and help monitor their patients wherever they may be. It can help patients become their own healthcare advocates and manage their own care. With that in mind, we try to navigate the very complex topic of telehealth and break it down to its foundations looking at a basic understanding of telehealth, evaluation and use case of specialty specific applications, medical research, and the regulations, policies, and ethics surrounding telehealth.

By the end of the clerkship, students should have the confidence to readily assess and implement telehealth tools into their conversations with patients and their practice. They should feel comfortable showing patients how they can use technology to empower their patients to take ownership of their healthcare. This skill is important for any physician, but especially for those working with rural and underserved communities who may have additional barriers to care. Telehealth can largely be utilized to break down many of these barriers and provide these communities greater access and quality of care. This will be a focus of the program as we strive to fulfill the mission of the College of Medicine.

### Key Objectives

- Describe the advantages and disadvantages of telehealth and how it impacts the delivery of health care. (Mapped to EPO 7002)
- Demonstrate the appropriate steps to assess the validity of an application. This includes, but is not limited, an understanding of the importance of cost, HIPAA validations, and peripheral integration. (Mapped to EPO 1006)
- Describe the advantages of telehealth networks and how integration into pre-existing medical record systems impacts patient health care. (Mapped to EPO 1006)
- Explain the origins of telehealth, emphasizing the general steps taken from producer (e.g. App Developer) to consumer (e.g. Patient/Physician). (Mapped to EPO 3005)
- Explain how telehealth applications can be used to help optimize patient care. (Mapped to EPO 1006)
- Demonstrate the ability to quickly search and assess the quality and validity of telehealth applications appropriate to a given clinical scenario. (Mapped to EPO 1004)
- List and explain appropriate parameters that need to be considered when assessing the value of a telehealth application in regard to patient care. (Mapped to EPO 1006)
- Describe the role of a physician in the development of telehealth applications (Mapped to EPO 1006, 7005)

- Explain the advantages and disadvantages of utilizing telehealth to conduct medical research (Mapped to EPO 3004)

### **Week 1: Introduction to Telehealth**

#### **Online Module:**

Telemedicine: A Practical Guide for Incorporation into your Practice – American Association of Physicians

#### **Readings:**

Textbook:

Understanding Telehealth by Karen Schulder Rheuban, Elizabeth A. Krupinski. – Chapters 2-4

Peer Reviewed Publications:

Consumer Mobile Health Apps: Current State, Barriers, and Future Directions by Kao et al.

Mobile Medical Apps for Patient Education: A Graded Review of Available Dermatology Apps by Masud et al.

Quality Assessment of Medical Apps that Target Medication-Related Problems by Loy et al.

Medical Correctness and User Friendliness of Available Apps for Cardiopulmonary Resuscitation:

Systematic Search Combined With Guideline Adherence and Usability Evaluation by Metelman et al.

The Effectiveness of Self-Management Mobile Phone and Tablet Apps in Long-term Condition Management: A Systematic Review by Witehead et al.

#### **Presentations:**

TeleHealth – Dr. Sethu Reddy

Next steps in health & medicine -- where can technology take us?, Dr. Daniel Kraft

Telemedicine—The Answer to Rural Medicine Challenges, Lindsey Meyers

### **Week 2: Specialty Specific Applications and Research**

#### **Readings:**

Textbook:

Understanding Telehealth by Karen Schulder Rheuban, Elizabeth A. Krupinski. – Chapters 5, 6, 10, 16, 17

Peer Reviewed Publications:

The landscape of research on smartphone medical apps: Coherent taxonomy, motivations, open challenges and recommendations by Hussain et al.

Large-Scale Assessment of a Smartwatch to Identify Atrial Fibrillation by Perez et al.

Corrie Health Digital Platform for Self-Management in Secondary Prevention After Acute Myocardial Infarction by Spaulding et al.

Digital Health Innovation: A Toolkit to Navigate From Concept to Clinical Testing by Marvel et al.

The Asthma Mobile Health Study, a large-scale clinical observational study using ResearchKit by Chan et al.

Automatic emotion and attention analysis of young children at home: a ResearchKit autism feasibility study Egger et al.

High-performance medicine: the convergence of human and artificial intelligence by Topol

Physical activity, sleep and cardiovascular health data for 50,000 individuals from the MyHeart Counts Study by Hershmann et al.

**Presentations:**

Artificial Intelligence the Future is Here – Dr. Sethu Reddy  
Introduction to ResearchKit – Apple

**Week 3: Regulatory, Policy and Ethics****Readings:**

## Textbook:

Understanding Telehealth by Karen Schuller Rheuban, Elizabeth A. Krupinski. – Chapters 21-24

## Peer Reviewed Publications

FDA Regulation of Mobile Medical Apps by Shuren et al.

Consent Processes for Mobile App Mediated Research: Systematic Review by Moore et al.

Telemedicine's Potential Ethical Pitfalls by Mehta

Telemedicine Practice: Review of the Current Ethical and Legal Challenges by Nittari et al.

Ethical practice in Telehealth and Telemedicine by Chaet et al.

## Other Publications:

AMA Ethical Telemedicine Guidelines

When Apps Get Your Medical Data, Your Privacy May Go With It – Natasha Singer, NY Times

**Week 4: Putting it into practice**

Students will have the opportunity to submit the paper ahead of time for feedback in advance of the final due date.

Final week presentations will focus on the two applications they have chosen to potentially use in their practice.

**Orientation to Elective:**

A 1-hour presentation will be given to go over the course objectives, structure, and expectations.

**Assessment Method**

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

Students will be asked to use this information to write a 5-page mini review on telehealth, discuss at least two applications they could see themselves implement in their practice, and how they would do so.

**Scheduling Information**

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Gastroenterology

**Course ID: MED 997F**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Lakeland, Lapeer, Saginaw, Genesys**

**Duration: 2 or 4 weeks, ASJH and Genesys offer 4-week increment only**

## Description

The purpose of the Gastroenterology rotation is to prepare the student to recognize and treat commonly encountered problems in gastrointestinal diseases and to become familiar with diagnostic techniques used to diagnose gastrointestinal disorders, including but not limited to upper and lower endoscopies. Students will also learn when it is appropriate to initiate a referral to a Gastroenterologist.

## Key Objectives

- Describe the clinical features, physiology and treatment of common gastrointestinal (GI) disorders, such as acute and chronic GI complaints, gastritis, esophagitis, gastric and peptic ulcers, GI bleeding, hepatic diseases, alteration of bowel habits, inflammatory bowel disease, GI malignancies, and pancreatic diseases.
- Recall the rationale and basics of diagnostic gastrointestinal procedures in the office and hospital setting.
- Describe the action and pharmacology of common medications used to treat gastrointestinal disorders including, proton pump inhibitors, Histamine H<sub>2</sub>-receptor antagonists, mucosal Protectants and Adsorbents, antacids, anti-diarrheal agents (including anti-cholinergics), emetic and anti-emetic drugs, gastrointestinal prokinetic drugs, laxatives and cathartics.
- Complete a comprehensive gastroenterology (GI) consultation.
- Interpret gastroenterology testing, including pancreatic and liver function tests, stool testing, and fecal occult blood testing.
- Observe and gain experience in interpreting upper and lower endoscopies and GI imaging such as abdominal ultrasound and CAT scanning.
- Communicating with primary care physicians as a consultant.
- Communicating effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Gastroenterology, Pediatric

**Course ID: MED 997BL**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Saginaw, Ascension St. John Hospital, Children's Hospital of Michigan**

**Duration: 2 weeks only in Saginaw, 4 weeks Ascension St. John Hospital**

### Description

The purpose of the Pediatric Gastroenterology Clerkship rotation is to provide exposure to congenital and acquired digestive disease in infants, children and young adults in an outpatient and inpatient settings.

### Key Objectives

- Develop a basic understanding of normal gastrointestinal development and correlation of GI disorders with the underlying pathophysiology.
- Approach to pediatric gastrointestinal history and examination, including appropriate diagnostic evaluation of children with jaundice, diarrhea, constipation, feeding difficulties and chronic functional disorders.
- Have an understanding of the most common liver disorders, including the differential diagnosis of direct and indirect hyperbilirubinemia, biliary atresia, chronic, acute and autoimmune hepatitis, drug-induced hepatitis, congenital cholestatic syndromes, end-stage liver disease and liver failure, indications for liver transplantation.
- Have an understanding of inflammatory bowel disease (Crohn's Disease and Ulcerative Colitis), the presentation and clinical course, therapeutic options, drugs, biologic agents, indications for surgery.
- Understand the pathophysiology and the basic principles of treatment of the short bowel syndrome and other malabsorption states.
- Understand the range of radiological diagnostic modalities, including ultrasound, CT scanning, MRI, MRCP, nuclear medicine scans for Meckel's diverticular bleed, liquid and solid gastric emptying tests, salivagram for aspiration, and ERCP.
- Common surgical procedures for congenital GI disorders, including T-E fistula and esophageal atresia, omphalocele and gastroschisis, short bowel syndrome with dilated loops, anorectal malformations, Hirschprung's disease and the basic principles of pre-and post-operative care.
- Evaluate the progress of his/her management decisions and make appropriate adjustments to the care of the patient.
- Recognize the clinical presentation of GI emergencies occurring in the childhood period and gain exposure to the skills necessary to provide appropriate management of these emergencies including acute upper and lower GI bleeding, acute abdomen, foreign body ingestion, and intestinal obstruction.
- Be responsible for the care of patients and demonstrate a commitment to learning about their problems.

- Describe the broad medical, social, and economic consequences of childhood chronic medical conditions, including factors influencing its incidence and the incidence of disorders unique to pediatric patients such as, IBD, liver failure and chronic hepatitis.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Genetics, Medical

**Course ID: MED 997CU**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 2 weeks**

### Description

This 2-week elective emphasizes core knowledge and skills necessary to diagnose genetic disorders and provide genetic counseling in the ambulatory and hospital-based settings. With the rapid advances of genetic technologies and genomic knowledge, genetics is being recognized as a major contributor to disease etiology. Genetics has become more and more relevant in medicine. Approximate 3-5% of diseases have significant genetic etiologies. For the 3rd and 4th year medical students, this rotation will provide exposure to medical genetics on the current landscape of medicine.

To be better prepared for future careers of all specialties, a student will not only have the opportunity to interact with some patients and families, but also engage in structured review on current clinical genetics. The student will be exposed to the genetics as mechanisms of the diseases, indicators for risk, and current recommended management for prevention, screening, surveillance, and targeted treatment based on genetics. This rotation will have more focus on adult patient population. However, individuals with hereditary conditions face lifelong health concerns and manifestations may begin in childhood.

### Key Objectives

Objective	Program Objective #
For single gene diseases, identify the types of inheritance, penetrance, and expressivity.	2.1
For polygenic diseases, identify its impact on general population and public health.	6.3
Interpret genetic test reports, and variant classifications.	1.3
Access general guidelines and authorized resources for genetic evaluation, genetic testing and management. Examples of targeted conditions with genetic etiologies include: cancer, cardiovascular diseases, degenerative neuromuscular conditions, and endocrine conditions.	1.2
Describe current applications of genetics in pediatric, prenatal, reproductive areas.	2.3
Identify the significant impact of "rare diseases" on general population.	2.2, 6.3
List the indications for referral to a genetic specialist	1.6
Outline various genetic predispositions to breast cancer (e.g. BRCA1/2 genes related), colon cancer (e.g. Lynch syndrome), current targeted cancer treatment based on germline genetic etiologies.	2.2

Describe the genetic diseases that predispose to sudden cardiac death	2.2
Predict the impact of a genetic disease on biological relatives.	2.2
Describe the Genetic Information Non-discrimination Act (GINA) and its meaning relative to genetic information privacy concerns.	5.3
Communicate with patients and families about inheritance and possible impacts from genetic conditions.	4.4
Demonstrate respect and dignity for patients and colleagues.	5.1
Demonstrate reliability, conscientiousness, and responsibility.	5.2
Demonstrate effective therapeutic relationship building through listening, verbal and nonverbal skills.	4.1

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Genetics, Pediatric

**Course ID: MED 997CP**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

This 4-week clerkship is an elective clerkship specifically designed for medical students which builds upon knowledge gained in prerequisite course work and experience. Teaching methods include bedside teaching, directed reading, and active participation with a patient care team.

### Key Objectives

Objective	Program Objective #
Obtain and correctly document a multigeneration family history.	1.1
Describe abnormal features and morphology of children and its significance to disease.	2.2
Develop diagnostic skills in various inherited diseases and inborn errors of metabolism and to understand the rationale for the use of diagnostic tests.	2.3
Describe the indications for patient referral to a geneticist or genetic counselor.	2.2
Observe and participate in genetic counseling sessions.	1.5, 4.5
Acknowledge personal limitations and mistakes openly and honestly, seek and respond to feedback in a positive way, and demonstrate flexibility and maturity in adjusting one's behavior.	3.1, 3.3
Demonstrate the ability to retrieve, analyze, and integrate evidence-based information into patient care and clinical decision-making.	3.4
Communicate effectively and respectfully with other health professionals in a responsive and responsible manner.	4.2
Work with various health care professionals including nurses, social workers, genetics counselors, lab technicians, ultrasound technicians, and financial counselors to improve individual patient care and system performance.	4.1, 4.2
Demonstrate effective and therapeutic communication with patients through the use of active listening and appropriate verbal, nonverbal and written skills.	4.1, 4.5
Demonstrate effective verbal and written presentation of patient information to colleagues.	4.2
Demonstrate sensitivity, honesty, and compassion in difficult conversations including disclosure of inherited diseases.	4.4
Demonstrate honesty, integrity, respect, and compassion in all interactions with patients, peers, faculty, staff, and other health care professionals in all settings.	5.1, 5.2

Demonstrate sensitivity and responsiveness to the personhood of the patient inclusive of culture, race, ethnicity, spirituality, gender, sexual orientation, age, physical characteristics, medical condition, disabilities, socioeconomic status, family-context and other aspects of personal and health beliefs, practices and decisions.	5.4
Demonstrate accountability for academic, patient care, and professional responsibilities, including concern for societal needs.	5.2, 5.5

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Geriatrics

**Course ID: MED 997Q**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: N/A**

**Duration: 2 or 4 weeks**

## Description

The purpose of the Geriatrics rotation is to prepare the student to recognize and treat commonly encountered problems in the geriatric population and to become familiar with the approach to work up and management of geriatric related disorders. Students will also learn when it is appropriate to initiate a referral to a Geriatrician.

## Key Objectives

- Describe the clinical features, physiology and treatment of aging and common geriatric disorders, such cognitive disorders, dementia, care of the frail elderly, and gait and behavioral disturbances.
- Describe current best practices in geriatric health maintenance.
- Understand how the process of aging affects medication use in the elderly.
- Complete a comprehensive geriatric consultation.
- Describe key elements of managing the geriatric patient, including the frail geriatric patient.
- Observe and perform testing used for geriatric assessments.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Gynecologic Oncology

**Course ID: MED 997BM**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

Gynecology Oncology is a unique opportunity for medical students to experience the variety that OB-GYN offers. The student will spend time in the office, in the operating room assisting with gynecologic procedures and on ward rounds. The student will be expected to manage and follow patients during preoperative evaluation and surgery as well as postoperatively.

### Key Objectives

- Listen and care for patients with cultural, ethnic, gender, racial, age and religious sensitivity. Communicate effectively with patients.
- Communicate the results of the OB/GYN and general medical interview by well-organized written and oral reports.
- Demonstrate a comprehensive women's medical interview.
- Develop a management plan.
- Describe normal pelvic anatomy and pelvic support.
- Describe medical and surgical management options for gynecologic problems, both benign and malignant.
- Describe management options for a variety of Gyn malignancies and pelvic masses.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Healthcare Administration

**Course ID: MED 997BH**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

The purpose of the Healthcare Administration rotation is to prepare the student to better understand the administrative aspects involved in a healthcare institution. This rotation will allow students to attend a series of administrative meetings during the block, introducing them to a full breadth of administrative processes and responsibilities being managed regularly in the healthcare setting. This elective will help students to understand rationale for decisions that govern day to day hospital operations. This is an ideal elective for students to may be interested in an administrative career to gain early exposure and experience to the field.

### Key Objectives

- Students will apply their medical knowledge to understand hospital processes and decision-making that occurs at the administrative level to guide and facilitate the safe and cost-effective care of patients in the hospital setting.
- Students will draw on their patient care experiences to understand hospital processes and decision-making that occurs at the administrative level.
- Students will reflect on their own patient care and the care they have witnessed during their clinical experiences as it pertains to hospital goals and initiatives.
- Discuss and understand how hospital systems and departments must be integrated at the administrative level to ultimately facilitate optimal patient care hospital-wide.
- Participate in interdepartmental discussions and communicate respectfully and professionally with colleagues to work toward joint decisions to improve common goals.
- Demonstrate skilled listening and responding in communicating with hospital administrators, caregivers, and colleagues.
- Treat patients and their families as equal partners with all members of the health care teams in the management of their health
- Participate in interdepartmental discussions and communicate respectfully and professionally with colleagues to work toward joint decisions to improve common goals.
- Students will dress professionally in business attire with badge visible at all times during formal meetings.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

# Hematology and Oncology

**Course ID: MED 997G**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Lakeland, Saginaw, Genesys, Midland**

**Duration: 2 or 4 weeks, ASJH offers 4-week increment only**

## Description

The purpose of the Hematology and Oncology rotation is to prepare the student to recognize and treat commonly encountered problems in hematology and oncology and to become familiar with diagnostic techniques used to diagnose hematology and oncology disorders. Students will also learn when it is appropriate to initiate a referral to a Hematologist and Oncologist.

## Key Objectives

- Describe the clinical features, physiology, and treatment of hematologic and oncologic disorders, such as anemias, solid tumors, hematologic malignancies, and bone marrow disorders.
- Describe the rationale and basics of diagnostic procedures for hematology and oncology disorders.
- Describe the basic principles of major modalities for cancer treatment including chemotherapy, radiation therapy, immunotherapy, and surgical treatment.
- Outline the indications and limitations of transfusion of blood products.
- Complete a comprehensive hematology/oncology consultation.
- Describe the rationale for the work up of hematology and oncology diseases including bone marrow biopsy, blood smear analysis, radiologic imaging, and other diagnostic testing.
- To observe and gain experience in managing patients with hematologic and oncologic disorders.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Hematology and Oncology - Pediatric

**Course ID: MED 997CB**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital, Children's Hospital of Michigan**

**Duration: 4 weeks**

## Description

The purpose of the Pediatric Hematology and Oncology rotation is to prepare the student to recognize and treat commonly encountered problems in pediatric hematology and oncology and to become familiar with diagnostic techniques used to diagnose hematology and oncology disorders. Students will also learn when it is appropriate to initiate a referral to a Hematologist and Oncologist.

## Key Objectives

- Develop basic knowledge of clinical presentation, pathophysiology (genetics), laboratory evaluation of common childhood hematological disorders
- Develop basic knowledge of clinical presentation, diagnosis, and treatment of childhood malignancies
- Develop basic knowledge of principles of supportive care needs for children with life threatening conditions
- Understand the multidisciplinary approach to the care of children with serious conditions
- Complete a thorough history and physical exam of children presenting to the hematology/oncology service. Discusses with senior resident or attending.
- The student will develop general clinical skills in the management of children with hematological and oncologic diseases. Including: definitions, differential diagnosis, laboratory evaluation and treatment
- The patient problem list includes the following patient problems and/or evaluations:

### **Patient Care Outpatient Setting**

- Evaluation of easy bruising and bleeding (menorrhagia, nose bleeds)
- Comprehensive sickle cell evaluation and transfusion indications
- Evaluation and management of anemia: microcytic, normocytic, and macrocytic
- Evaluation of neutropenia
- Evaluation of thrombocytopenia
- Evaluation of prothrombotic conditions
- ALL on maintenance chemotherapy
- Solid tumor on chemotherapy
- Develop some understanding for long term follow up for malignancy and late effects of its treatment
- Research protocol management

### **Patient Care Inpatient Setting**

- Work up of pro-thrombotic conditions
- Sickle Cell Crisis and complications
- Transfusion Medicine
- Management of Fever and Neutropenia
- Chemotherapy Administration
- Diagnosis of malignancy: including management of emergencies, psychosocial and school issues
- Pain management: pharmacology and ethical aspects
- Neonatal hematologic disorders
- The student will observe and/or assist in the following procedures (as permitted by service activities during the rotation)
  - Lumbar Puncture
  - Bone Marrow Aspirate
  - Moderate Sedation (by PICU attending)
  - Accessing and management of blocked Central Venous Catheters

### **Assessment Method**

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### **Scheduling Information**

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**



# Hospice and Palliative Care

**Course ID: MED 997AC**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital**

**Duration: 4 weeks**

## Description

This is a 4-week introductory, structured clinical experience involving direct patient care activities under appropriate faculty supervision. The broad goals of the rotation are to develop the student's decision-making, cognitive skills, and application of medical knowledge in a clinical setting with a particular focus on the care of patients with advanced, progressive and incurable disease. Aimed at improving the quality of life of patients and their families through the prevention and relief of suffering by means of early identification, assessment and treatment of pain and other problems, physical, psychosocial, and spiritual. This rotation may take place in a variety of clinical settings including inpatient, outpatient and home care settings

## Key Objectives

- Develop knowledge of and proficiency in evaluation of patients at the end of life and patients with specific symptom palliation needs.
- Be able to perform a complete history and physical examination
- Develop a basic treatment plan for patients with common symptoms associated with life limiting illness.
- Demonstrate knowledge of hospice and the eligibility and appropriateness of hospice referral.
- Acquire basic knowledge of the following symptoms and their management
  - Pain, including pharmacologic, complementary, and anesthetic measures to manage pain.
  - Dyspnea
  - Constipation and diarrhea
  - Nausea and vomiting
  - Anorexia and weight loss
  - Delirium and agitation
  - Anxiety and depression
- Utilize resources to assist in making timely and appropriate diagnostic and management decisions during palliative care consultations
- Discuss outcomes of patient management plans with the faculty physician
- Identify areas for self- improvement
- Develop aptitude, sensitivity and comfort discussing patient care issues related to advanced disease, life limiting illness and end of life care with patients, family, and staff.
- Demonstrate respect for cultural differences in response to severe illness and death
- Demonstrate respect for spiritual values held by patients and their families
- Understand the value of and how to conduct a family meeting for discussion of goals of care.
- Demonstrate respect for patients, families, and staff
- Maintain a professional appearance and demeanor
- Demonstrate a willingness for learning and self-improvement

- Be accountable and responsible to the team by arriving on time, completing assignments and being a team member
- Access appropriate interdisciplinary consults for patient care
- Demonstrate proficiency at operating within the context of an interdisciplinary group managing patients.
- Explain the projected need for hospice services and end of life care for the coming decades.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Infectious Disease

**Course ID: MED 997H**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Lapeer, Saginaw, Lakeland**

**Duration: 2 or 4 weeks, ASJH offers 4-week increment only**

### Description

The purpose of the infectious disease rotation is to prepare the student to recognize and treat commonly encountered infectious diseases and to become familiar with diagnostic techniques used to diagnose infectious disorders. Students will also learn when it is appropriate to initiate a referral to an infectious disease specialist.

### Key Objectives

- Describe the clinical features, physiology, and treatment of common infectious diseases such as pneumonia, cellulitis, urinary tract infections, sepsis syndromes, and nosocomial infections.
- Describe the rationale and basics of diagnostic procedures for infectious diseases such as gram stains and cultures, microbe antigen and antibody testing (serology), and imaging used to diagnose infections.
- Recall the action and pharmacology of common medications used to treat infectious diseases including, antibiotics, antifungal agents, and antiviral agents.
- Complete a comprehensive infectious disease consultation.
- Interpret testing for infection including gram stain, cultures, serology, and antibiotic sensitivity testing.
- Observe and gain experience in managing infectious disorders.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Infectious Disease - Pediatric

**Course ID: MED 997CD**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital, Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

This elective allows students to gain clinical experience in evaluating newborns, infants, children, and adolescents through clinical history taking, physical examination and the evaluation of laboratory data with an infectious disease perspective. The competency of the student's clinical skills and professionalism will be measured and evaluated by supervising physicians and residents. Multiple learning opportunities, both clinical and didactic, are provided to the student. Attendance and active participation are required. The student will be exposed to and must learn skills that are particularly relevant to infectious diseases.

The pediatric specialty clinic will provide each student with the opportunity to observe and participate in variety of infectious and related illnesses of children.

### Key Objectives

- Demonstrate knowledge regarding the major infectious illnesses and related conditions that affect newborns.
- Learn the epidemiology, microbial etiology, pathogenesis, pathology, and clinical manifestations of common infectious illnesses in children.
- Evaluate common infections and similar acute illnesses in children of all ages.
- Demonstrate knowledge of preventive pediatrics (prevention and control of infectious diseases):
  - Immunizations
  - Other disease prevention strategies
  - Provide anticipatory guidance to families.
- Apply knowledge of pediatrics and of infectious diseases in order to:
  - Achieve a strong understanding of infectious illnesses in the pediatric age group.
  - Ameliorate the effects of pathology in order to optimize the child's quality of life.
  - Formulate a differential diagnosis for common infectious problems in children and then arrive at a specific diagnosis using necessary additional data.
  - Develop management plans for common infectious diseases
- Be introduced to concepts of:
  - Global epidemiology of infectious illnesses and the impact on the local patterns of disease.
  - Disease prevention from a public health perspective.
  - Emerging infectious diseases.
- Describe and classify antimicrobial drugs (basic pharmacokinetic, pharmacodynamic and pharmacogenetic concepts, modes of action, and mechanisms of antimicrobial resistance)
- Augment knowledge of primary immunodeficiency diseases.
- Obtain pertinent medical, epidemiologic, and other historical data from the parent(s) and, when appropriate, the patient.
- Learning to elicit supplemental information that is relevant to suspected infectious illnesses.

- Achieve proficiency in the performance of a complete physical examination of the patient with emphasis on elements related to likely infectious illnesses.
- Accurately record pertinent positive and negative findings from both historical and physical exam data in a clear and precise manner with appropriate details.
- Participate in the selection and interpretation of appropriate laboratory and diagnostic tests.
- Integrate clinical and epidemiologic data to make appropriate differential diagnoses, using knowledge of pathophysiology and appropriate diagnostic tools to arrive at a diagnosis.
  - Identify and efficiently use pediatric resource materials and technology to allow for the immediate and future acquisition of factual pediatric knowledge.
  - Demonstrate that you are an effective member of the team by fully participating in discussions and contributing to learning endeavors.
  - Demonstrate use of evidence-based approach to the management of common infectious disease problems.
- Serve as an advocate for children in both the general community and in the medical profession.
- Construct an appropriate management plan that includes pertinent anticipatory guidance that includes control of transmissible illnesses.
- Identify unique psychosocial difficulties that may be encountered by children with specific infections and assist in improving patient care by collaborating with other health care providers.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Internal Medicine - Advanced

**Course ID: MED 997AZ**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Midland, Lakeland, Genesys**

**Duration: 4 weeks**

### Description

The purpose of the Internal Medicine rotation is to prepare the student to recognize and treat commonly encountered problems in Internal Medicine and to become familiar with diagnostic work up and management of medical disorders.

### Key Objectives

- Describe the clinical features, physiology, and treatment of common internal medicine disorders, such as coronary artery disease, hypertension, chronic obstructive pulmonary disease (COPD), diabetes mellitus, chronic kidney disease, electrolyte disorders, and infections.
- Describe the rationale and basics of diagnostic testing to diagnose medical disorders.
- Recall the action and pharmacology of common medications used to treat medical disorders as well as the role of non-pharmacologic treatments for various medical disorders, including, diabetic medications, antihypertensive medications, antibiotics, and medications used for heart disease and COPD.
- Complete a comprehensive internal medicine history and physical
- Interpret basic laboratory testing for common internal medicine disorders
- Observe and gain experience in interpreting radiologic imaging for common internal medicine disorders.
- Incorporate considerations of cost effectiveness into diagnostic and therapeutic plans
- Communicate with other health care staff and consultants involved in the care of internal medicine patients.
- Communicate effectively with patients and their families
- Demonstrate respect and compassion for all patients
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Medical Critical Care (MICU)

**Course ID: MED 997AK**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital, Midland, Saginaw, Lakeland, Genesys**

**Duration: 4 weeks**

### Description

Students participate in a one-month elective rotation MICU service. Supervised by critical care physicians, fellows, and residents, students will be exposed to the care of critically ill patients, including conditions such as sepsis, respiratory failure, massive hemorrhage, and severe acid base/electrolyte abnormalities. Students will gain fundamental knowledge of current techniques and treatment strategies, including hemodynamic monitoring, ventilator support, vasopressor support and sepsis care.

### Key Objectives

- Formulate a differential diagnosis based on the clinical findings.
- Discuss the respiratory, cardiovascular, renal, and neurophysiology as well as the pathophysiology associated with trauma, toxicology, shock, sepsis, and cardiac failure.
- Discuss the principles of invasive hemodynamic monitoring and the appropriate use thereof in the care of critically ill or injured patients.
- Discuss appropriate management of ventilator patients.
- Discuss the pharmacologic agents of choice (including their indications, contraindications and complications) for the use in patients with shock, sepsis, dysrhythmias, respiratory failure, congestive heart failure, hepatic failure, and renal failure.
- Discuss the indications for withholding and terminating resuscitation or aggressive medical treatment
- Demonstrate appropriate history and physical examination skills of the critically ill patient.
- Demonstrate the satisfactory performance of common diagnostic and therapeutic procedures (such as: oral endotracheal intubation, nasotracheal intubation, central venous access, arterial line placement).
- Demonstrate the ability to correctly interpret data from hemodynamic monitoring, pulse oximetry, arterial blood gasses, end tidal CO<sub>2</sub>, and ICP monitors.
- Demonstrate the appropriate management of ventilator patients.
- Demonstrate an understanding of the ethical and legal principles applicable to the care of critically ill patients.
- Demonstrate effective communication skills when participating in disciplinary meetings, department meetings, and hospital staff meetings.
- Develop approach to assessing code status with patients and their families
- Demonstrate the ability to communicate well with patients and family. The resident should demonstrate respect for the health beliefs of other cultures and understand how differing health beliefs affect behavior and medical care.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Neonatology (NICU)

**Course ID: MED 997AD**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

The purpose of the Neonatal Clerkship rotation is to: to obtain a broad understanding of medical problems experienced by infants during the first month of life; acquire an understanding of, and appreciation for, prenatal care of high-risk patients; learn generally applicable principles in the NICU setting such as physiology, ethics and reading, critiquing, and applying the medical literature.

### Key Objectives

- Demonstrate and apply the knowledge of the pathophysiology of common problems seen in the neonate, particularly those of cardio-respiratory nature in management of neonatal patients.
- Demonstrate the knowledge and some of the skills necessary for neonatal resuscitation including transitional physiology.
- Articulate the unique aspects of the physical examination of the premature and newly born full term infant.
- Obtain an accurate history of pregnancy and perinatal events relevant to the newborn
- Perform a gestational age determination and complete physical examination on term and preterm infants.
- Outline the assessment and management of LGA and SGA infants.
- Relate empathically with parents of patients and demonstrate appropriate concern for the patients.
- Describe the pathophysiology, diagnostic approach, and management principles for common diseases that occur during the neonatal period such as respiratory distress, sepsis, apnea, infections, metabolic derangements, and jaundice.
- Be responsible for the care of patients and demonstrate a commitment to learning about their problems.
- Describe the broad medical, social, and economic consequences of prematurity, including factors influencing, its incidence and the incidence of disorders unique to premature infants.
- Explain the effects of birth weight and gestational age on infant morbidity and mortality.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Nephrology

**Course ID: MED 997N**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Saginaw, Genesys**

**Duration: 2 or 4 weeks, ASJH and Genesys offer 4-week increment only**

## Description

The purpose of the Nephrology rotation is to prepare the student to recognize and treat commonly encountered problems in Nephrology and to become familiar with diagnostic techniques used to diagnose renal disorders including urine analysis, renal biopsy, renal imaging techniques. Students will also learn when it is appropriate to initiate a referral to a Nephrologist.

## Key Objectives

- Describe the clinical features, physiology, and treatment of common renal disorders, such as acute and chronic kidney failure, nephritis, pyelonephritis, renal stones.
- Describe the rationale and basics of diagnostic renal testing procedures in the office and hospital setting.
- Recall the action and pharmacology of common medications used to treat renal disorders.
- Complete a comprehensive nephrology consultation.
- Interpret basic renal testing, including urinalysis, 24-hour urine studies.
- Gain experience in imaging used to assess the kidney including renal ultrasound and renal function studies.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Nephrology, Pediatric

**Course ID: MED 997CQ**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

This 4-week clerkship is an elective clerkship specifically designed for medical students which builds upon knowledge gained in prerequisite course work and experience. Teaching methods include bedside teaching, directed reading, and active participation with a patient care team.

### Key Objectives

Objective	Program Objective #
Demonstrate, by the process of obtaining a history and physical examination, ability in the initial assessment of children with renal disease.	1.1
Describe the usual laboratory procedures employed in the assessment of children with renal disease.	1.3, 2.3
Formulate a treatment plan for common renal conditions, including glomerulonephritis, nephrotic syndrome, and obstructive uropathy.	2.3
Describe the pathophysiology of disorders of fluid and electrolyte balance, acid-base balance, and complications of the uremic state.	2.1, 2.2
Outline therapies available for acute and chronic renal failure.	2.3
Describe the physiologic basis for hemodialysis and peritoneal dialysis.	2.2
Acknowledge personal limitations and mistakes openly and honestly, seek and respond to feedback in a positive way, and demonstrate flexibility and maturity in adjusting one's behavior.	3.1, 3.3
Demonstrate the ability to retrieve, analyze, and integrate evidence-based information into patient care and clinical decision-making.	3.4
Communicate effectively and respectfully with other health professionals in a responsive and responsible manner.	4.2
Work with various health care professionals including nurses, social workers, genetics counselors, lab technicians, ultrasound technicians, and financial counselors to improve individual patient care and system performance.	4.1, 4.2
Demonstrate effective and therapeutic communication with patients through the use of active listening and appropriate verbal, nonverbal and written skills.	4.1, 4.5
Demonstrate effective verbal and written presentation of patient information to colleagues.	4.2
Demonstrate sensitivity, honesty, and compassion in difficult conversations including disclosure of inherited diseases.	4.4

Demonstrate honesty, integrity, respect, and compassion in all interactions with patients, peers, faculty, staff, and other health care professionals in all settings.	5.1, 5.2
Demonstrate sensitivity and responsiveness to the personhood of the patient inclusive of culture, race, ethnicity, spirituality, gender, sexual orientation, age, physical characteristics, medical condition, disabilities, socioeconomic status, family-context and other aspects of personal and health beliefs, practices and decisions.	5.4
Demonstrate accountability for academic, patient care, and professional responsibilities, including concern for societal needs	5.2, 5.5

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Neurology

**Course ID: MED 997R**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Lakeland, Owosso, Saginaw, Genesys**

**Duration: 2 or 4 weeks, ASJH offers 4-week increment only**

## Description

The purpose of the Neurology rotation is to prepare the student to recognize and treat commonly encountered problems in neurological diseases and to become familiar with diagnostic techniques used to diagnose neurological disorders. Students will also learn when it is appropriate to initiate a referral to a Neurologist.

## Key Objectives

- Describe the clinical features, physiology and treatment of common neurological disorders, such as stroke/transient ischemic attacks, seizures, dementia, neuropathies.
- Describe the rationale and basics of diagnostic neurologic procedures including lumbar puncture, carotid dopplers, and neuroimaging.
- Recall the action and pharmacology of common medications used to treat neurologic disorders including, anti-seizure medications, stroke medications, neuropathy medications.
- Complete a comprehensive neurologic consultation.
- Describe the rationale for the work up of neurologic disorders and be exposed to interpretation of neurologic testing such as lumbar puncture, carotid dopplers, and neuroimaging.
- Observe and gain experience in managing patients with neurologic disorders.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Neurology - Pediatric

**Course ID: MED 997BO**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Children's Hospital of Michigan, Ascension St. John Hospital**

**Duration: 4 weeks**

### Description

The purpose of Wound Care and Hyperbaric Medicine clerkship is to prepare the student to recognize risk factors for, and subsequent development of wounds and wound complications. Students will also learn measures to protect skin integrity and methods to treat chronic wounds.

### Key Objectives

- To understand the difference in symptomatology between children, adolescents, and adults.
- Describe evidence based diagnostic approach to pediatric patient presenting with new onset seizure.
- Describe clinical presentation of generalized, partial, complex-partial, absence and febrile seizures
- Outline neurologic developmental milestones in pediatric patients
- Describe current therapeutic approach to pediatric seizure disorders
- Students will contribute and assist with the direct care of children and adolescents with common and uncommon neurologic disorders.
- Practice detailed neurologic examination of children
- Develop appropriate differential diagnoses in children presenting with neurological complaints
- Understand the contribution and impact of family dynamics on child and adolescent patient presentations
- Understand and describe the classifications of anticonvulsant medications and appropriate uses in child and adolescent patients.
- Awareness of community resources available to neurologically handicapped children
- Awareness of known identified health care disparities, and possible solutions.
- Awareness of demographic influences on the delivery of quality and effective health care services.
- Awareness of ways in which a physician could assist in meeting the health care needs of the medically underserved populations.
- To improve skills in interviewing, diagnosis and interaction with children and their families
- Students are expected to review the clinical literature throughout this rotation and incorporate concepts into their clinical practice.
- To gain experience in the concept of working collaboratively with Psychologists, Social Workers, Nurses and volunteers in the evaluation and management of patients and their families.
- Communicate and collaborate effectively and respectfully with patients, families, physicians, other health care professionals, and colleagues in the medical team environment and across the continuum of care
- Demonstrate skilled listening and responding in communicating with diverse patients, their families or other caregivers, and colleagues

- Identify the complexity of emotions (patient and physician) in the medical interview and communicate empathetically with patients experiencing strong emotions such as sadness, fear, frustration and/or anger
- Demonstrate the ability to elicit a complete medical history within the psychosocial and cultural context of each patient
- See and respect the patient and their families as equal partners with all members of the health care team in the management of their health.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Neurosurgery

**Course ID: MED 997AA**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Lakeland, Midland, Saginaw**

**Duration: 2 or 4 weeks, 4 weeks only in Saginaw**

## Description

The purpose of the Neurosurgery rotation is to prepare the student to recognize and treat commonly encountered problems in Neurosurgical diseases and to become familiar with diagnostic techniques used to diagnose Neurosurgical disorders. Students will also learn when it is appropriate to initiate a referral to a Neurosurgeon.

## Key Objectives

- Expose the student to the breadth of neurosurgical complaints and familiarize them with history acquisition, physical examination, and initial diagnostic workup of these patients.
- Develop history taking and physical examination skills that will enable the student to identify and localize illness and/or injury associated with the central and peripheral nervous system.
- Diagnose, stabilize, and assist with the provision of surgical and non-surgical initial treatment for injuries and illness of the brain, spinal cord, bony spine, and peripheral nervous system.
- Participate in the inpatient and ambulatory care of patients with neurosurgical complaints and pathologies

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



# Obstetrics and Gynecology - Advanced

**Course ID: MED 997B**

**Discipline: Surgery**

**Prerequisites M4 Status**

**Available Sites: Ascension St. John Hospital, Lakeland, Saginaw, Genesys (auditions only), Midland**

**Duration: 4 weeks**

## Description

Advanced Obstetrics and Gynecology (OB-GYN) is a unique opportunity for medical students to experience the variety of clinical exposures that OB-GYN offers. The student will spend time on the labor floor, and in the operating room assisting with gynecologic procedures. The student will work 1 on 1 to manage an attending clinic and manage the labor floor when residents are in didactics. The student will be expected to manage and follow patients during delivery as well as pre- and post-operatively. Students will be exposed to a wide variety of surgical procedures including robotic surgery and laparoscopic procedures. This elective will provide necessary skills for students interested in Obstetrics and Gynecology as a career and those students that wish to learn more about this field and the experiences that come with it. The student will be assigned a resident mentor and work with them to develop an educational lecture and be successful in the sub-internship.

## Key Objectives

- Demonstrate a comprehensive women's medical interview.
- Develop a management plan.
- Discuss the maternal physiologic and anatomic changes associated with pregnancy.
- Describe the three stages of labor and recognize common abnormalities.
- Describe the causes and methods of evaluating abnormal labor patterns.
- Describe normal pelvic anatomy and pelvic support.
- Describe medical and surgical management options for abnormal gynecologic problems.
- Describe management options of complicated pregnancies.
- Listen and care for patients with cultural, ethnic, gender, racial, age and religious sensitivity. Communicate effectively with patients.
- Communicate the results of the OB/GYN and general medical interview by well-organized written and oral reports.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Obstetrics-Gynecology – Advanced Ultrasound Practice

**Course ID: MED 997BV**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

## Description

The purpose of the Advanced Ultrasound Practice for Obstetrics and Gynecology elective rotation is to educate the student regarding the knowledge and skills underlying the use of ultrasound in the recognition and management of common Obstetric and Gynecological diseases. The student will become familiar with ultrasound studies used in ambulatory Obstetrics and Gynecology related to pregnancy, abnormal uterine bleeding, and pelvic pain. Students will learn to use these skills to recognize the need for referral to sub-specialists such as Maternal Fetal Medicine or Gynecology Oncology.

## Key Objectives

- State indications and usage of ultrasound in Obstetrics
- State indications for and usage of ultrasound in Gynecology
- Discuss the conditions ultrasound can be used to manage and monitor in Obstetrics and Gynecology
- Determine the impact of ultrasound on morbidity and mortality related to pregnancy
- Demonstrate both patient-centered skills and communication that are related to administering patient testing
- Demonstrate understanding of the roles of the interdisciplinary team in the ambulatory setting and its importance related to patient care
- Demonstrate providing patient comfort and meet the needs of the patient during testing
- Develop skills to operate ultrasound equipment in a manner that fosters patient care and comfort
- Develop skills in acquisition of ultrasound studies
- Discuss how ultrasound can impact healthcare costs related to prenatal care
- Discuss how ultrasound can reduce the costs related to gynecological pathology
- Discuss how access to ultrasound in communities, challenged by availability medical resources, can increase women's healthcare needs without traveling
- Discuss solutions for known identified health care disparities
- Discuss demographic influences on the delivery of quality and effective health care services
- Discuss ways in which a physician could assist in meeting the health care needs of the medically underserved populations
- Discuss the physics of the ultrasound diagnostic methodology
- Learn to use ultrasound equipment effectively and efficiently for basic pelvic and abdominal ultrasound exams
- Discover and demonstrate the ability to use ultrasound as a diagnostic tool to improve patient care practices by reducing cost, saving time and resources.
- Discuss how ultrasound results should be used in the medical system to aid in diagnosis and management of patients

- Discuss when ultrasound results should trigger referral for further diagnosis and management
- Demonstrate the ability to create and convey an accurate report within the medical system
- Demonstrate communication with patients and support persons
- Demonstrate relaying findings of ultrasound scans to interdisciplinary teams involved in patient's care
- Communicate and collaborate effectively and respectfully with patients, families, physicians, other health care professionals, and colleagues in the medical team environment and across the continuum of care
- Demonstrate skilled listening and responding in communicating with diverse patients, their families or other caregivers, and colleagues
- Identify the complexity of emotions (patient and physician) in the medical interview and communicate empathetically with patients experiencing strong emotions such as sadness, fear, frustration and/or anger
- Demonstrate the ability to elicit a complete medical history within the psychosocial and cultural context of each patient
- See and respect the patient and their families as equal partners with all members of the health care team in the management of their health

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Obstetrics – Maternal Fetal Medicine

**Course ID: MED 997I**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital**

**Duration: 4 weeks**

### Description

High Risk Obstetrics elective is a unique opportunity for medical students to experience management of high-risk pregnancies. The student will spend time on the labor floor, in ultrasound clinic, and will be on call throughout the entire elective for admissions of high-risk patients. The student will be expected to manage and follow patients during their antepartum and postpartum care. Students will be exposed to a wide variety of high-risk pregnancies including fetal growth restriction, pre-eclampsia/eclampsia, gestational diabetes, and various other high-risk conditions. This elective will provide necessary skills for students interested in Obstetrics and Gynecology as a career and those students that wish to learn more about this field and the experiences that come with it.

### Key Objectives

- Describe how certain medical conditions affect pregnancy and how pregnancy affects certain medical conditions.
- Counsel patients regarding history and risk of genetic abnormalities.
- Counsel patients regarding genetic screening options.
- Understand risk factors, pathophysiology, diagnosis, and management of certain pregnancy-related disorders (pre-eclampsia, preterm labor, PPRM, alloimmunization, TORCH infections, fetal growth abnormalities, etc.)
- Understand and perform ultrasound studies in obstetrics.
- Understand and assist with certain obstetrical procedures (Amniocentesis, Middle Cerebral Artery Dopplers, Cerclage, Per-umbilical Cord Blood Sampling, etc.).

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Ophthalmology

**Course ID: MED 997AN**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Saginaw, Midland, Lakeland**

**Duration: 2 or 4 weeks**

## Description

Medical students will gain knowledge and skills associated with the comprehensive eye exam, including slit lamp, fundoscopy and intraocular pressure measurement. In addition, through participation in the office and operative care of patients, students will be exposed to common ocular pathologic conditions.

## Key Objectives

1. Demonstrate an understanding of normal ocular anatomy.
2. Discuss the differential of abnormal fundoscopic findings.
3. Demonstrate knowledge of the dosages, indications, and contraindications of topical and systemic ophthalmologic medications.
4. Discuss the differential diagnosis of acute loss of vision.
5. Discuss the differential diagnosis and demonstrate correct evaluation of patients presenting with a painful eye.
6. Discuss the differential diagnosis and demonstrate correct evaluation of patients presenting with a red eye.
7. Discuss the presenting signs, symptoms, and management of acute angle closure glaucoma.
8. Discuss the ocular manifestations of systemic disease.
  1. Demonstrate the ability to perform an ocular exam.
  2. Demonstrate the technique of slit lamp examination.
  3. Demonstrate the ability to measure intraocular pressures.
  4. Describe and identify the various patterns seen on fluorescein staining of the eye.
  5. Demonstrate the ability to evaluate and manage chemical injuries of the eye.
  6. Demonstrate the ability to evaluate and manage blunt and penetrating trauma to the eye and surrounding tissues.
  7. Demonstrate the ability to evaluate and manage ocular foreign bodies.
  8. Discuss the indications for routine and emergent ophthalmologic consultation.
  9. Demonstrate skill in removal of corneal foreign body.
  10. Discuss the indications for routine and emergent ophthalmologic consultation.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Otolaryngology (ENT)

**Course ID: MED 997AM**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Lapeer, Midland, Saginaw, Lakeland**

**Duration: 2 or 4 weeks**

### Description

This elective rotation in otorhinolaryngology is a two (2) or four (4) week experience structured to develop the student's decision-making, cognitive skills and to apply didactic material in a clinical setting. Focus will be on common diseases of the ear, nose and throat and experiences will be in ambulatory and surgical setting.

### Key Objectives

- Perform Otolaryngology Examination, including general head and neck exam, mirror or fiberoptic examination of the upper airway.
- Improve understanding of otolaryngologic pathology and normal variants
- Improve diagnostic skills for otolaryngologic pathology
- Exposure to office-based otolaryngologic procedures, both diagnostic & therapeutic
- Foreign body removal, cerumen disimpaction, flexible laryngoscopy, fine needle aspiration
- Improve understanding of otolaryngologic laboratory evaluations, including Behavioral Audiometry and Tympanometry
- Establish evaluation and treatment algorithms for otolaryngologic pathology, including need for surgical referral
- Develop a sound fund of knowledge for the core subjects listed below
  - Ear
    - Otitis media (including cholesteatoma)
    - Otitis externa
    - Hearing loss
    - Dizziness
    - Facial nerve disorders
  - Nose
    - Epistaxis
    - Rhinitis
    - Sinusitis & nasal polyposis
    - Chronic obstruction
  - Throat
    - Pharyngitis & tonsillitis
    - Sleep apnea
    - Hoarseness
    - Dysphagia

- Upper airway obstruction (Epiglottitis, Subglottic stenosis, Respiratory papillomatosis)
- Cancer
- Neck
  - Neck masses
  - Cancer
- Head and Neck Trauma
  - Facial fractures and lacerations
  - Penetrating trauma

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Otolaryngology - Pediatric

**Course ID: MED 997CY**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

## Description

Pediatric Otolaryngology care is a critical aspect of medicine. 1 in 1000 children will be born with hearing loss. 95% of children will have ear infections before they are in grade school.

Adenotonsillectomy is one of the most common surgeries performed in the world. Proper management of difficult airways is critical for life saving interventions in children of all ages. A rotation in Pediatric Otolaryngology will afford rotators confidence in addressing these issues throughout their career. This 4-week clerkship is a required course specifically designed for third and fourth-year medical students which builds upon knowledge gained in prerequisite course work and experience. Teaching methods include structured didactics and active participation with a patient care and surgical team.

## Key Objectives

- Describe the etiology, incidence and impact of hearing loss etiologies in pediatric population
- Describe common approaches to amplification and surgical correction of hearing loss
- Demonstrate knowledge of congenital anomalies of the head and neck
- Describe an approach to evaluation of the pediatric airway, and identify options for managing a difficult airway
- Participate in patient care in office setting, operative suite, pediatric hospital floors and the emergency room
- Participate in collaborative patient care through multidisciplinary teams including Aerodigestive team, Cochlear Implant Team, Cleft and Craniofacial team, Vascular Anomalies Team and others
- Describe socioeconomic factors influencing childhood disease of the ears and aerodigestive tract
- Demonstrate compassion and understanding for the diverse cultural communities that seek care at CHM
- While seeing patients in the clinic, assisting in the OR and assisting with floor work, students will be expected to discuss ENT evidence-based medicine and evaluate its applicability and worth
- Demonstrate respect and dignity for patients and colleagues
- Demonstrates reliability, conscientiousness, responsibility and reliability
- Establish an effective therapeutic relationship with patients and families
- Demonstrate ability to educate and counsel families and patients
- Complete documentation in a timely manner
- Arrive to work in a timely fashion and be prepared to work
- Demonstrate respect, compassion, integrity and honesty
- Demonstrate willingness to acknowledge errors



## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Pain Management

**Course ID: MED 997CH**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 2 or 4 weeks**

## Description

Students will gain exposure to multimodal pain management through an immersive clinical experience within an ambulatory pain clinic and/or inpatient consult service.

## Key Objectives

- Demonstrate understanding of mechanism, indication, and dosing of pain medications including opioids and non-opioids.
- Demonstrate understanding and indication of common non-pharmacologic pain management modalities.
- Demonstrate understanding of options and indications for interventional pain management strategies, for example, understanding indications for block procedures, nerve stimulators, steroid injections
- Obtain a comprehensive pain history and exam including signs and symptoms of total pain
- Demonstrate ability to respond appropriately to suffering by addressing sources of medical, psychosocial, and spiritual distress, bearing with patient's and family's suffering and distress, and remaining a presence, as desired by patient and family<sup>4</sup>. Construct pain management plans that balance a patient's level of function and quality of life with concerns for longevity
- Demonstrate sensitivity and responsiveness to a diverse patient population
- Assist in the care and management of the patient
- Demonstrate understanding of the role of the interdisciplinary team in managing chronic pain
- Recognize and describe the societal impact of chronic pain disorders
- Recognize and describe the societal impact of opioid abuse
- Discuss solutions for known identified health care disparities
- Discuss demographic influences on the delivery of quality and effective health care services
- Discuss ways in which a physician could assist in meeting the health care needs of the medically underserved populations
- Obtain and use population health principles and information to provide quality patient-centered care
- Utilize self-evaluation and feedback from pain management experts in order to assess efficacy of pain management practices as patients are followed longitudinally
- Demonstrate a habit of critical thinking, evidence-based decision-making, and continuous quality improvement.
- Identify knowledge gaps in the course of providing patient care and cultivate the habit of continuous inquiry to expand one's knowledge base.
- Demonstrate understanding of the importance of a team-based approach to management of chronic pain.

- Describe the challenges inherent in effectively treating pain within a larger healthcare system that is wary of opioid use and in which there are true risks that come with availability of opioids in a general population

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Pathology - Pediatric

**Course ID: MED 997CX**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

Students will gain experience working in the pediatric clinical laboratory and pathology department. Through the perspective of the pediatric laboratory and pathology service, the student will be exposed to fetal and placental pathology, genetic testing, laboratory test interpretation, diagnostic interpretation of surgical pathology, cytopathology techniques. In addition, student will discuss prognostic value of techniques such as cytopathology and flow cytometry analysis. This 4-week clerkship is a required course specifically designed for third and fourth-year medical students which builds upon knowledge gained in prerequisite course work and experience. Teaching methods include structured didactics and active participation with a patient care and pathology laboratory team.

### Key Objectives

- Participate in routine anatomic and pediatric pathology activities in a laboratory and clinical setting
- Attend departmental and interdisciplinary conferences
- Develop a fundamental knowledge of pediatric pathology through readings, case studies, and interaction with clinical team
- Correlate clinical manifestations with histologic and cytologic changes
- Observe and demonstrate effective communication strategies for the exchange of diagnostic and prognostic information to consulting providers
- Gain appreciation for the various roles and responsibilities of the laboratory team
- Demonstrate professional behavior and effective interpersonal communication skills

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Pediatric Critical Care (PICU)

**Course ID: MED 997AL**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital, Saginaw (home call required and student must be available within 30 minutes of being called)**

**Duration: 4 weeks**

### Description

Students participate in a one-month elective rotation PICU service. Supervised by critical care physicians, fellows, and residents, students will be exposed to the care of critically ill children, including conditions such as pneumonia, asthma, bronchiolitis, sepsis, dehydration, trauma, and metabolic derangements. Students will gain fundamental knowledge of current techniques and treatment strategies, including hemodynamic monitoring, ventilator support, fluid and electrolyte management and vasopressor support.

### Key Objectives

- Practice history and physical assessment skills required for determining the need for intensive care unit admission and treatment
- Develop a pathophysiology-based understanding of critical illness in children and how the understanding of physiology influences management and the treatment of critically ill children in the PICU.
- Formulate a differential diagnosis in the critically ill pediatric patient based on the clinical findings.
- Discuss the common etiologic agents of sepsis and meningitis of pediatric patients of varying ages and their presentation, evaluation, and management.
- Discuss the anatomy of the pediatric respiratory tract and the significance of this to airway emergencies.
- Discuss the presentation, evaluation, and management of pediatric upper and lower respiratory diseases, including asthma, bronchiolitis, cystic fibrosis, and pneumonia.
- Demonstrate appropriate evaluation and management of diabetes mellitus in the pediatric population, including complications (esp. diabetic ketoacidosis).
- Discuss the presentation, differential diagnosis, evaluation, and management of acute renal failure.
- Discuss the presentation, evaluation, management, and complications of Kawasaki disease.
- Discuss the presentation, differential diagnosis, evaluation, and management of the pediatric patient with a bleeding disorder.
- Discuss the types of congenital heart disease, their presentation, and evaluation and management.
- Discuss the differential diagnosis, evaluation, and management of the pediatric patient with altered mental status.
- Discuss the indications, contraindications, and interactions of the pharmacologic agents of choice for the use in patients with shock, sepsis, dysrhythmias, respiratory failure, congestive heart failure, hepatic failure, and renal failure.

- Be exposed to and gain a basic understanding of the emergency treatment and stabilization of critically ill children.
- Demonstrate appropriate history and physical examination skills for the critically ill pediatric patient.
- Formulate a differential diagnosis based on the clinical findings.
- Calculate the fluid and electrolyte requirements of the dehydrated and septic pediatric patient.
- Demonstrate appropriate evaluation and management of upper and lower respiratory diseases, including asthma, bronchiolitis, cystic fibrosis, and pneumonia.
- Demonstrate appropriate evaluation and management of diabetes mellitus in the pediatric population, including its complications (esp. diabetic ketoacidosis).
- Observe or assist common diagnostic and therapeutic procedures (such as: oral endotracheal intubation, nasotracheal intubation, intraosseous line placement, central venous access, arterial line placement).
- Demonstrate the ability to correctly interpret data from hemodynamic monitoring, pulse oximetry, arterial blood gasses, end tidal CO<sub>2</sub>, and ICP monitors.
- Demonstrate proper initiation and subsequent management of the mechanically ventilated pediatric patient.
- Become familiar with standard ICU supportive care, including:
  - Inotropic Support
  - Sedation and Pain Control
  - Nutritional Support
  - Pharmacology
- Demonstrate an understanding of the ethical and legal principles applicable to the care of critically ill pediatric patients.
- Practice the rational use of laboratory, radiographic, and other diagnostic modalities in the management of the critically ill pediatric patient including discussion of this plan with the patients' parents.
- Demonstrate effective communication skills when developing and carry out advance directives, facilitating family meetings, patient/family education, eliciting the patient's illness story, cross cultural skills and facilitating treatment adherence.
- Demonstrate the ability to communicate well with patients and family. The student should demonstrate respect for the health beliefs of other cultures and understand how differing health beliefs affect behavior and medical care.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Pediatrics – Advanced Inpatient

**Course ID: MED 997AR**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Lakeland**

**Duration: 4 weeks**

### Description

The purpose of the Advanced Inpatient Pediatrics Clerkship rotation is to provide exposure to the pediatric inpatient service. Student assumes primary responsibility for initial evaluations, diagnostic procedures, and ongoing management of patients. Students are assigned patient workups; participate fully in teamwork and teaching rounds; attend conferences; and are on night call with the resident.

### Key Objectives

- Demonstrate and apply the knowledge of the pathophysiology of common problems seen in pediatric population, particularly those of cardio-respiratory nature.
- Articulate the unique aspects of the physical examination of the children and newborn.
- Perform a complete history and physical examination on patients from birth to 18 years of age.
- Relate empathically with parents of patients and demonstrate appropriate concern for the patients.
- Describe the pathophysiology, diagnostic approach, and management principles for common diseases that occur during the childhood period such as respiratory distress, dehydration, sepsis, infections, electrolyte and metabolic derangements, poor growth, and seizures.
- Describe the broad medical, social, and economic consequences of childhood chronic medical conditions, including factors influencing its incidence and the incidence of disorders unique to pediatric patients such as, cerebral palsy, developmental delay, inborn error of metabolism and syndromes associated with congenital malformations.
- Analyze medical problems and use previously acquired knowledge to synthesize and appropriate differential diagnosis.
- Evaluate the progress of his/her management decisions and make appropriate adjustments to the care of the patient.
- Participate in discharge planning, arranging, and communicating with the patient's medical home and other referrals and specialties needed as an outpatient.
- Become proficient in communication with all levels of health care providers in the inpatient setting (nurses, consultants, respiratory therapists, referring or regular care providers, etc.)
- Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Pediatrics – Inpatient & Outpatient (Rural)

**Course ID: MED 997CI**

**Discipline: Pediatrics**

**Prerequisites: M4 status**

**Available Sites: Midland campus (outpatient office in Mt. Pleasant, inpatient/nursery care in Alma)**

**Duration: 4 weeks**

### Description

The purpose of this Pediatrics elective is to provide exposure to both pediatric outpatient and inpatient services. Outpatient services will be predominantly well visits and acute visits. Inpatient services will include newborn nursery.

### Key Objectives

- Demonstrate competence in pediatric well visits from Newborns to 18yo.
  - History, physical, and anticipatory guidance
  - Describe how adolescent screenings differ from those of younger patients and demonstrate confidence with adolescent visits.
- Relate effectively with patients and their parents, show empathy and confidence when discussing their concerns.
- Describe the pathophysiology, diagnostic approach, and management principles for common diseases that occur- during childhood
- During evaluation of an acute patient, develop an appropriate differential diagnosis and determine next steps of intervention.
- Determination of appropriate process for referring to specialists as warranted.
- Demonstrate family-centered discussion and education in a manner that families can comprehend.
- Use appropriate screening tools based on age and risk factors (MCHAT, ASQ, Vanderbilt, PHQ, etc).
- Communicate appropriate dosage for commonly used medications and calculate this dose when needed.
- Document effectively in EMR
- Communicate effectively with all levels of health care providers in the inpatient setting.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Physical Medicine and Rehabilitation (PM&R)

**Course ID: MED 997U**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Lakeland, Saginaw**

**Duration: 4 weeks**

### Description

The purpose of the Physical Medicine and Rehabilitation (PM and R) rotation is to prepare the student to recognize and treat commonly encountered problems in physiatry and to become familiar with the rehabilitation techniques and treatments used to treat these disorders. Students will also learn when it is appropriate to initiate a referral to a PM and R specialist.

### Key Objectives

1. Describe the clinical features, pathophysiology and treatment of common disorders seen by physical medicine and rehabilitation specialists, such as spinal stenosis, paralysis from stroke or spinal disorder, joint and muscle pain, neuropathies, sports injuries, and patients with chronic musculoskeletal pain.
2. Describe the rationale and basics of diagnostic procedures for common disorders seen by PM and R specialists.
3. Recall the action and pharmacology of common medications used to treat common disorders seen by PM and R specialists including opioid medications, non-opioid analgesics, neuropathy medications and other medications used to treat acute and chronic pain.
4. Describe non-pharmacologic modalities used to treat acute and chronic pain disorders, such as physical therapy, electrical nerve stimulation, etc.
5. Complete a comprehensive PM and R consultation.
6. Learn and gain experience in pharmacologic pain regimens used to treat acute and chronic pain disorders.
7. Observe and gain experience in the utility of non-pharmacologic modalities used to treat acute and chronic pain disorders.
8. Communicate with primary care physicians as a consultant.
9. Communicate effectively with patients and their families.
10. Demonstrate respect and compassion for all patients.
11. Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Physical Medicine and Rehabilitation - Pediatric

**Course ID: MED 997CS**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

This 4-week clerkship is an elective clerkship specifically designed for medical students building upon knowledge gained in prerequisite course work and experience. Teaching methods include bedside teaching, directed reading, and active participation with a patient care team.

### Key Objectives

Objective	Program Objective #
Outline the normal stages of pediatric development, including functional milestones	2.1
Perform a thorough physical exam of pediatric patient, with particular focus on neuromuscular function	1.1
Formulate a differential diagnosis for patients with functional impairment	1.3, 2.3
Develop a treatment plan for the pediatric patient with functional impairment	1.3
Describe the role of bracing, prosthetics, and other adaptive equipment	1.3
Participate in the care of patients with childhood head injury, spinal cord injury, cerebral palsy, neuromuscular diseases	1.1
Assist in the performance of electromyography, describe the indications for EMG testing	1.7
Acknowledge personal limitations and mistakes openly and honestly, seek and respond to feedback in a positive way, and demonstrate flexibility and maturity in adjusting one's behavior.	3.1, 3.3
Demonstrate the ability to retrieve, analyze, and integrate evidence-based information into patient care and clinical decision-making.	3.4
Communicate effectively and respectfully with other health professionals in a responsive and responsible manner.	4.2
Work with various health care professionals including nurses, social workers, genetics counselors, lab technicians, ultrasound technicians, and financial counselors to improve individual patient care and system performance.	4.1, 4.2
Demonstrate effective and therapeutic communication with patients through the use of active listening and appropriate verbal, nonverbal and written skills.	4.1, 4.5

Demonstrate effective verbal and written presentation of patient information to colleagues.	4.2
Demonstrate sensitivity, honesty, and compassion in difficult conversations including disclosure of inherited diseases	4.4
Demonstrate honesty, integrity, respect, and compassion in all interactions with patients, peers, faculty, staff, and other health care professionals in all settings.	5.1, 5.2
Demonstrate sensitivity and responsiveness to the personhood of the patient inclusive of culture, race, ethnicity, spirituality, gender, sexual orientation, age, physical characteristics, medical condition, disabilities, socioeconomic status, family-context and other aspects of personal and health beliefs, practices and decisions.	5.4
Demonstrate accountability for academic, patient care, and professional responsibilities, including concern for societal needs	5.2, 5.5

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Psychiatry – Child and Adolescent Inpatient

**Course ID: MED 997BJ**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

## Description

The purpose of the psychiatry elective rotation is to educate the student regarding the principles and skills underlying the recognition and management of common psychiatric disorders in children and adolescents, age 8 to 17 years of age. The student will be exposed to a wide range of child and adolescent psychopathology. The student participates as part of the multidisciplinary team in the evaluation and treatment of children, adolescents, and their families. Students will become familiar with diagnostic techniques for psychiatric disorders including anxiety, ADHD, mood disorders, conduct disorders, substance abuse, suicidality, autistic disorders, learning disabilities and trauma related disorders. Students also will learn techniques of working with complex presentations and family dynamics.

## Key Objectives

- Students must demonstrate knowledge regarding clinical and cognitive (epidemiologic and social/behavioral) sciences and the application of this knowledge in the direct patient care of children and adolescents with psychiatric and cognitive disturbances.
- To increase acuity in clinical judgment.
- To understand the difference in symptomatology between children, adolescents, and adults.
- To become proficient in the evaluation and mental status examination of the child psychiatric patient
- To increase knowledge of child development and consider all contributing influences that shape a child's behavior: genetic, social, and systemic.
- To develop proficiency in medication and psychotherapeutic treatment strategies.
- To develop awareness of the structured diagnostic tests (CBCL, Conners, CDI etc.)
- To develop and document treatment plans.
- Students will be involved in the direct care of children and adolescents with psychiatric and cognitive disturbances.
- Understand the contribution and impact of family dynamics on child and adolescent patient presentations
- Understand the contribution and impact of school experiences and peer relationships on child and adolescent patient presentations
- Understand and describe the classifications of psychotropic medications and appropriate uses in child and adolescent patients.
- Understand behavioral modification approaches, parent management approaches, therapy alternatives that apply to patient treatment in conjunction with medication or as the sole treatment.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Psychiatry – Consult & Liaison / Psychosomatic Medicine

**Course ID: MED 997BK**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

The purpose of this advanced psychosomatic psychiatry elective rotation is to enhance the student's skills in psychiatric diagnosis, and mental status exam. A strong effort is made to integrate medicine and psychiatry in order to provide comprehensive patient care. The student will gain further understanding of the role of the psychiatrist in the setting of the hospital while enhancing their knowledge of the relationship between medical and psychiatric diagnoses. Emphasis will be placed also on the development of interviewing techniques, differential diagnoses, and the development of brief treatment strategies. The student will be exposed to a wide range of adult psychopathology. The student participates as part of the multidisciplinary team in the evaluation and treatment of medically hospitalized patients of all ages and their families. This elective is designed to provide advanced training in the psychiatric care of medically and surgically ill patients in a suburban community hospital. The elective is intended for those students interested in pursuing a career in psychiatry. The rotation is also appropriate for those students who are interested in pursuing other fields but would like advanced training in the diagnosis and management of psychiatric and behavioral problems in the hospital setting.

### Key Objectives

- Students must demonstrate knowledge regarding clinical, and cognitive (epidemiologic and social/behavioral) sciences and the application of this knowledge in the direct patient care of those with psychiatric and cognitive disturbances.
- To increase knowledge of the psychiatric contributors to medical and surgical patient presentations
- To increase acuity in clinical judgment.
- To understand the difference in psychiatric symptomatology among patients of all ages.
- To understand how patient cognitive difficulties impact patient's presentations and medical care.
- To understand evaluation and management of agitation and behavioral problems; capacity eval; guardianship/probate issues; mood and psychotic disorders
- To become proficient at safety (suicidal and homicidal) risk evaluation and the appropriate psychiatric dispositions in management of these issues.
- To become well versed in being the liaison between intraprofessionals (RNs, case managers, crisis team, specialty medical providers) to increase understanding of psychiatric and psychosocial contributors of patients' illnesses and promote understanding.
- To become proficient in the evaluation and mental status examination of the medically and surgically hospitalized patient
- To develop proficiency in brief medication and psychotherapeutic treatment strategies.

- Students will be involved in the direct care of the medical and surgical patients of the psychiatric consultation and liaison team.
- Understand the contribution and impact of biopsychosocial contributors of the patients' presentations
- Understand and describe the classifications of psychotropic medications and appropriate uses in medically and surgically hospitalized patients appropriate to the patients' diagnoses.
- Understand non-pharmacologic and behavioral modification approaches that can be used in the hospital setting, such as crisis intervention, verbal de-escalation, and brief cognitive behavioral, motivational and insight-oriented psychotherapies.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Psychiatry – Geriatric Inpatient

**Course ID: MED 997BU**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

The purpose of the geriatric psychiatry elective rotation is to educate the student regarding the principles and skills underlying the recognition and management of common psychiatric illnesses in the older adult population, ages 60 and older. The student will be exposed to a wide range of psychiatric illnesses commonly seen in the geriatric population such as mood disorders, anxiety disorders, psychotic disorders, and neurocognitive disorders. The student will participate as part of a multidisciplinary team in the evaluation and treatment of geriatric patients. The student will become familiar with diagnostic techniques used to diagnose neurocognitive disorders. This elective is intended for those students interested in pursuing a career in psychiatry or for students who are pursuing other fields but are interested in obtaining advanced training in the treatment of psychiatric illness in older adults.

### Key Objectives

- Demonstrate and apply knowledge of the normal and healthy structure and function in the geriatric population
- Demonstrate and apply knowledge of various causes of psychiatric illness in the geriatric population
- Identify and become comfortable utilizing psychotropic medication and therapeutic modalities to treat psychiatric illnesses commonly seen in the geriatric population
- Understand the risks of polypharmacy in the elderly and how to prevent drug interactions
- Understand the contribution and impact of family dynamics on psychiatric disorders commonly seen in the geriatric population
- Understand the differences in presentation of psychopathology in the elderly as compared to the younger population
- Identify elder abuse and refer for intervention services
- Gather essential and accurate information to assist in the development of a comprehensive patient-centered treatment plan
- Modify interview style as indicated to meet the needs of the elderly patient
- Demonstrate sensitivity and responsiveness to a diverse patient population
- Assist in the care and management of the patient
- Demonstrate understanding of the role of the interdisciplinary team in the inpatient setting and its importance related to patient care
- Advocate for quality patient care

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Public Health

**Course ID: MED 997CJ**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Saginaw - Elective may require occasional travel for Environmental Health experiences within 1 hour driving distance of Saginaw.**

**Duration: 4 weeks**

## Description

The Public Health elective will expose students to the role, function, and operations of a county health department. Students will gain experience and an appreciation of the methods and contribution of public health agencies and officials to the well-being of county citizens. Students will gain an understanding of how public health agencies can be incorporated into their future practice.

## Key Objectives

- Describe the population basis for public health services in Michigan
- Outline current preventative medicine recommendations
- Participate in infectious disease surveillance through participation in STI clinic
- Provide anticipatory guidance and preventative care
- Participate in and utilize methods for community health assessment
- Apply measures to report and control epidemics
- Describe the role of the public health department in support of underserved populations, including rural communities.
- Define and describe Medically Underserved Areas (MUA) and Health Professional Shortage Area (HPSA) designations
- Apply measures to report and control epidemics
- Understand and appreciate physician roles and legal responsibilities in promoting public health
- Describe the goals, function, and structure of public health entities in Michigan

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu)

## Pulmonary Medicine

**Course ID: MED 997T**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Lakeland, Midland, Saginaw, Genesys**

**Duration: 2 or 4 weeks, ASJH and Genesys offer 4-week increment only**

### Description

The purpose of the Pulmonary rotation is to prepare the student to recognize and treat commonly encountered problems in Pulmonary medicine and to become familiar with diagnostic techniques used to diagnose pulmonary disorders including chest x-rays, pulmonary function testing, cardiac ECHO for pulmonary hypertension assessment, and cardiac catheterization for pulmonary hypertension assessment, and chest Computerized Tomographic imaging. Students will also learn when it is appropriate to initiate a referral to a Pulmonologist.

### Key Objectives

- Describe the clinical features, physiology, and treatment of common pulmonary disorders, such as asthma, Chronic obstructive pulmonary disease (COPD), pulmonary embolism, pulmonary hypertension, pneumonia, interstitial lung, asthma
- Describe the rationale and basics of diagnostic pulmonary testing procedures in the office and hospital setting
- Recall the action and pharmacology of common medications used to treat pulmonary disorders including, bronchodilators, bronchial anti-inflammatory drugs, pulmonary hypertension drugs, antibiotics for community acquired pneumonia, and anticoagulants used to manage pulmonary embolus.
- Complete a comprehensive pulmonary consultation
- Interpret basic pulmonary testing, including chest x-ray and pulmonary function testing
- Observe and gain experience in managing patients with pulmonary diseases
- Communicate with primary care physicians as a consultant
- Communicate effectively with patients and their families
- Demonstrate respect and compassion for all patients
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu)

## Pulmonary Medicine - Pediatric

**Course ID: MED 997CT**

**Discipline: Medicine**

**Prerequisites: M4 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

This 4-week clerkship is an elective clerkship specifically designed for fourth-year medical students which builds upon knowledge gained in prerequisite course work and experience. Teaching methods include bedside teaching, directed reading, and active participation with a patient care team.

### Key Objectives

Objective	Program Objective #
Demonstrate, by the process of obtaining a history and physical examination, ability in the assessment of children with acute and chronic respiratory complaints	1.1
Describe the pathophysiology and differential diagnosis of obstructive and intrinsic lung disease in children, particularly asthma and cystic fibrosis	2.2
Outline the wide range of phenotypes in patient with cystic fibrosis	2.2
Develop a differential diagnosis for pediatric patients with cough, wheeze, stridor, pulmonary infiltrates and sleep disturbances	1.2, 2.2
Develop an initial treatment plan for pediatric patients with cough, wheeze, stridor, pulmonary infiltrates and sleep disturbances	1.3
Describe the indications for chest radiograph, pulmonary function testing, and bronchoscopy in the pediatric patient	1.2
List the indications for referral to pediatric pulmonologist	1.6
Acknowledge personal limitations and mistakes openly and honestly, seek and respond to feedback in a positive way, and demonstrate flexibility and maturity in adjusting one's behavior.	3.1, 3.3
Demonstrate the ability to retrieve, analyze, and integrate evidence-based information into patient care and clinical decision-making.	3.4
Communicate effectively and respectfully with other health professionals in a responsive and responsible manner.	4.2
Work with various health care professionals including nurses, social workers, genetics counselors, lab technicians, ultrasound technicians, and financial counselors to improve individual patient care and system performance.	4.1, 4.2
Demonstrate effective and therapeutic communication with patients through the use of active listening and appropriate verbal, nonverbal and written skills.	4.1, 4.5
Demonstrate effective verbal and written presentation of patient information to colleagues.	4.2

Demonstrate sensitivity, honesty, and compassion in difficult conversations including disclosure of inherited diseases	4.4
Demonstrate honesty, integrity, respect, and compassion in all interactions with patients, peers, faculty, staff, and other health care professionals in all settings.	5.1, 5.2
Demonstrate sensitivity and responsiveness to the personhood of the patient inclusive of culture, race, ethnicity, spirituality, gender, sexual orientation, age, physical characteristics, medical condition, disabilities, socioeconomic status, family-context and other aspects of personal and health beliefs, practices and decisions.	5.4
Demonstrate accountability for academic, patient care, and professional responsibilities, including concern for societal needs	5.2, 5.5

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu)

# Radiation Oncology

**Course ID: MED 997BB**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 2 or 4 weeks, Saginaw is 2 weeks only**

## Description

The purpose of this elective rotation is to prepare the student to recognize and treat commonly encountered problems in Radiation Oncology.

## Key Objectives

- Describe the appropriate indications and use of radiation therapy in the curative setting for the common cancer types.
- Describe the appropriate use of radiation therapy in the palliative setting.
- List and describe the acute and late effects that could result from treatment.
- Describe the basic concepts of radiation biology.
- Participate in the appropriate diagnostic evaluation, staging and prognosis of the various major cancers (prostate, breast, colorectal, lung, GYN, CNS, head and neck, other GI.) treated with radiation therapy.
- Obtain the relevant history and diagnostic workup and perform physical examinations of the cancer patient.
- Write a radiation prescription.
- Observe the delivery of radiation treatment on the treatment units (Tomotherapy, Elekta1, Elekta S, GammaKnife, brachytherapy)
- Evaluate patients for the acute effects of radiation treatment during weekly status check visits and the management of these effects.
- Evaluate patients for tumor response, late effects of radiation therapy and their management.
- Participate in simulation, treatment planning and treatment delivery by working with radiation therapists, dosimetrists, and physicists.
- Understand the workflow process in radiation planning and the involvement of radiation therapists, dosimetrists, and physicists.
- Communicate and collaborate effectively and respectfully with patients, families, physicians, other health care professionals, and colleagues in the medical team environment and across the continuum of care.
- Identify the complexity of emotions (patient and physician) in the medical interview and communicate empathetically with patients experiencing strong emotions such as sadness, fear, frustration and/or anger.
- See and respect the patient and their families as equal partners with all members of the health care team in the management of their health.
- See and respect the patient and their families as equal partners with all members of the health care team in the management of their health.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Radiology

**Course ID: MED 997D**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Ascension St. John Hospital, Lakeland, Lapeer, Midland, Mount Pleasant, Saginaw**

**Duration: 2 or 4 weeks, ASJH offers 4-week increment only**

## Description

Radiology and associated medical imaging is vital to all aspects of healthcare, and students will be exposed to imaging in nearly all clinical clerkships. However, we believe a dedicated elective in medical imaging will provide more in-depth training than can be provided otherwise and will show students how to best utilize evidence-based medical imaging to maximize individual patient outcomes and population health. During this elective, students will acquire a basic understanding of: the investigative approach for the imaging department; various techniques for obtaining imaging and X-rays of the chest, abdomen, gastroenterology, genitourinary, and skeletal system including the head and neck; computerized tomography of the head, spine and abdomen; ultrasound of the abdomen, pelvis, carotid arteries and other superficial organs; neuro-angiography and general visceral angiography.

## Key Objectives

- Define terms commonly used in radiology reports including: lucency, opacity, attenuation, Hounsfield units (HU), signal. (1)
- Categorize different tissues from most to least opaque on x-ray including bone, soft tissue, air, metal, and fat. (3)
- Describe the procedure for ordering a radiologic exam at your institution. (2)
- Summarize the categories of critical information that must be included on an imaging exam requisition. (2)
- State the difference between a preliminary or “wet” read and the final radiologic report. (1)
- Predict types of imaging findings that would be reported directly to the ordering physician versus those which would appear only in the transcribed radiologic report. (4)
- Distinguish between the different types of contrast used in imaging exams and the potential diagnostic benefits of each. (4)
- Discuss the potential complications of intravenous contrast administration for CT and MR exams and identify predisposing risk factors. (2)
- Describe different methods for reducing the risk of contrast nephropathy. (2)
- Summarize risks and contraindications unique to MR examinations. (2)
- Describe the specific circumstances in which a multiphase CT (“with and without contrast”) may be useful and list reasons why this type of scan is not performed routinely. (2)
- Discuss the role of abdominal ultrasound in the assessment of an acute trauma patient. (2)
- Review criteria for performing CT in trauma patient. (2)
- Recognize abnormal spinal-laminar alignment of the cervical spine on x-ray. (1)
- Identify emergent clinical scenarios where image-guided procedures may be beneficial. (1)

- Construct the appropriate imaging algorithm for common diagnostic scenarios including: suspected pneumonia, suspected pulmonary embolism, suspected aortic dissection, renal colic, suspected appendicitis, hematuria, right upper quadrant pain, pancreatitis, suspected small bowel obstruction, suspected diverticulitis, pelvic pain in a woman, acute back pain, bone or joint trauma, neck trauma, suspected stroke, head trauma, spine trauma. (5)
- Employ a systematic search pattern for interpreting chest x-rays. (3)
- Devise a systematic search pattern for interpreting an abdominal plain film. (3)
- Identify and name the major parts of the following bones on x-ray: humerus, radius, ulna, carpal bones, metacarpals and phalanges, femur, fibula, tibia, tarsal bones, calcaneus, metatarsals, vertebrae, ribs, pelvis, clavicles and scapulae. (1)
- Explain what takes place during an imaging guided biopsy in terms a patient would understand. (2)
- Define the descriptive terms hyperechoic, isoechoic, and hypoechoic. (1)
- Summarize the benefits and limitations of ultrasound as an imaging modality. (2)
- Explain how a mammogram is performed in terms a patient would understand. (2)
- Identify normal anatomic structures of the head and neck, brain, and spine on imaging exams and compare the degree of anatomic detail between CT and MR. (2)
- Explain the difference between a radioisotope and a radiotracer. (2)

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Radiology - Pediatric

**Course ID: MED 997CN**

**Discipline: Medicine**

**Prerequisites: M3 status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 2 weeks**

### Description

Students will participate in reading sessions and receive instruction in the fundamentals of pediatric radiology. In addition, they will participate in the departmental and interdepartmental conferences. The student will be scheduled on the different modalities daily. The schedule can be tailored to the student's specific interests.

### Key Objectives

- Describe the radiographic findings and identify the following pediatric disease processes (1.3)
  - Pneumonia
  - Reactive airway disease
  - Pneumothorax/pneumoperitoneum
  - Transient tachypnea of the newborn
  - RDS/ARDS
  - Bowel obstruction
  - Necrotizing enterocolitis
  - Croup
  - Fractures—Salter type
  - Patterns of non-accidental trauma
  - Rickets
- Identify the appropriate diagnostic study for the following conditions (2.3)
  - Headache
  - Rickets
  - Short stature
  - Scoliosis
  - Limp
  - Abnormal Ortalani/Barlow maneuver
  - Stridor
  - Urinary tract infection
  - Suspected abuse
  - Cough/tachypnea
  - Osteomyelitis
  - Appendicitis
- Describe clinical indications for the following plain film studies (1.2, 2.3)
  - Chest x-ray
  - Abdominal x-ray
  - Lateral neck

- Bone age
- Skeletal survey
- Spine film
- Hip x-ray
- Sinus films
- Describe the clinical indications for the following CT studies (1.2, 2.3)
  - CT head
  - CT chest
  - CT abdomen
  - Contrast vs non-contrast
- Describe the clinical indications for the following ultrasound studies (1.2, 2.3)
  - Head
  - Abdomen
  - Renal
  - Pelvis
  - Hips
- Describe the clinical indications for the following MRI studies (1.2, 2.3)
  - CNS
  - Body
- Describe the clinical indications for the following special studies (1.2, 2.3)
  - VCUG
  - Bone scan
  - Magnified airway
  - Upper GI
  - Esophagram
  - Barium enema
- Describe clinical features of contrast reaction, and outline biochemical basis for anaphylactoid reaction (2.2)
- Describe initial emergent therapy for contrast reaction (1.2)
- Demonstrate respect and dignity for patients and colleagues (5.1)
- Demonstrates reliability, conscientiousness, responsibility and reliability (5.2)
- Demonstrates relationship building through listening, verbal and nonverbal skills (4.1)
- Establish an effective therapeutic relationship with patients and families (4.5)
- Demonstrate ability to educate and counsel families and patients (3.5)
- Verbalize the risks from radiation exposure for various imaging modalities (7.2)
- Arrive to work in a timely fashion and be prepared to work (5.2)
- Demonstrate willingness to accept feedback and incorporate into future practice (3.3, 5.7)

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Research

**Course ID: MED 997AB**

**Discipline: Foundational Sciences**

**Prerequisites: M3 status**

**Available Sites: Mount Pleasant, Saginaw, Ascension St. John Hospital, Lakeland, Midland, Children's Hospital of Michigan**

**Duration: 4 weeks**

## Description

Research is an important element in the development and training of the medical students. Students can tailor a research elective to their needs by contacting CMED faculty engaged in basic science, clinical or translational research. For Year 1 and 2 students, students are encouraged to use the summer break for research, to avoid concurrent obligations with the formal curriculum. For Year 3 and 4 students, the elective will be taken during the allocated 4-week periods. Although students may at their discretion pursue research beyond the 4-week period, only four weeks will be considered as fulfilling the elective requirement for the MD degree at CMED. Research electives that are supervised by extramural faculty will count toward the 12-week maximum of allowed extramural elective credit.

## Key Objectives

- Gain experience in basic science, clinical, or educational outcomes research through a focused experience with faculty mentor.
- Examples of research projects that qualify for elective credit may include retrospective chart review projects, prospective research such as surveys, interventions and systemic reviews, or meta-analysis. Case reports do not qualify for research elective credit.
- Significant work towards a product of publishable quality is expected as part of this experience.
- Specific project objectives will be determined by the research mentor in partnership with the student and submitted on "Research Elective Proposal Form." This form must be submitted to the Office of Research at least 8 weeks in advance of the elective.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Rheumatology

**Course ID: MED 997P**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: N/A**

**Duration: 2 or 4 weeks**

## Description

The purpose of the Rheumatology rotation is to prepare the student to recognize and treat commonly encountered problems in endocrinology and to become familiar with diagnostic techniques used to diagnose endocrine disorders. Students will also learn when it is appropriate to initiate a referral to a Rheumatologist.

## Key Objectives

- Describe the clinical features, pathophysiology, and treatment of common rheumatologic diseases such as osteoarthritis, rheumatoid arthritis, Systemic lupus erythematosus, and gout.
- Describe the rationale and basics of diagnostic procedures for rheumatologic disorders including autoantibody testing, bone imaging, and tissue biopsies.
- Recall the action and pharmacology of common medications used to treat rheumatologic diseases including NSAIDs (non-steroidal anti-inflammatory drugs), corticosteroids, immunosuppressives and analgesics.
- Complete a comprehensive rheumatology consultation.
- Observe and gain experience in the utility diagnostic procedures and testing used for evaluating and working up rheumatologic disorders.
- Communicate with primary care physicians as a consultant.
- Communicate effectively with patients and their families.
- Demonstrate respect and compassion for all patients.
- Demonstrate a commitment to professional responsibilities and adherence to ethical principles.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Rural Community Health

**Course ID: MED 997BD**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Various Sites**

**Duration: 2 or 4 weeks**

### Description

The purpose of the Rural Community Health rotation is to prepare the student to recognize and treat common medical, psychosocial, and other problems patients experience in rural areas of Michigan.

### Key Objectives

- Work with a preceptor in a rural community to increase knowledge of rural practice.
- Discover the different specialties generally available in rural communities.
- Explore common barriers to healthcare experienced by patients in rural communities.
- Compare and contrast medical practice in a rural setting to that in an academic health center.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Social Determinants of Health (Online)

**Course ID: MED 997BW**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Online**

**Duration: 4 weeks**

### Description

This elective will provide an in-depth study of the ways social factors can influence health. Students will receive direct instruction on an overview of social determinants and health disparities, and how a variety of medical conditions are influenced by social determinants. This will also include presentation and interpretation of various related data sources. Through directed assignments, students will research what is known about different topics in this field and will be expected to interpret and summarize relevant data. The elective will culminate in the student developing a specific intervention to address health disparities in the local community.

### Key Objectives

- Describe the primary social determinants of health (3001; 5004)
- Describe common medical conditions influenced by social determinants (3001;2003)
- Interpret journal articles describing studies focused on social determinants of health (3001)
- Summarize the scientific literature on specific social determinants of health topics (3001)
- Research health disparities and existing interventions in Michigan (3001; 3005)
- Develop an intervention addressing a specific health disparity (6002; 6003)
- Advocate for access to health care for underserved populations (5004; 6001)
- Uphold honesty and integrity in all interactions and academic work (5002)

### Example Schedule

#### Week 1

Monday – View narrated overview power point; explore course website; complete overview assignment

Tuesday – View narrated power point on Social Determinants and Environmental Health Problems, complete journal article assignment

Wednesday – View narrated power point on Social Determinants and Nutrition; complete exercise; complete journal article assignment

Thursday – View narrated power point on Social Determinants of Pregnancy, complete journal article assignment

Friday – View narrated power point on Social Determinants of Childbirth and Early Childhood, complete journal article assignment

#### Week 2

Monday – View narrated power point on Social Determinants of Cardiopulmonary Conditions, complete journal article assignment

Tuesday – View narrated power point on Social Determinants of Neurological Conditions, complete journal article assignment

Wednesday – View narrated power point on Rural Health Disparities, complete journal article assignment

Thursday and Friday – Reflective paper

### Week 3

Monday – View narrated power point on Health Disparities Prevention and Interventions, complete journal article assignment

Tuesday and Wednesday – Independent research on Michigan Health Disparities and Interventions and summary paper

Thursday – Develop project proposal

Friday – Meet with course director and finalize proposal

### Week 4

Develop an intervention project and complete the final assignment to include a formal paper about the need for, components of, and steps for implementing and evaluating the intervention. The final assignment will also involve developing a brief presentation and relevant flyers promoting the project for community stakeholders, and a summary of a proposed findings dissemination plan.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Special Topics in Medicine

**Course ID: MED 997BZ**

**Discipline: Not Patient Care**

**Prerequisites: M3 Status**

**Available Sites: Online, by approval only**

**Duration: 2 weeks, 4 weeks**

### Description

The goal of the Special Topics in Medicine elective is to provide students with the opportunity to develop a deep understanding of a basic science, clinical or medical-ethical-legal topic of interest while enhancing their self-directed learning skills.

### Key Objectives

- Contribute to the creation, dissemination, application, or translation of new health care knowledge and best practices. (2.5)
- Utilize self-reflection to identify strengths, deficiencies, and limits in one's knowledge and skills. (3.1)
- Incorporate feedback into daily practice and perform learning activities that address one's gaps in knowledge and skills. (3.3)
- Locate, appraise, and assimilate evidence from scientific studies and use new knowledge and technologies to optimize learning and improve patient care practices. (3.4)
- Demonstrate accountability, integrity, and a firm commitment to excellence and ongoing professional responsibilities. (5.2)
- Give and receive candid and constructive feedback openly and tactfully. (5.7)

### Instructional Method

The elective is primarily a self-directed, independent study. Through consultation with a faculty mentor, students will identify a topic of interest. Students will make a self-assessment of learning needs (what do they currently know about the topic); independent identification (where can information be found on the topic), analysis (which information reviewed is appropriate for learning needs), and synthesis of relevant information (through the creation of a product (essay, PowerPoint, educational materials, etc.); appraisal of the credibility of information sources; and feedback on these skills.

### Orientation to Elective

This is a student-driven elective, as such orientation to the elective will be tailored to each student's experience.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Sports Medicine

**Course ID: MED 997BE**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Saginaw, Lakeland, Midland (goes to Bay City, Alma, and Mount Pleasant)**

**Duration: 2 or 4 weeks**

## Description

The purpose of the Sports Medicine rotation is to prepare the student to recognize and treat commonly encountered problems in musculoskeletal and exercise-related diseases and to become familiar with diagnostic techniques used to diagnose musculoskeletal disorders including sprains, fractures, dislocations, and overuse injuries. Students will also learn when it is appropriate to initiate a referral to a Sports Medicine specialist.

## Key Objectives

- Demonstrate knowledge of indications, limitations, contraindications, and informed consent for office-based musculoskeletal procedures such as common joint aspirations and injections, common injections for bursitis and tendinopathy
- Interpret radiographs, MRI, CT, bone scans, and musculoskeletal ultrasound
- Demonstrate knowledge of injury prevention, including discouraging improper techniques; proper equipment; taping, strapping, and bracing techniques
- Appropriately assess and care for acutely injured athletes, including on-field management
- Appropriately assess and care for athletes with chronic exercise-related injuries and illnesses
- Demonstrate knowledge of evaluation and on-field sideline and outpatient management of suspected concussion or other head injury
- The student should demonstrate attitudes that encompass exercise as an important and beneficial part of patients' lives.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Surgery - Advanced General

**Course ID: MED 997AI**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Lakeland, Genesys**

**Duration: 4 weeks**

### Description

The purpose of the fourth-year advanced general surgery elective is to give students the opportunity to enhance the knowledge acquired on the third-year general surgery clerkship, to understand better the principles in treating patients with surgical diseases, both on an outpatient and inpatient basis, and to improve upon technical skills introduced during the third year. The elective is designed for students either interested in pursuing a surgical career, or those students hoping to gain a better understanding of the field of general surgery as it will apply to their future practices.

### Key Objectives

- To understand the surgical management of common general surgical diseases, such as hernias, gallstone disease, breast masses, and abdominal tumors, etc.
- To understand the clinical, laboratory, and radiologic resources available for diagnosing general surgical diseases in a time and resource-efficient manner
- To understand the pre-operative workup and post-operative recovery of general surgical patients, with special attention to the patients' comorbidities and risks for peri-operative morbidities
- To establish correlations among clinical presentation, surgical pathology, and physiologic responses to surgery
- To appreciate the social interactions necessary to succeed in the practice of surgery
- To become familiar with ward and intensive care unit standards of care
- To participate in daily patient care activities on the ward, in the ICU, in the ER, in the operating room, and in the clinic.
- To function as an essential member of the surgical team
- To appreciate the entire treatment cycle of the surgical patient, from consultation to recovery.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery - Bariatric

**Course ID: MED 997BC**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Lakeland**

**Duration: 4 weeks**

### Description

Obesity is a disease, affecting patients seen in all medical specialties. The goal of the Bariatric Surgery rotation is to help Medical students develop the skills required to prevent, evaluate, and manage obesity and obesity-related complications. This rotation will expose the student to patients who have been referred or self-referred for bariatric surgery. The student will become familiar with the preoperative evaluation and preparation for bariatric surgery. The focus will be on the doctor-patient relationship and improving physician care of obese patients. Students will learn about motivating behavioral change, setting goals, nutrition, and lifestyle change. Finally, students will learn indications for referral for medical and surgical weight loss. This Clerkship in Bariatric Surgery is designed to increase the student's understanding and knowledge in the field of gastrointestinal surgery and expose them to a variety of surgical procedures relevant to this field, with focus on Minimally Invasive Gastrointestinal Surgeries as well as Bariatric procedures. The students will be in the OR regularly and interact with faculty members with unique areas of expertise. They will follow the patients whose surgery they have been involved with, through their hospital course, and be involved in their daily management. The students are expected to attend weekly clinics to participate in the preoperative and postoperative outpatient care of these patients. The opportunity to attend endoscopy with the Surgeons caring for these patients also exists. The course intends to provide insight into the life and training of a Bariatric surgeon by providing close interactions with the faculty.

### Key Objectives

- Students will become skilled in recognizing symptoms indicative of underlying obesity-related disease, such as acid reflux, musculoskeletal pain, and snoring, which may be altered with lifestyle change. Students should be able to incorporate presenting information into the context of past medical history and formulate a risk assessment of medical versus surgical treatment options for obesity. Students should be able to understand statistical concepts such as pretest probability, number needed to treat, etc. and incorporate this information into patient care decisions.
- Students will also develop an understanding comorbidities associated with morbid obesity.
- Students will develop an understanding of general principles of Nutrition and learn to incorporate this knowledge into patient management plans to prevent or manage disease.
- Students will become familiar with evidence for non-pharmacologic methods of weight management, special diets (vegan, vegetarian, diabetic, etc.); popular diets (low Carb, Paleo, Weight Watchers); and supplements and their nutritional risks and benefits.
- Students will become familiar with pharmacologic management of weight loss, including prescription diet drugs, herbal drugs, and over-the-counter drugs.
- Students will gain a better understanding of balance between short- and long-term risks of medical and surgical treatment for obesity.

- Students will become familiar with the risks and benefits of the various surgical approaches to obesity and the care of patients postoperatively.
- Learn how to approach counseling patients to motivate behavioral change
- Students should be able to recognize factors contributing to obesity and the impact of obesity on other medical comorbidities.
- Students should be able to perform a physical exam, with specific attention to the cardiopulmonary exam, BMI, and body fat distribution.
- All students should learn to function as part of a team, including the primary care physician, surgeon, nurse, dietician, and psychologist to educate patients on nutrition and weight management.
- Seeks and responds to feedback
- All students should be aware of stereotypes regarding obesity and be able to educate and/or counsel patients in a sensitive manner that is respectful of gender, cultural, religious, economic, and educational differences on choices regarding their care.
- Demonstrate sensitivity to the emotional needs of Obese patients.
- Students should be able to reflect on their own health behaviors and nutritional biases and consider how those habits impact their ability to counsel.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**



## Surgery – Breast and Skin

**Course ID: MED 997Z**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

Practicing physicians in nearly every specialty will be called upon to counsel and/or treat patients in their practice with breast or skin concerns. This elective will provide the student with an opportunity to evaluate patients' individual risk of developing breast and skin cancer and to develop individualized screening programs based on risk stratification. Students will participate in diagnosing and treating benign, premalignant, and malignant breast and skin conditions and participate in the coordination of adjuvant breast and skin cancer treatment. Students will also participate in planning and providing post-treatment surveillance and survivorship care.

### Key Objectives

- Evaluate a patient's risk of developing breast or skin cancer and counsel patients on their individual risk, appropriate screening/surveillance, and risk reduction strategies.
- Evaluate breast and skin findings and differentiate between benign findings and findings that require further work-up.
- Describe the surgical recommendations for the management of premalignant and malignant breast and skin lesions.
- Explain the interdisciplinary approach to the diagnosis and management of patients with breast or skin cancer.
- Describe the most common benign breast and skin lesions and management.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery - Cardiothoracic

**Course ID: MED 997BI**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Midland**

**Duration: 4 weeks**

### Description

The purpose of the Cardiothoracic Surgery elective rotation is to prepare the student to recognize commonly encountered surgical problems in cardiovascular diseases and to become familiar with diagnostic techniques and treatment options for coronary artery disease and acquired valvular disease. Students will also learn when it is appropriate to initiate a referral to a cardiovascular surgeon.

### Key Objectives

- Fully describe cardiac anatomy, particularly coronary arterial supply, and valve function.
- Describe the pathophysiology, clinical presentation, and diagnostic evaluation of coronary artery disease.
- Describe new treatment options for valvular heart disease, including TAVR.
- Describe the pathophysiology, clinical presentation, and indications for surgery in acquired aortic and mitral valvular disease.
- Describe basic principles of cardiopulmonary bypass.
- List the indications for heart transplantation.
- List and describe currently available ventricular assist devices.
- Participate in the evaluation of patients with coronary artery disease, including acute myocardial infarction, and the indications and rationale for coronary artery bypass surgery.
- Work directly with Cardiac surgery faculty in assessing and discussing patients.
- Participate in the evaluation of patients with cardiac valvular disease, including aortic stenosis and mitral stenosis
- Observe open-heart surgical procedures
- To develop competence with basic surgical suturing techniques.
- Assist in vein harvesting techniques, both open and endovascular.
- Identify areas of weakness in surgical skills and use deliberate practice as strategy for improvement.
- Describe the role of the cardiovascular surgeon in the evaluation and management of coronary artery disease.
- Communicate and collaborate effectively and respectfully with patients, families, physicians, other health care professionals, and colleagues in the medical team environment and across the continuum of care.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery - Colorectal

**Course ID: MED 997AJ**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 2 or 4 weeks**

### Description

The purpose of the colorectal rotation is to prepare the student to recognize and treat commonly encountered problems of the colon and rectum. Students will gain exposure to the operative management of basic colon and rectal surgical problems, including, but not limited to: colon and rectal cancer, benign colon problems including colonic inertia, diverticulitis, inflammatory bowel disease, anorectal and pelvic floor disorder, and application of laparoscopy.

### Key Objectives

- Evaluate and discuss common presenting signs and symptoms related to colon and rectal problems frequently seen by the practicing General Surgeon.
- Describe the operative management of basic colon and rectal surgical problems, including, but not limited to colon and rectal cancer, benign colon problems including colonic inertia, diverticulitis, inflammatory bowel disease, anorectal and pelvic floor disorder, and application of laparoscopy.
- Recognition of recommended cancer screening and surveillance programs for colon and rectal patients.
- Demonstrate proficiency in common intern-level duties including nasogastric tube insertion, excision of thrombosed hemorrhoids, incision and drainage of perianal abscesses, and basic suturing.
- Develop clinical questions regarding care of the patient with a Colorectal condition.
- Be able to cite published guidelines for a Colorectal condition.
- Use self-assessment to identify limitations in medical knowledge in field of Colorectal surgery.
- Recognize the roles of the interprofessional team members involved in caring for patients with colorectal surgical conditions.
- Demonstrate interpersonal and communication skills needed to interact with patients, medical staff, the treatment team, and peers.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery – Oncology / Hepatopancreaticobiliary (HPB)

**Course ID: MED 997AS**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital**

**Duration: 2 or 4 weeks, ASJH offers 4 week increment only**

### Description

The purpose of the Surgical Oncology/Hepatopancreaticobiliary (HPB) rotation is to prepare the student to recognize and treat commonly encountered problems related to cancer and the surgical role in the multidisciplinary cancer team. Students will gain exposure to the work-up, surgical management and follow-up of not only malignancy but also benign diseases of the liver, biliary system, and pancreas.

### Key Objectives

- To gain fundamental knowledge regarding the multidisciplinary approach to the cancer patient
- Comprehend the diagnosis and curative treatment of patients with neoplastic disease
- Gain exposure to complex surgery in the fields of surgical oncology and HPB surgery
- Describe the societal impact of cancer diagnoses on our local communities
- Through the regular attendance of morbidity/mortality conference and tumor board, seek ongoing improvement of medical knowledge and patient care practices.
- Describe the importance of a multi-disciplinary approach to the diagnosis and care of patients with neoplastic disease
- Comprehend the role of social workers, patient advocates, pharmacists, and other medical professionals as it pertains to the surgical oncology service.
- Observe and gain experience in the delivery of a new cancer diagnosis to patients and their families
- Demonstrate the ability to work cooperatively within a multi-disciplinary team

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery - Orthopedic

**Course ID: MED 997AE**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Lapeer, Midland, Mount Pleasant, Owosso, Saginaw, Lakeland, Flint, Genesys (auditions only)**

**Duration: 4 weeks**

### Description

Musculoskeletal complaints are among the most common reasons for patients to seek care. The principles of musculoskeletal care are essential to the practice of primary care and specialist physicians. This elective will provide learners exposure to ambulatory and operative orthopedics, with focus on the examination of traumatic and non-traumatic musculoskeletal complaints.

### Key Objectives

- Evaluate orthopedic injuries of patients in an acute care setting (ambulatory and emergency department)
- Demonstrate the ability to obtain and report a basic orthopedic patient history for common orthopedic conditions and injuries with particular emphasis on the chief complaint, inciting events, mechanism of injury, exacerbating and alleviating factors, timing of symptoms and associated symptoms.
- Perform basic exam for each joint and spine
- Recognize indications for appropriate radiographic and laboratory studies
- Based on radiographic and laboratory studies, generate a coherent differential diagnosis and treatment plan
- Determine an appropriate period of follow-up patients, and plan when to discharge patient from care
- Describe the pathophysiology, clinical presentation, and exam findings of primary and secondary osteoarthritis of the shoulder, knee and hip
- Accurately describe fractures, dislocations, and subluxations. Discuss the clinical and radiological features of fractures including:
- Given a common fracture or dislocation, correctly describe management priorities
- Recognize and describe appropriate management for complications of orthopedic injuries, including:
  - Local and systemic infection, including osteomyelitis
  - Delayed union
  - Compartment syndrome
  - Deep venous thrombosis and pulmonary embolism
- Correctly demonstrate the following procedures:
  - Simple sutures and skin stapling
  - Surgical scrub technique
  - Splint application (posterior, ulnar gutter, thumb spica, volar, posterior leg with stirrup)
  - Cast application

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery - Pediatric

**Course ID: MED 997AO**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Children's Hospital of Michigan**

**Duration: 4 weeks**

### Description

This elective rotation in Pediatric Surgery is an experience in the management of surgical diseases of infants and children. The student may be required to travel to the clinic, outpatient surgery center and/or hospital facility during his/her rotation time. Students electing this rotation will be in their fourth year of medical school.

### Key Objectives

- Use the framework of pediatric surgery to understand basic general surgery principles in the management of fluids and electrolyte, nutritional assessment and administration, preoperative and postoperative care, management of trauma and burns, assessment of complications, and follow-up care.
- Understand and be exposed to basic operative procedures.
- Identify and describe common surgical diseases and emergencies encountered in childhood.
- Participate in hands on experience in the OR, clinic, and daily work and teaching rounds

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).



## Surgery – Plastic and Craniofacial, Pediatric

**Course ID: MED 997CR**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Children’s Hospital of Michigan**

**Duration: 4 weeks**

### Description

This 4-week clerkship is an elective clerkship specifically designed for fourth-year medical students building upon knowledge gained in prerequisite course work and experience. Teaching methods include bedside teaching, directed reading, and active participation in the operating room.

### Key Objectives

Objective	Program Objective #
Describe the normal embryologic development of the face and palate	2.1
Describe the pathophysiology of cleft lip and cleft palate	2.2
Outline treatment options for cleft lip and palate	1.5
Describe common vascular malformations encountered in pediatrics	2.2
List indications for patient referral to pediatric plastic and craniofacial surgery	1.6
Demonstrate basic surgical skills, including the closure of skin and subcutaneous tissue, knot tying, and instrument use.	1.7
Acknowledge personal limitations and mistakes openly and honestly, seek and respond to feedback in a positive way, and demonstrate flexibility and maturity in adjusting one’s behavior.	3.1, 3.3
Demonstrate the ability to retrieve, analyze, and integrate evidence-based information into patient care and clinical decision-making.	3.4
Communicate effectively and respectfully with other health professionals in a responsive and responsible manner.	4.2
Work with various health care professionals including nurses, social workers, genetics counselors, lab technicians, ultrasound technicians, and financial counselors to improve individual patient care and system performance.	4.1, 4.2
Demonstrate effective and therapeutic communication with patients through the use of active listening and appropriate verbal, nonverbal and written skills.	4.1, 4.5
Demonstrate effective verbal and written presentation of patient information to colleagues.	4.2
Demonstrate sensitivity, honesty, and compassion in difficult conversations including disclosure of inherited diseases	4.4
Demonstrate honesty, integrity, respect, and compassion in all interactions with patients, peers, faculty, staff, and other health care professionals in all settings.	5.1, 5.2

Demonstrate sensitivity and responsiveness to the personhood of the patient inclusive of culture, race, ethnicity, spirituality, gender, sexual orientation, age, physical characteristics, medical condition, disabilities, socioeconomic status, family-context and other aspects of personal and health beliefs, practices and decisions.	5.4
Demonstrate accountability for academic, patient care, and professional responsibilities, including concern for societal needs	5.2, 5.5

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery – Plastic and Reconstructive

**Course ID: MED 997AP**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Lakeland**

**Duration: 2 or 4 weeks**

### Description

Students will serve for 2 or 4 weeks under the direction of the attending staffs of Plastic Surgery. Ward rounds will be made with the Attending daily and with the visiting staff. The student will scrub on as many patients as possible. The student will also attend Plastic Surgery Clinics and participate in the Plastic Surgery teaching conferences.

### Key Objectives

- Students should be able to conduct a basic history and physical exam and recognize important physical signs, including in face and upper extremity injuries.
- Students should be able to write post-operative orders and brief operative notes.
- Students should be able to describe basic wound healing.
- Students should be competent in closure of cutaneous wounds.
- Describe the diagnosis and treatment of congenital craniofacial anomalies including clefts
- Describe the appearance and current management of skin cancers
- Describe the physiology of flaps and grafts
- Recall the pharmacology of local anesthetics
- Gain familiarity with reconstructive options in patients with breast, head/neck cancer, and other complex wounds

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery - Podiatric

**Course ID: MED 997BR**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Saginaw, Midland**

**Duration: 4 weeks**

### Description

The purpose of the Podiatric Surgery elective rotation is to educate the student regarding the principles and skills underlying the recognition and management of common Podiatric diseases, and their surgical treatments. In addition, the student will become familiar with diagnostic techniques used to identify musculoskeletal, dermatological, vascular, and neurological disorders affecting the foot and ankle. Medical students will also learn when it is appropriate to initiate a referral to a Podiatric Medicine and Surgery specialist.

### Key Objectives

- Describe the anatomy and physiology of normal and abnormal bone and soft tissue components of the foot and ankle
- Identify the appropriate use of both traditional and newer imaging technology
- Develop the differential diagnosis for podiatric medical and surgical conditions.
- Explain methods of assessing the degree and extent of local injuries or pathologic processes involving the foot and ankle
- Identify podiatric patterns and diagnostic testing for bone and soft tissue infection, abnormal healing, neurologic abnormalities, rashes, and vascular disease.
- Analyze local complications including but not limited to bone and soft tissue infection, compartment syndromes, malunion, delayed union, nonunion, vascular insufficiency, infection, and osteoporosis.
- Perform physical examinations and assessments of the lower extremity
- Summarize complete pre-operative and post-operative management of the Podiatric surgical patient.
- Interpret routine and adjunctive diagnostic studies
- Describe the rationale of surgical and non-surgical care of patients with a given diagnosis, the impact of co-morbid conditions in managing podiatric conditions-both operative and non-operative
- Discuss the nutritional and metabolic effects of injury, healing, and surgical intervention
- Identify the clinically pertinent principles of rehab and functional restoration with specific emphasis on muscle and joint physiology.
- Discuss the economic impact of operative and non-operative care and the costs associated in the diagnostic and treatment process, post-operative care, wound care, casting, bracing and rehabilitation

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgery - Trauma

**Course ID: MED 997AU**

**Discipline: Surgery**

**Prerequisites: M4 Status at ASJH, M3 Status in Saginaw**

**Available Sites: Ascension St. John Hospital, Saginaw**

**Duration: 4 weeks**

### Description

The purpose of the Trauma Surgery rotation is to prepare the student to understand diagnostic techniques and best practices for the care of the physically traumatized patient.

### Key Objectives

- Describe the biomechanics and pathophysiology of the injured patient.
- Gain familiarity with best practices for the care of the physically traumatized patient.
- Seek information on disease conditions of patients from journals, textbooks, and the Internet.
- Care for injured patients on a day-to-day basis.
- Diagnose pathology, prepare patients, and perform operative procedures on trauma patients.
- Assist in the resuscitation of trauma patients in trauma codes.
- Participate in the weekly Morbidity and Mortality conference.
- Evaluate outcomes from the Trauma Registry to improve outcomes.
- Interact with the attending and residents in coordinating patient care on the Trauma service.
- Communicate the plan of care effectively to the trauma patient.
- Communicate with senior resident staff in running the service.
- Communicate with staff and nursing personnel on the care of the trauma victim.
- Maintain and develop a professional bedside manner when dealing with patients.
- Interact with peers, nursing staff and superiors in a professional manner.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgical Anatomy

**Course ID: MED 997AX**

**Discipline: Not Patient Care**

**Prerequisites M3 Status**

**Available Sites: Mount Pleasant**

**Duration: 2 or 4 weeks**

### Description

Students frequently come into their fourth year of medical school with an increased appreciation for gross anatomy. Few students had a strong understanding of the degree to which gross anatomy would be necessary in their practice of medicine in year one of their training. In Year Four, they have a greater sense of where their deficits and interest areas lie, particularly with regard to their desired specialty choice. A number of medical practices utilize procedural skills learned in dissection, including obstetrics and gynecology, emergency medicine, cardiology, and surgery (general and specialties). This course provides students with experience and skills in dissection required for those practices. It enables the student to describe the normal structure of the human body and contribute to the development of professional conduct. Students may focus on one body region (2-week elective) or 2 regions (four week elective)

### Key Objectives

- Review important anatomical structures in a body region of the learner's choosing
- Translate knowledge into practice by successfully dissecting a preselected region of the body
- Appreciation of human diversity as reflected in normal anatomical variation
- Demonstrate skills at working collaboratively in a team
- Display the ability to communicate among team members in a clear, professional way
- Express professional attitude and demeanor when dealing with cadavers
- Show commitment to professional responsibilities by promptness, adherence to deadlines and achieving expectations
- Demonstrate technical skills in dissections of a specified body region
- Revisit basic science anatomy within the context of their clinical experience
- Review, extend, and refine their knowledge of basic science anatomy
- Practice important clinical skills and procedures in the anatomy laboratory.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Surgical Critical Care (SICU)

**Course ID: MED 997AQ**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital**

**Duration: 4 weeks**

### Description

The goal of the Surgical Critical Care Elective is to build on the medical student's overall general surgical knowledge and clinical experience and provide more concentrated exposure in diseases and procedures/techniques related to management of critically ill surgical patients. Learning opportunities will include exposure to critically ill and injured patients with sepsis, severe sepsis, septic shock, other shock states (hypovolemic, distributive, cardiogenic, neurogenic), traumatic injuries, acute respiratory failure, acute kidney injury, acute respiratory distress syndrome, critical endocrine disorders, fluid and electrolytes disorders, hematologic disorders (hypo- and hyper-coagulable states, DIC, HIT, anemia, transfusion of blood products) and others.

### Key Objectives

- Demonstrate and apply significant knowledge in the following critical care topical areas:
  - Cardiothoracic-respiratory resuscitation
  - Physiology, pathophysiology, diagnosis, and therapy of disorders of the cardiovascular,
  - Metabolic, nutritional, and endocrine effects of critical illness
  - Hematologic and coagulation disorders
  - Critical obstetric and gynecologic disorders
  - Trauma, thermal, electrical, radiation, inhalation, and immersion injuries
  - Monitoring and medical instrumentation
  - Critical surgical conditions common in surgical specialties
  - Pharmacokinetics and dynamics of drug metabolism and excretion in critical illness
  - Ethical and legal aspects of surgical critical care
  - Principles and techniques of administration and management
- Demonstrate the acquisition of knowledge about evolving and established biomedical, clinical and cognate (e.g. epidemiological and social-behavioral) sciences and apply such knowledge to patient care. The care of the critically ill patient necessitates a systematic approach to medical knowledge acquisition. Medical students will be expected to understand the relevant physiology, pathophysiology, epidemiology, and where appropriate, microbiology, of the various organ systems involved in critical illness. The medical student is expected to:
  - Demonstrate effective decision making based on adequate knowledge
  - Effectively correlate basic sciences knowledge with clinical scenarios
  - Demonstrate self-regulated learning practices for additional knowledge
  - Appropriately use learning resources
  - Explain pharmacology and physiology as it pertains to surgical critical care
  - Read the current literature
  - Demonstrate investigatory and analytical thinking approaches to clinical situations



- Interpret laboratory tests and data (including radiologic studies) accurately and consistently
- Explain pharmacokinetics and pharmacodynamics in the critically ill patient
- Demonstrate effective non-technical skills to provide optimal care of critically ill and injured patients
- Gather essential and accurate information about their patients in the ICU
- Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
- Develop and carry out patient management plans
- Maintain professional and cordial relationships with patients, staff, co-workers, and faculty
- Listen and to accept constructive criticism
- Communicate effectively with and demonstrate caring and respectful behaviors when interacting with ICU patients and their families

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Urgent Care

**Course ID: MED 997CE**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Lakeland**

**Duration: 2 weeks, 4 weeks**

## Description

Urgent cares are common venues for patients to present for evaluation in unscheduled visits for minor (and occasionally) major problems. While there is overlap in the practice of Urgent Care and Emergency Medicine, there is a tremendous difference in the resources available. Experience in an Emergency Department (ED) may not translate well to experience in an Urgent Care where more reliance must be placed on the history and physical exam given the limited options for objective testing.

Evaluation of an undifferentiated patient is a valuable experience for students. Given the considerably higher percentage of patients with time limited emergencies presenting in ED's, students may have more limited opportunity on Emergency Medicine rotations to lead the history and physical exam in settings where resuscitation may need to be prioritized. The decreased acuity of urgent care patients may therefore offer students increased opportunities for critical thinking since they will be reduced to being observers less. Similarly, the decreased complexity of many urgent care complaints may allow providers to feel more comfortable with a student writing the actual documentation.

## Key Objectives

- Perform a reliable, focused history and physical examination on patients presenting to the urgent care (UC) with frequently encountered chief complaints.
- Succinctly present a patient's pertinent history and examination findings and construct a differential diagnosis that focuses on both the most likely and the most critical diagnoses.
- Propose care plans for patients with common urgent and conditions that addresses a thorough and efficient approach to diagnosis, treatment, and disposition.
- Identify conditions and situations requiring emergent evaluation and transfer to the ED.
- Become familiar with urgent care systems of practice, as both free-standing urgent cares, as well as urgent cares part of both hospitals and family medicine practices exist.
- Perform as an active member of the medical team within the scope of the role of a medical student, caring directly for, and communicating with, patients and families dedicated to the student's care team.
- Gain experience, comfort, and confidence in performing bedside procedures in the urgent care department.

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Urogynecology

**Course ID: MED 997CL**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Ascension St. John Hospital**

**Duration: 4 weeks**

## Description

This rotation will expose you to all facets of Urogynecology/ Female Pelvic Medicine & Reconstructive Surgery. There will be focus on outpatient evaluation and surgical and non-surgical treatment of urinary incontinence, pelvic organ prolapse, defecatory dysfunction, fecal incontinence and pelvic pain. Current clinical and basic science will be introduced where applicable. You will have the opportunity to actively participate in the clinic and in the operating room. There will be opportunities to observe urodynamic testing, cystoscopy, pessary care, bladder instillations, posterior tibial nerve stimulation (PTNS), urethral bulking, bladder botox and peripheral nerve evaluation (PNE). Furthermore, you will have the opportunity to scrub and assist in the operating room during minimally invasive, robotic and vaginal surgeries.

## Key Objectives

- Describe normal pelvic anatomy and pelvic support (2.1)
- List risk factors for pelvic floor disorders, including social and environmental factors that influence health outcomes for patients with pelvic floor disorders (2.2, 6.3)
- Describe signs and symptoms of pelvic floor disorders (2.2)
- Differentiate the types of urinary incontinence (2.2)
- Describe the anatomic changes associated with pelvic floor disorders (2.1)
- Describe non-surgical and surgical management options for urinary incontinence, with consideration of value-based care (1.5, 2.3)
- Obtain a complete urogynecologic patient history (1.1)
- Perform, under appropriate supervision, a focused urogynecologic physical examination (1.1)
- Present an independently obtained focused and comprehensive urogynecologic patient history and physical (4.2)
- Integrate diagnostic and clinical information to formulate a differential diagnosis (1.3, 2.3)
- Identify normal and abnormal pelvic anatomy during operative cases (2.1)
- Perform basic surgical skills including knot-tying and basic suturing (1.7)
- Observe and gain knowledge regarding the following procedures: (1.7)
  - Urodynamic testing
  - Cystoscopy
  - Pessary care
  - Bladder instillations
  - Posterior tibial nerve stimulation (PTNS)
  - Urethral bulking
  - Bladder botulinum toxin injection
  - Peripheral nerve evaluation (PNE)

- Demonstrate respect and dignity for patients and colleagues (5.1)
- Demonstrate reliability, conscientiousness, responsibility and reliability (5.2)
- Demonstrates relationship building through listening, verbal and nonverbal skills (4.1)
- Demonstrate ability to educate and counsel families and patients (1.5, 3.5)
- Arrive to work in a timely fashion and be prepared to work (5.2)
- Maintain patient confidentiality and the security of protected health information (5.3)
- Demonstrate willingness to receive feedback and incorporate into daily practice (3.3, 5.7)

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Urology

**Course ID: MED 997AW**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw, Lakeland**

**Duration: 4 weeks**

## Description

The purpose of Urology clerkship is to prepare the student to recognize and treat commonly encountered problems in urological diseases and to become familiar with diagnostic and procedural techniques used in this specialty. Students will also learn when it is appropriate to initiate a referral to a urological specialist.

## Key Objectives

- Describe the anatomical features of the male and female genitourinary tract.
- Describe normal male and female reproductive physiology
- Recognize common presentations of genitourinary pathology
- Demonstrate understanding of basic concepts in the diagnosis and treatment of common GU pathologies including the following:
  - Urinary calculi
  - Benign prostatic hypertrophy
  - Renal tumors
  - Bladder tumors
  - Hematuria
  - Acute scrotum
  - Sexual dysfunction
- Identify and describe instruments used on patients with difficulty urethral catheterization
- Understand the role of and interpret results of imaging studies, including CT, ultrasound, and intravenous pyelogram
- Perform urethral catheterization
- Propose workups for patients with common urological problems including:
  - Urinary calculi
  - Benign prostatic hypertrophy
  - Renal tumors
  - Bladder tumors
  - Hematuria
  - Acute scrotum
  - Sexual dysfunction
- Participate in the preoperative, operative, and postoperative care of the urological surgery patient.
- Describe the societal impact of urological cancer diagnoses on our local communities
- Describe disease entities for which chronic incontinence presents increased risk
- Appropriately utilize hospital information technology to manage patient care
- Perform appraisal of current literature pertaining to a urologic condition of interest

- Through the regular attendance of morbidity/mortality conference and tumor board, seek ongoing improvement of medical knowledge and patient care practices.
- Describe the importance of a multi-disciplinary approach to the diagnosis and care of patients with neoplastic disease
- Comprehend the role of social workers, patient advocates, pharmacists, and other medical professionals as it pertains to the Urology service.
- Demonstrate skill in the exchange of information with patients and their families.
- Demonstrate the ability to work cooperatively within a multi-disciplinary team

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**

## Urology - Pediatric

**Course ID: MED 997BP**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

This clerkship is designed to expose students to various pediatric urologic conditions including voiding disorders, recurrent urinary tract infections, congenital abnormalities.

### Key Objectives

- Describe the structure and function of the urinary tract (MK2)
- Describe the clinical presentation of common diseases that present to pediatric urology, including recurrent urinary infections, congenital abnormalities, and voiding disorders. (MK4)
- Formulate an evidence-based diagnostic plan for the evaluation of pediatric urologic disorders (PBL4)
- Demonstrate the appropriate physical examination of children, with focus on the genitourinary system (PC1)
- Demonstrate the ability to obtain and present a thorough history (PC1)
- Observe and assist in urologic diagnostic procedures and common operations (PC5)
- Communicate with patients and caregivers in caring, compassionate, and professional manner. (ICS1, ICS2)

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

**Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).**



## VA Multi-Disciplinary Specialty Elective (MDSE)

**Course ID: MED 997AV**

**Discipline: Medicine**

**Prerequisites: M3 Status**

**Available Sites: Saginaw**

**Duration: 4 weeks**

### Description

A VA learning experience offered to 3rd and/or 4th year medical students who are interested in obtaining experience within the VA system, including working with the unique needs of Veterans via a robust Computerized Patient Record System (CPRS). The elective will confer an opportunity to work with a variety of board certified physicians (or specialists) on a ½ day rotational basis in a variety of clinical disciplines including Primary Care, Palliative Care, Urgent Care, Mental Health, Urology, Dental Clinic and Podiatry. The MDSE will provide ambulatory experiences in clinical areas at the Aleda E. Lutz VAMC in a variety of specialty disciplines that treat acute or chronic health conditions prevalent in Veterans and managed within a Patient Aligned Care Team (PACT) model of care.

### Key Objectives

1. Describe the clinical features, diagnostic work up and treatment of acute or chronic medical conditions most commonly seen in the VA system.
2. Describe the rationale of diagnostic procedures in a variety of ambulatory settings.
3. Gain familiarity with the management of acute and/or complex medical conditions and the monitoring and treatment modalities based on an evidence-based VA national formulary.
4. Demonstrate respect and compassion for all patients
5. Demonstrate a commitment to professional responsibilities and adherence to ethical conduct.
6. Understand and respect the unique experiences of Veterans and how it interplays in managing various disease states.
7. Work within the PACT model of care as a team member.
8. Incorporate considerations of cost effectiveness into diagnostic and therapeutic plans.
9. Communicate effectively with the entire patient center.
10. Communicate effectively with patients and their families.

### Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

### Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

## Vascular Surgery

**Course ID: MED 997AG**

**Discipline: Surgery**

**Prerequisites: M4 Status**

**Available Sites: Bay City, Midland, Saginaw**

**Duration: 4 weeks**

## Description

This elective will provide the medical student with exposure to commonly encountered diseases of the vascular system and gain familiarity with diagnostic techniques and therapeutic options. Students will learn indications for referral to vascular specialty care.

## Key Objectives

1. Describe diagnostic approach to common disease of the arterial and venous system
2. Describe treatments for common arterial and venous system
1. Diagnose and treat acute and chronic arterial ischemia, acute and chronic venous disease, and aneurysmal disease and its complications.
2. Correctly interpret results of non-invasive vascular testing
3. Observe and participate in percutaneous diagnostic and therapeutic procedures such as angiography, balloon angioplasty and stent deployment, and caval filter placement
4. Observe and participate in the operative treatment of vascular disease including peripheral bypass procedures, carotid surgery, and aneurysm surgery.
1. Describe risk factors for peripheral arterial disease
2. Describe the impact of peripheral arterial disease on US Healthcare costs
3. Describe preventative care measures that can positively impact patient risk for diseases of the vascular system
1. Observe and participate in the pre and post hospital care of patients with vascular disease in the office of the vascular surgeon

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).

# Wound Care and Hyperbaric Medicine

**Course ID: MED 997AY**

**Discipline: Surgery**

**Prerequisites: M3 Status**

**Available Sites: Lapeer, Midland, Lakeland, Saginaw**

**Duration: 2 or 4 weeks in Lakeland and Midland, 4 weeks at all other sites**

## Description

The purpose of Wound Care and Hyperbaric Medicine clerkship is to prepare the student to recognize risk factors for, and subsequent development of wounds and wound complications. Students will also learn measures to protect skin integrity and methods to treat chronic wounds.

## Key Objectives

- Identify types of pressure induced skin injury
- List risk factors for ulcer formation
- List and describe states of a pressure ulcer
- Describe common skin hygiene products
- List and describe various treatment modalities for pressure ulcers and other chronic, non-healing wounds.
- List the indications for hyperbaric oxygen treatment in the management of chronic wounds.
- Describe the pathophysiology of hyperbaric treatment as it pertains to wound healing.
- Describe techniques for and perform wound debridement
- Correctly described the type, depth, and extent of wound
- Propose treatment plan for wounds evaluated
- Describe the societal impact of wounds, particularly cost of inpatient admissions
- Identify and describe strategies employed at primary care office that can mitigate potential development of chronic wounds
- Identify and describe strategies employed in hospitals that can mitigate potential development of chronic wounds
- Describe the importance of a multi-disciplinary approach to the diagnosis and care of patients with wounds
- Comprehend the role of wound care nursing, inpatient nursing, hyperbaric technologists, pharmacists, and other medical professionals as it pertains to Wound Clinic.
- Demonstrate skill in the exchange of information with patients and their families.
- Demonstrate the ability to work cooperatively within a multi-disciplinary team

## Assessment Method

College of Medicine standard elective assessment will be completed by supervising faculty at conclusion of elective clerkship.

## Scheduling Information

Interested students should contact CMU College of Medicine Department of Distributed Clinical Education at [CMEDDCE@cmich.edu](mailto:CMEDDCE@cmich.edu).