PAEDIATRICS - COMMUNITY

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A) GENERAL DESCRIPTION

Paediatrics - Community electives are located in the office/clinic setting in the Windsor Community. Students will work closely with paediatricians caring for patients in the outpatient subspecialty and general paediatrics.

B) PROGRAM OBJECTIVES

Pediatrics program objectives have been designed to reflect Can MEDS objectives. Students are expected to be aware of the program objectives for Pediatrics. During the Pediatric clerkship rotation, students are expected to accomplish the following:

- Acquire a basic knowledge of growth and development (physical, physiological and psychosocial) and understand its clinical application from birth through adolescence.
- Develop communication skills that facilitate clinical interaction with infants, children of different ages, adolescents and their families, ensuring that complete, accurate data is obtained.
- Develop skills to take a complete Pediatric history from parents and the child where appropriate.
- Develop competency in the physical examination of infants, children, and adolescents.
- Acquire the knowledge necessary for the diagnosis and initial management of common, acute and chronic illnesses.
- Develop clinical problem-solving skills.
- Acquire an understanding of the influence of family, community and society on child health and disease.
- Develop strategies for health promotion as well as disease and injury prevention.
- Develop the attitudes and professional behaviours appropriate for clinical practice.

C) **LEARNING OBJECTIVES**

The student is able to:

1. Demonstrate proficiency in acquiring a complete and accurate paediatric history with consideration of the child's age, development, and the family's cultural, socioeconomic and educational background.
2. Describe differences between the medical management of paediatric patients versus adult patients.
3. Recognize an acutely ill child and describe an initial management plan.
4. Demonstrate an approach to the following core clinical paediatric presentations (see below – chart 1).
5. Demonstrate physical examination skills that reflect consideration of the clinical presentation as well as the comfort, age, development and cultural context of the infant, child, or adolescent.
6. Demonstrate competence with the listed paediatric physical examination skills in addition to general physical examination skills (see below – chart 2).

Demonstrate an approach to the following core clinical paediatric presentations including:

- **differential diagnosis**
- **initial diagnostic investigations**
- **management plan**

Listed beside each core clinical paediatric presentation are key topics/conditions. The key conditions are neither a differential diagnosis nor a scheme (approach to the clinical presentation). The highlighted conditions are those that may be unique to paediatrics, that are essential, or that are common. The key conditions are those conditions that must be known in detail.

Please use *Pediatrics for Medical Students by Bernstein & Shelav* (recommended textbook) as a guide.

Clinical Presentation	Key Conditions*	Foundational Knowledge	Additional Guidance
Abdominal Pain *&* Abdominal Mass	Appendicitis Constipation Functional abdominal pain Neuroblastoma Ovarian torsion Pregnancy Wilm's tumor	• Describe the anatomy, physiology and embryology of the gastrointestinal, genitourinary and reproductive systems • Relate locations and patters of abdominal pain to basic anatomy and physiology • Describe normal stooling patters and the influence of diet • Describe the differences between upper and lower intestinal obstruction and their clinical manifestations • Identify investigations that may be used in the evaluation of abdominal pain	• Describe the clinical features of recurrent abdominal pain that suggest a pathologic medical condition (SGY2) • List the major medical disorders that present with chronic or recurrent abdominal pain in childhood (SGY2)
Acutely Ill Child	Acute abdomen Burn Diabetic ketoacidosis / Diabetes mellitus Meningococcemia Poisoning / intoxication Shock Trauma	• List toxic agents that can cause altered level of consciousness and describe their mechanisms of action • Describe common toxidromes • Explain the effect of hyperglycemia on fluid, electrolyte and acid-base status • Describe the basic principles of pharmacology used in the management of diabetic ketoacidosis • Describe the pathophysiology of glucose homeostasis and the consequences of hyperglycemia • Describe how the physiology of the cardiopulmonary systems impacts the vital signs in different age groups • Describe the anatomic differences between the pediatric and adult airway • Recognize that a primary respiratory event can lead to cardiac arrest in the pediatric population • Define shock and describe the pathophysiology of four broad categories of shock: hypovolemic, distributive, cardiogenic and neurogenic • Recognize that body surface area and degree of burn injury impact fluid management in the pediatric population • Recognize that acute illness may lead to multisystem organ dysfunction	

Adolescent Health Issues	Disordered eating Psychosocial history (HEADDSS) Pubertal development Sexual health Sexually transmitted infections Substance use and abuse	• Recognize adolescence as a unique developmental phase of the paediatric population • Describe the typical and atypical timing and progression of sexual maturation • Conduct a structured adolescent psychosocial history • Describe factors that positively and negatively impact adolescent health • Describe risk factors for and the impact of high-risk behaviours on adolescent health • Describe the physiologic consequences of disordered eating	
Altered LOC	Encephalitis Head Injury Hypoglycemia Metabolic disease	• Describe the anatomy and physiology of the central and peripheral nervous systems • Describe in basic terms the pathophysiology of brain injury • Describe how the brain maintains consciousness, how unconsciousness occurs and the differences between unconsciousness and sleep • Name and classify the most common CNS pathogens, based on organism type and area of brain commonly affected • List toxic agents that can cause altered level of consciousness and describe their mechanisms of action • Discuss the indications for the use of the different modalities available to assess neurologic structure and function • Describe metabolic and electrolyte abnormalities that cause altered level of consciousness	• Describe the pathophysiology of concussion and the protocol for return to sport • Describe the different clinical presentations of inborn errors of metabolism
Bruising / Bleeding	Hemophilia Idiopathic thrombocytopenic purpura Leukemia	• Describe the mechanism of hemostasis: platelet plug formation, coagulation cascade and clot stabilization • Demonstrate an approach to the interpretation of coagulation studies • Describe the indications, contraindications and complications of blood products and their administration	

Dehydration	Hyponatremia / hypernatremia Mild / moderate / severe dehydration	• Describe the fluid composition of the body, the body water compartments and the normal movement of fluids and electrolytes between compartments • Describe clinical signs and symptoms of dehydration • Describe principles of rehydration, both oral and intravenous	
Development / Behavioural / Learning Problems	Attention deficient disorders Autism spectrum disorder Cerebral palsy Fetal alcohol spectrum disorder Global delay Gross motor delay Learning disability Speech / language delay	• Apply basic knowledge of neuroanatomy to interpret findings of a pediatric neurodevelopmental examination • Define the 5 developmental domains used in describing children's development: gross motor, fine motor, speech & language, cognitive and social emotional • List major age-related developmental milestones through age 5 • Recognize that prenatal, perinatal and postnatal factors may influence development • Recognize the importance of early identification and intervention for developmental, behavioural and learning problems	• Describe typical patterns of social-emotional development • Recognize major deviations from the normal range of development and behavior • For a child with disruptive behavior, outline the prognosis for the following diagnoses: normal temper tantrums, ADHD and autism (SGY2) • Outline a management plan for a preschooler with hyperactive, inattentive, impulsive and distractible behavior (SGY2)
Diarrhea	Celiac disease Cow's milk protein allergy Gastroenteritis Hemolytic uremic syndrome Inflammatory bowel disease Toddler's diarrhea	• Describe the pathophysiology of osmotic and secretory diarrhea • Classify diarrhea based on the underlying pathophysiological mechanisms • Recognize that some forms of diarrhea are manifestations of systemic illness	• Describe the effect of IBD or other chronic disease on normal development in school age, adolescent and young adult patients (SGY2)
Edema	Nephritic syndrome Nephrotic syndrome Renal failure	• Describe the fluid composition of the body, the body water compartments and the normal movement of fluids and electrolytes between compartments	

		• Describe the anatomy and physiology of the renal system • Describe non-renal causes of edema • List the cardinal features of glomerulonephritis and the most common causes in the pediatric population • Describe the pathophysiology of glomerular disease • Interpret results of a urinalysis and other tests of kidney function • Distinguish between pre-renal, renal and post-renal causes of acute kidney injury • Distinguish between transient, benign, and pathologic proteinuria	
Eye Issues	Absent red reflex Amblyopia Conjunctivitis Normal vision development Periorbital / orbital cellulitis Strabismus Visual changes	• Describe the anatomy and physiology of the eye and related structures • Describe normal visual development • Describe the pathophysiology and risk factors of common diseases affecting the eye and related structures • Demonstrate assessment of extraocular movements and identify the corresponding cranial nerves • List and classify the pathogens causing infections of the eye and related structures • Describe the basic principles of pharmacology used in the management of common eye infections	
Fever	Fever in different age groups (<1mo, 1-3 mo, >3 mo) Kawasaki disease Meningitis Occult bacteremia /sepsis Urinary tract infection Viral	• Describe the pathophysiology of thermoregulation and define fever • List and classify common pathogens that cause fever • List non-infectious causes of fever • Describe the modes of transmission of infectious agents and means of prevention • Demonstrate competence in the application of universal precautions • List and classify the common pathogens causing urinary tract infections in children • Describe the basic principles of pharmacology used in the management of fever and	• Compare and contrast the presenting signs and symptoms of an UTI in an infant, preschooler and school aged child (SGY1) • Describe the difference in CSF findings in various CNS infections • List preventive strategies, complications and long term prognosis for childhood meningitis (SGY2)

		infectious and non-infectious febrile conditions	
Genitourinary Complaints (hematuria, dysuria, polyuria, frequency, pain)	Balanitis Enuresis Phimosis Testicular torsion Vesicoureteral reflux Vulvovaginitis	• Describe the anatomy and physiology of the genitourinary system • Identify infectious and non-infectious causes of urinary complaints • Distinguish between glomerular versus non-glomerular hematuria • Apply basic principles of pharmacology and indications for drugs used in the management of urinary tract infections • Describe the pathophysiology of male genital complaints, including phimosis, balanitis and testicular torsion • Describe the pathophysiology of infectious and non-infectious vulvovaginitis • Differentiate between diurnal and nocturnal enuresis, and when enuresis requires treatment	• Define vesicoureteral reflux and describe the different grades • Describe the natural history and a treatment approach for nocturnal enuresis (SGY1)
Growth Problems	Constitutional delay Failure to thrive Familial short stature Obesity Turner syndrome	• Describe how the endocrine system contributes to pubertal development and vertical (linear) growth • Describe the physiology of pre- and post-natal growth • Describe the normal pattern of growth velocity in the fetus, infants, children, and adolescents • Differentiate abnormal growth from normal growth variants • Describe the physiological and psychological consequences of obesity and malnutrition	
Headache	Brain tumor Concussion Increased intracranial pressure Migraine	• Describe the anatomy and pain sensing structures of the head and neck • Classify headaches by etiology and explain the pathophysiology of each type • Outline the pathophysiology of increased intracranial pressure (ICP) • Describe the tissue origins and pathophysiology of central nervous system tumors • Apply the basic principles of pharmacology in the management of headache	
Inadequately explained injury	Abusive head	• Define the different types of child maltreatment	

(Child abuse)	trauma Domestic violence Neglect Physical abuse Sexual abuse	• List the risk factors for child maltreatment • Recognize normal and abnormal patterns of injury in children	
Limp/ Extremity Pain	Bone tumor Growing pains Juvenile idiopathic arthritis Legg Calve Perthes disease Osgood Schlatter disease Osteomyelitis Post-infectious arthritis Reactive arthritis Rheumatic fever Septic arthritis Slipped capital femoral epiphysis Transient synovitis Trauma / injury	• Identify the basic anatomy and physiology of the musculoskeletal system • Describe the growth and development of bones, joints, and surrounding soft tissues • Describe the components of normal gait • Explain the infectious and non-infectious causes of musculoskeletal pain and inflammation • Define innate and humoral immunity and describe the pathophysiology of autoimmune diseases • Summarize the process of repair and healing of musculoskeletal injury • Describe the basic principles of pharmacology used in the management of inflammation and pain	
Lymphadenopathy	Cervical adenitis Lymphoma Mononucleosis Reactive lymphadenopathy	• Describe the anatomy and physiology of the lymphatic system • Compare and contrast the physical characteristics and distribution of normal versus abnormal lymphatic tissue • Distinguish between infectious and non-infectious causes of lymphadenopathy in children • Name and classify pathogens that cause lymphadenopathy in children	• Describe how to clinically differentiate normal from pathological lymph nodes in children (SGY1)

Mental Health Concerns	Anxiety Depression School refusal Suicidality	• Identify risk factors for suicide and self-harm behaviour • Describe the clinical presentations of depressive and anxiety disorders, recognizing they may present differently in different age groups • Identify reasons for school refusal	
Murmur	Congenital heart disease Innocent murmur	• Describe the anatomy of the cardiovascular system, explain the basic physiology of cardiac function, and be able to relate the anatomy and physiology to the cardiac physical exam finding • Describe the basic embryology of the heart and major vessels and how abnormalities in embryological development lead to the development of congenital heart defects • Describe the structural and dynamic changes that occur following birth in the cardiovascular system, including closure of the ductus arteriosus • Describe the classification system of murmurs	
Neonatal Jaundice	Biliary atresia Breast feeding jaundice Breast milk jaundice Hemolytic anemia Kernicterus Physiologic jaundice	• Describe liver anatomy and the physiology of bilirubin metabolism and excretion • Describe the functions of the liver and interpret tests of liver function, hepatocellular function and cholestasis • Differentiate between conjugated and unconjugated hyperbilirubinemia • Describe blood group type and antigens, and explain the mechanism whereby blood group incompatibility can affect bilirubin metabolism	
Newborn	Abnormal newborn screen Birth Trauma Congenital infections Cyanosis Depressed newborn Hypoglycemia	• Describe basic embryology and fetal development and how alternations may lead to congenital abnormalities • List factors affecting fetal growth • Describe normal and abnormal patterns of fetal growth • Define pre-term, term, and post-term gestation • Identify prenatal risk factors for adverse outcomes in a newborn	

	Hypothermia Hypotonia/ floppy newborn Large for gestational age Neonatal abstinence syndrome Newborn physical exam (normal, abnormal) Prematurity Respiratory distress Sepsis Small for gestational age Trisomy 21 Vitamin K deficiency	• Describe the processes of transition and adaptation from intrauterine to extrauterine life • Define asphyxia and describe its biochemical and physiological effects on the newborn at birth • Describe glucose homeostasis in the newborn • Describe the extrinsic and intrinsic factors that predispose newborns to infection	
Pallor/ Anemia	Hemoglobinopathies Hemolysis Iron deficiency	• Describe the anatomy and physiology of the hematopoietic system, including origin, function and structure of each major blood component • Describe iron metabolism as it relates to heme production • Classify hematologic disease in terms of production, destruction and consumption • Describe the physiologic consequences to anemia • Identify signs and symptoms of hematologic diseases • Demonstrate an approach to the interpretation of a CBC and differential and iron studies	• Differentiate between causes of anemia using the mean cell volume (SGY1) • List common etiologies for microcytic, normocytic and macrocytic anemias (SGY1) • Describe an approach to anemia diagnosis in a newborn baby (SGY1) • List the ways to prevent iron deficiency anemia in infants (SGY2)
Rash	Acne Cellulitis Diaper rashes Drug eruption Eczema	• Describe the anatomy and function of the skin and related structures • Describe and classify rashes • Name and classify common pathogens that cause rashes • Describe the basic principles of pharmacology used in the management of common pediatric rashes	

	Henoch Scholein Purpura Impetigo Scabies Scarlet fever Seborrhea dermatitis Urticaria Viral exanthems		
Respiratory distress / Cough	Anaphylaxis Asthma Bronchiolitis Congestive heart failure Croup Cystic fibrosis Epiglottitis Foreign body Pertussis Pneumonia Status asthmaticus Tracheitis	• Describe the anatomy and physiology of the respiratory system and relate them to the respiratory physical exam • Describe the differences between upper and lower airway conditions and their clinical manifestations • Describe the physiology of restrictive and obstructive lung disease • Describe the pathophysiology of infectious and non-infectious respiratory conditions • Identify symptoms and signs of respiratory disease and recognize adventitious sounds • Name and classify pathogens that cause respiratory disease in children • Describe basic principles of pharmacology used in the management of common respiratory conditions • Describe basic principles of pharmacology used in the management of common respiratory conditions	• Describe an approach to respiratory arrest in children (SGY2) • List the common causes of respiratory failure in children (SGY2) • List complications of foreign body aspiration and ways this can be prevented (SGY1) • List criteria for hospitalization of an infant with bronchiolitis (SGY1)
Seizure / Paroxysmal event	Arrhythmia Breath-holding spell Brief Resolved Unexplained Event Febrile vs. non-febrile seizure General vs. focal seizure Status epilepticus Syncope	• Describe the neurophysiology of electrical and chemical signal transmission • Discuss the pathophysiology of seizure activity • Identify neurologic and non-neurologic causes of paroxysmal events • Apply basic principles of pharmacology in the management of seizure • Know that arrhythmias in children that may present with sudden collapse and identify common arrhythmias of childhood	• Discuss the treatment plan and provide a prognosis for children with simple febrile seizures (SGY2) • Describe the aspects of the history and physical examination that would support a diagnosis of meningitis in a child with a fever and seizure (SGY2)

Sore Ear	Otitis externa Otitis media	• Describe the anatomy and physiology of the ear and related structures • Describe the pathophysiology and risk factors of common diseases affecting the ear and related structures • Name and classify the pathogens that cause ear infections in children • Describe the basic principles of pharmacology for antibiotic use and analgesia in ear infections	
Sore Throat / Sore Mouth	Dental disease Oral thrush Peritonsillar abscess Pharyngitis Retropharyngeal abscess / cellulitis Stomatitis	• Describe the anatomy and physiology of the throat and oral cavity • Describe the pathophysiology and risk factors of common disease affecting the throat and oral cavity • Name and classify the pathogens that cause common diseases of the throat and oral cavity • Describe the basic principles of pharmacology used in the management of common throat and oral cavity infections	
Vomiting	Gastroeosphageal reflux / Gastroeosphageal reflux disease Intestinal atresia Intussusception Malrotation/volvulus Pyloric stenosis	• Describe the physiology of gastrointestinal tone and motility • Describe the basic embryogenesis of the intestinal tract and how alterations in normal embryogenesis lead to the development of obstructive lesions of the intestinal tract with particular focus on malrotation and atresias • Relate bilious vomiting to the anatomy of the gastrointestinal tract • Identify non-gastrointestinal causes of vomiting • Describe metabolic and electrolyte alterations that occur with vomiting • Apply basic principles of pharmacology and indications for drugs used in the management of vomiting	
Well Child Care (newborn, infant, child)	Anticipatory guidance Circumcision Crying / colic Dental health	• Describe the use and limitations of tools to support periodic health supervision • Describe the principles of screening tests • Describe how cultural values influence health and health care interactions	

	Discipline / Parenting Growth – Head circumference, Height, Weight, Body mass index Healthy active living Hearing Hypertension Immunizations Injury prevention Normal development Nutrition & Feeding Sleep issues Social-economic / cultural / home / environment Sudden Infant Death Syndrome	• Take a family history to identify increased risk for inherited conditions and discuss mechanisms and patterns of inheritance • Describe the nutritional requirements for growth and maintenance of health for infants, children and adolescents • Compare breast and formula feeding • Describe how vaccines work and the diseases they prevent • Summarize the benefits and contraindications of immunizations • Describe the epidemiology of childhood injury • Describe age-related measures to reduce injury in the pediatric population • Identify risk factors for hearing impairment • Describe normal dental development • Describe the pathophysiology of and risk factors for dental carries and gingival disease • Explain the concept of reinforcement and factors that influence learning and behavior • Describe sleep physiology and stages, sleep needs for different age groups, and best practices for sleep hygiene • List the effects of sleep deprivation • List risk factors for and strategies that decrease the risk of Sudden Infant Death • Describe the concept of developmental surveillance	

*"Key conditions" are the core conditions that the Paediatric Undergraduate and Clerkship Directors of Canada (PUPDOC) felt are essential for graduating medical students to know. The Key Conditions are neither a differential diagnosis nor a scheme (approach to the clinical presentation). They highlight conditions that may be unique to paediatrics, that are essential, or that are common. Key Conditions can present in a number of ways – each is listed under the most common Clinical Presentation.

EVALUATION: Summative Clinical Elective Assessment completed by the Primary Preceptor

LOTTERY: Paediatrics – Community electives are **ONLY** available via the On-line Electives Lottery – 2 Students in Block 2, 4, 6 & 8 only