UNIVERSITY OF CALGARY
CUMMING SCHOOL OF MEDICINE

UNDERGRADUATE MEDICAL EDUCATION (UME)
Medical Doctor Program (MD)

COURSE OUTLINE

Course Number:	MDCN 508.01
Course Name:	Paediatric Clerkship
Dates:	January 15, 2024 – April 27, 2025 (Class of 2025)
Schedules and classroom locations:	Rotation schedule & location information will be emailed and posted to Osler.

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Clerkship Director:	Dr. Susan Bannister	peds@ucalgary.ca
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Student Course Rep:	Alisha Ebrahim & Janelle Wai (Class of 2025)
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Course Description
Please refer to the University Calendar: http://www.ucalgary.ca/pubs/calendar/current/medicine.html#8554

Prerequisites
Please refer to the University Calendar: http://www.ucalgary.ca/pubs/calendar/current/medicine.html#8554

Supplementary Fees/Costs
• Lab Coat • Stethoscope

Objectives for Your Paediatrics Rotation (canuc-paeds)

Outcomes for the Graduating Medical Student

Medical Expert

The student is able to:

- 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.
- Describe differences between the medical management of paediatric patients versus adult patients.
- Recognise an acutely ill child.
- Demonstrate an approach (the generation of a differential diagnoses, appropriate initial diagnostic investigations and management plan) to the following **core clinical paediatric presentations:**
    - Abdominal Pain & Abdominal Mass
    - Acutely Ill Child
    - Adolescent Health Issues
    - Altered LOC
    - Bruising / Bleeding
    - Dehydration
    - Development / Behavioural / Learning Problems
    - Diarrhea
    - Edema
    - Eye Issues
    - Fever
    - Genito-urinary Complaints (hematuria, dysuria, polyuria, frequency, pain)
    - Growth Problems
    - Headache
    - Inadequately explained injury (Child abuse)
    - Limp/ Extremity Pain
    - Lymphadenopathy
    - Mental Health Concerns
    - Murmur
    - Neonatal Jaundice
    - Newborn
    - Pallor/ Anemia
    - Rash
    - Respiratory distress / Cough
    - Seizure / Paroxysmal event
    - Sore Ear
    - Sore Throat / Sore Mouth
    - Vomiting
    - Well Child Care (newborn, infant, child)

Please see the list of key conditions for each clinical presentation.

- 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.
- Demonstrate competence with the following paediatric physical examination skills in addition to general physical examination skills:

    Position and immobilise patient for certain physical examination skills

Measure and interpret height, weight, head circumference (including plotting on growth curve and calculation of body mass index)
Measure and interpret vital signs
Palpate for fontanelles and suture lines
Perform red reflex and cover-uncover test
Perform otoscopy
Inspect for dysmorphic features
Elicit primitive reflexes
Perform infant hip examination
Assess the lumbosacral spine for abnormalities
Assess for scoliosis
Palpate femoral pulses
Examine external genitalia
Assess for sexual maturity rating (Tanner staging)

Professional

The student is able to:

- Demonstrate professional behaviours in practice including: honesty, integrity, commitment, compassion, respect and altruism.
- Demonstrate a commitment to perform to the highest standard of care through the acceptance and application of performance feedback.
- Recognise and respond to ethical issues encountered in clinical practice.
- Fulfil legal obligations as they pertain to paediatric practice (reporting child maltreatment).
- Recognise the principles and limits of patient confidentiality as it pertains to paediatrics (age of consent, emancipated minors, disclosure of suicidal/homicidal intent and disclosure of abuse).
- Balance personal and professional responsibilities to ensure personal health, academic achievement and the highest quality of patient care.
- Recognise factors such as fatigue, stress and competing demands/roles that impact on personal and professional performance. Seek assistance when professional or personal performance is compromised.

Communicator

The student is able to:

- Demonstrate communication skills that convey respect, integrity, flexibility, sensitivity, empathy and compassion.
- Communicate using open-ended inquiry, listening attentively and verifying for mutual understanding.
- Demonstrate a patient-centred and family-centred approach to communication which requires involving the family and patient in shared decision making and involves gathering information about the patients' and families' beliefs, concerns, expectations and illness experience.
- Acquire and synthesise relevant information from relevant sources including: family, caregivers and other health professionals.
- Demonstrate organised, complete, informative, legible and accurate written/electronic information related to clinical encounters (such as: admission histories, progress notes and discharge summaries).
- Demonstrate clear, legible and accurate 'doctors orders' (such as investigations, medication orders and outpatient prescriptions).
- Demonstrate organised, complete, informative and accurate information in verbal patient presentations.
- Respect patient confidentiality, privacy and autonomy.
- Acknowledge/demonstrate the principals of dealing with challenging communication issues including: obtaining informed consent, delivering bad news, disclosing adverse medical events and addressing anger, confusion and misunderstanding.

Collaborator

The student is able to:

- Work effectively, respectfully and appropriately in an inter-professional healthcare team.
- Demonstrate understanding of roles and responsibilities in an inter-professional health care team; recognising his/her own responsibilities and limits.
- Effectively collaborate/consult/participate with members of the inter- and intra-professional team to optimise the health of the patient/family.
- Effectively work with other health professional to prevent, negotiate and resolve inter- and intra-professional conflict.

Leader

The student is able to:

- Demonstrate priority setting and time management skills that balance patient care, academic responsibilities and personal well being.
- Employ information technology to maximise patient care.
- Demonstrate a rationale approach to finite resource allocation in patient management; apply evidence in cost-effective care.
- Develop management plans that demonstrate due attention to discharge planning and recognition of key community resources to support the family once out of hospital.

Health Advocate

The student is able to:

- Engage in advocacy, health promotion and disease prevention with patients and families including: mental health, child maltreatment, healthy active living, safety and early literacy support.
- Identify emerging and ongoing issues for paediatric patients who are potentially vulnerable or marginalised including: First Nations Peoples, new immigrants, disabled children, children living in poverty and children with mental health, sexual orientation, or gender identity concerns.
- Identify determinates of health for paediatric populations and the physician's role and points of influence in these issues.
- Identify barriers that prevent children from accessing health care including: financial, cultural and geographic.

Scholar

The student is able to:

- Engage in self-directed lifelong learning strategies.
- Engage in self-assessment through reflective practice.
- Apply the principals of critical appraisal of the literature to guide evidenced based patient care.
- Demonstrate integration of new learning into practice.
- Demonstrate effective teaching/learning strategies and content that facilitate the learning of others (peers, patients, families, allied health professionals).

canuc-paeds: Clinical Presentations and Key Conditions

Clinical Presentation	Key Conditions *
Abdominal Pain & Abdominal Mass	Appendicitis Constipation Functional Neuroblastoma Ovarian torsion Pregnancy Wilm's tumor
Acutely Ill Child	Acute abdomen Burn Diabetic ketoacidosis / Diabetes mellitus Meningococcemia Poisoning / intoxication Shock Trauma
Adolescent Health Issues	Disordered eating Psychosocial history (HEADDSS) Pubertal development Sexual health Sexually transmitted infections Substance use and abuse
Altered Level of Consciousness	Encephalitis Head Injury Hypoglycemia Metabolic disease
Bruising / Bleeding	Hemophilia Idiopathic thrombocytopenic purpura Leukemia
Dehydration	Hyponatremia / hypernatremia Mild / moderate / severe dehydration
Development / Behavioural / Learning Problems	Attention deficient hyperactivity disorder Autism spectrum disorder Cerebral palsy Fetal alcohol spectrum disorder Global delay Gross motor delay Learning disability Speech / language delay
Diarrhea	Celiac Cow's milk protein allergy Gastroenteritis Hemolytic uremic syndrome Inflammatory bowel disease Toddler's diarrhea
Edema	Nephritic syndrome Nephrotic syndrome Renal failure
Eye Issues	Absent red reflex Amblyopia Conjunctivitis Normal vision development Periorbital / orbital cellulitis Strabismus Visual changes
Fever	(<1mo, 1-3 mo, >3 mo) Kawasaki disease

Clinical Presentation	Key Conditions *
	Meningitis Occult bacteremia /sepsis Urinary tract infection Viral
Genitourinary Complaints (hematuria, dysuria, polyuria, frequency, pain)	Balanitis Enuresis Phimosis Testicular torsion Vesicoureteral reflux Vulvo-vaginitis
Growth Problems	Constitutional delay Failure to thrive Familial short stature Turner syndrome
Headache	Brain tumor Concussion Increased intracranial pressure Migraine
Inadequately explained injury (Child abuse)	Abusive head trauma Domestic violence Neglect Physical abuse Sexual abuse
Limp/ Extremity Pain	Bone tumor Growing pains Juvenile idiopathic arthritis Legg Calve Perthes disease Osgood Schlatter disease Osteomyelitis Post-infectious Reactive arthritis Rheumatic fever Septic arthritis Slipped capital femoral epiphysis Transient synovitis Trauma / injury
Lymphadenopathy	Cervical adenitis Lymphoma Mononucleosis Reactive
Mental Health Concerns	Anxiety Depression School refusal Suicidality
Murmur	Congenital heart disease Innocent murmur
Neonatal Jaundice	Biliary atresia Breast feeding jaundice Breast milk jaundice Hemolytic anemia Kernicterus Physiologic
Newborn	Abnormal newborn screen Birth Trauma Congenital infections Cyanosis Depressed newborn Hypoglycemia Hypothermia Hypotonia / floppy newborn

Clinical Presentation	Key Conditions *
	Large for gestational age Neonatal abstinence syndrome Newborn physical examination (normal, abnormal) Prematurity Respiratory distress Sepsis Small for gestational age Trisomy 21 Vitamin K deficiency
Pallor/ Anemia	Hemoglobinopathies Hemolysis Iron deficiency
Rash	Acne Cellulitis Diaper rashes Drug eruption Eczema 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
Seizure / Paroxysmal event	Arrhythmia Breath-holding spell Brief Resolved Unexplained Event Febrile vs. non-febrile seizure General vs. focal seizure Status epilepticus Syncope
Sore Ear	Otitis externa Otitis media
Sore Throat / Sore Mouth	Dental disease Oral thrush Peritonsillar abscess Pharyngitis Retropharyngeal abscess / cellulitis Stomatitis
Vomiting	Gastroeosphageal reflux / Gastroeosphageal reflux disease Intestinal atresia Intussusception Malrotation/volvulus Pyloric stenosis
Well Child Care (newborn, infant, child)	Anticipatory guidance Circumcision Crying / colic Dental health Discipline / Parenting Growth – Head circumference, Height, Weight, Body mass index Health active living

Clinical Presentation	Key Conditions *
	Hearing Hypertension Immunizations Injury prevention Normal development Nutrition & Feeding Sleep issues Social-economic / cultural / home / environment Sudden infant death syndrome

*"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 as under the most common Clinical Presentation.

Clinical Presentations: Learning Objectives and Study Guide

*Please note that we have created some Canuc-paeds cards to assist you in practicing with these clinical presentations. Please find them at the link: http://cards.ucalgary.ca/institute/6

You can find a list of the Updated Clerkship Resources here and posted in Osler:

Updated Clerkship Resources - 2021

Sorted by PUPDOC Objectives. Clerks will most likely want to focus on "General Approach" podcasts, but there are resources on key conditions if they would like more detail.

Abdominal Pain/Abdominal Mass

General Approach

- Acute Abdominal Pain (PedsCases Podcast) - https://www.pedscases.com/acute-abdominal-pain
- Chronic Abdominal Pain (PedsCases Podcast) https://www.pedscases.com/chronic-abdominal-pain
- Approach to Abdominal Mass (PedsCases Podcast) - Part 1 https://www.pedscases.com/approach-abdominal-mass-part-1 and Part 2 https://pedscases.com/approach-abdominal-mass-part-2

Key Conditions

- Appendicitis (PedsCases Podcast) - https://www.pedscases.com/acute-appendicitis
- Constipation (PedsCases Podcast) - https://www.pedscases.com/constipation
- Ovarian Torsion (PedsCases Podcast) - https://www.pedscases.com/approach-adnexal-torsion-children-and-adolescents

Acutely Ill Children

General Approach

Key Conditions

- Approach to Pediatric Toxicology and Ingestions (PedsCases Podcasts) - https://www.pedscases.com/approach-pediatric-toxicology-and-ingestions
- Diabetic Ketoacidosis (PedsCases Podcast) - https://www.pedscases.com/diabetic-ketoacidosis
- Shock (PedsCases Podcast) - https://www.pedscases.com/approach-shock
- Trauma (PedsCases Podcast) - https://www.pedscases.com/pediatric-trauma

Adolescent Health Issues

General Approach

- Adolescent History (PedsCases Podcast) - https://www.pedscases.com/adolescent-medicine

Abdominal Pain & Abdominal Mass

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Clinically recognize and propose an investigation and management plan for patients with appendicitis, constipation and functional abdominal pain.
2. Recognize the clinical features of neuroblastoma, ovarian torsion, pregnancy and Wilm's tumor

Resources

Acute Abdominal Pain. Ross A et al. *Pediatrics in Review* 2010; 31: 135-144.
Overview of acute abdominal pain. Focus on history, physical and differential diagnosis.

Chronic Abdominal Pain. Collins BS et al. *Pediatrics in Review* 2007; 28: 323–331.
Review article on chronic abdominal pain focusing on functional causes of abdominal pain.

Managing functional constipation in children.
http://www.cps.ca/documents/position/functional-constipation
Canadian Paediatric Society Position Statement (2011) on constipation

Acutely Ill Child

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Recognize and initiate treatment of an acutely ill child.
2. Calculate the fluid deficit and write orders for management of a paediatric patient with: burn, shock and diabetic ketoacidosis.
3. Identify signs and symptoms of a surgical abdomen.
4. Clinically recognize signs and symptoms of poisoning / intoxication and propose an investigation and management plan for patients with acetaminophen toxicity.
5. Clinically recognize meningococcemia and describe a management plan.
6. Propose a management plan for a paediatric patient with trauma including primary and secondary surveys and use of Broselow tape.

Resources

APLS: The Pediatric Emergency Medicine Resource Fifth Edition. American Academy of Pediatrics, American College of Emergency Physicians, 2012.

Intravenous fluid management for the acutely ill child. Moritz ML et al. *Current Opinion in Pediatrics* 2011; 23, 186-193.

Adolescent Health Issues

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Conduct a history that includes social-economic, cultural, home and environment factors.
2. Recognize the factors that contribute to disordered eating and substance use and abuse.
3. List the order of pubertal development in boys and girls.
4. List the features on history and physical examination that are consistent with sexually transmitted infections.

Resources

Getting into adolescent heads: An essential update. Goldenring, JM et al Contemporary Pediatrics 2004.
https://www.peds.arizona.edu/sites/default/files/curriculum-files/headss.pdf
Lengthy but excellent article. Provides great examples of questions for the adolescent HEADSS history (included in a table within the article).

Grieg Health Record
http://www.cps.ca/tools-outils/greig-health-record
Grieg Health Record for ages 6 to 17 years; covers mental health, adolescence, social and home context.

Healthy active living: Physical activity guidelines for children and adolescents
Canadian Paediatric Society Position Statement (2012)
http://www.cps.ca/en/documents/position/physical-activity-guidelines

Altered Level of Consciousness

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Propose a differential diagnosis and an investigation and management plan for a paediatric patient with an altered level of consciousness.
2. Clinically recognize a patient with a concussion and counsel the patient and family in return to school and play guidelines.
3. Propose a differential diagnosis and an investigation and management plan for a paediatric patient with hypogylecemia.
4. Propose an initial investigation and management plan for a patient with suspected metabolic disease.

Resources

Altered States of Consciousness. Avner JR. *Pediatrics in Review* 2006; 27 (9): 331-338.
Approach to altered level of consciousness. Common causes, differential diagnosis, table on herniation syndromes and management.

Bruising / Bleeding

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Identify the symptoms and signs of bleeding or clotting disorders.
2. Describe the indications, contraindications and complications of blood products and their administration.
3. Propose an investigation and management plan for a patient with Idiopathic Thrombocytopenic Purpura.
4. Recognize the laboratory abnormalities for the following conditions
    a. Hemophilia
    b. Idiopathic Thrombocytopenic Purpura
    c. Leukemia

Resources

Thrombocytopenia in infants and children. Consolini DM. *Pediatrics in Review* 2011; 32: 135-49.
Review of platelet disorders, causes of thrombocytopenia in children with a focus on ITP- good tables and diagrams for learning.

Dehydration

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Recognize the clinical features of and propose a management plan for, patients with mild, moderate and severe dehydration.
2. Propose a management plan for patients with hyponatremia and hypernatremia.
3. List the complications of underhydration, overhydration and rapid correction of sodium abnormalities.

Resources

Oral rehydration therapy and early refeeding in the management of childhood gastroenteritis
http://www.cps.ca/documents/position/oral-rehydration-therapy
Canadian Paediatric Society Position Statement (2006)

Intravenous fluid management for the acutely ill child**.** Moritz ML et al. *Current Opinion in Pediatrics* 2011; 23, 186-193**.**

Body composition: Salt and water. Ruth JL et al**.** *Pediatrics in Review* 2006; 27(5), 181-187.
Review of the different body fluid compartments, the percentage of body fluid with different ages and the equilibrium between extracellular fluid and intracellular fluid. Listing of the daily requirements for sodium and a discussion of the relationship between serum sodium concentration and total body sodium content.

Development / Behaviour / Learning Problems

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. List the major developmental milestones from birth to age 6 in each of the 5 domains of development: gross motor, fine motor, speech & language and cognitive and social-emotional.
2. Recognize major deviations from the normal range of development and behavior.
3. List a differential diagnosis for speech and language delay.
4. List the features on history and physical examination that are consistent with attention deficit disorders and autism spectrum disorders.

Resources

Speech and language development: Monitoring process and problems. McQuiston S et al. *Pediatrics in Review* 2011; 32: 230.
Overview, links to foundational knowledge. General review on speech and language development and problems. Good table regarding normal language development.

Developmental milestones: Motor development. Gerber et al. *Pediatrics in Review* 2010; 31: 267-277.
Review of motor development with good pictures; includes red flags for motor delay. Good tables of milestones.

Intellectual Disability (Mental retardation). Shea S. *Pediatrics in Review* 2012; 33: 110.
General article on intellectual disability. Good tables.

Diarrhea

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Recognize the clinical features and propose a management plan for patients with gastroenteritis, toddler's diarrhea and cow's milk protein allergy.
2. Recognize the clinical features of Celiac disease, hemolytic uremic syndrome and inflammatory bowel disease.

Resources

Acute Gastroenteritis. Granado-Villar D et al. *Pediatrics in Review* 2012; 33: 487.
Overview article on treatment of gastroenteritis and dehydration.

Chronic Diarrhea in Children. Zella GC et al. *Pediatrics in Review* 2012; 33: 207-218.
Overview on chronic diarrhea. Comprehensive differential diagnosis.

Oral rehydration therapy and early refeeding in the management of childhood gastroenteritis
http://www.cps.ca/documents/position/oral-rehydration-therapy
Canadian Paediatric Society Position Statement (2006)

Edema

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Describe the fluid composition of the body, the body water compartments and the normal movement of fluids and electrolytes between compartments.
2. Interpret the results of a urinalysis.
3. Distinguish between pre-renal, renal and post-renal failure.
4. Recognize the clinical features of nephritic and nephrotic syndromes.

Resources

Edema in childhood. Hisano S et al. *Kidney Int* 1997; 59: S100-104.
Covers localised and general edema, causes and management.

The nephrotic syndrome. Gordillo R et al. *Pediatrics in Review* 2009; 30: 94-105.
Review of the mechanism of proteinuria, treatment and outcomes.

Eye Issues

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Clinically recognize an absent red reflex and describe the significance of this finding.
2. Assess visual acuity and for the presence of strabismus.
3. Describe general management for amblyopia.
4. List the differences between periorbital and orbital cellulitis and propose a management plan for each.
5. Propose an investigation and management plan for a patient with conjunctivitis.

Resources

Red Reflex Examination in Neonates, Infants, and Children Pediatrics 122 (6) 1401-1404 (revised 109(5):980
https://pediatrics.aappublications.org/content/pediatrics/122/6/1401.full.pdf

Abnormal Red Reflex (Chapter 19)
https://www.yumpu.com/en/document/read/17947504/ch-19-abnormal-red-reflex
Good images. Original textbook source unknown.

Fever

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Propose a differential diagnosis and an investigation and management plan for febrile patients in the following age groups:
    a. Less than 1 month old
    b. 1-3 months old
    c. Greater than 3 months old
2. Clinically recognize and propose an investigation and management plan for patients with: Kawasaki disease, meningitis, ocult bacteremia / sepsis and urinary tract infection.
3. List common viruses that cause fever in paediatric patients.

Resources

Meningitis. Mann, K et al. *Pediatrics in Review* 2008; 29(12): 417-430.
Overview on bacterial, viral, TB and fungal meningitis, management, complications and long term sequelae.

Kawasaki Disease. Son MB t al. *Pediatrics in Review* 2013; 34(4): 151-162.
Overview article on Kawasaki disease, manifestations, differential diagnosis, treatment, cardiac complications- good pictures and tables.

Urinary tract infection: Clinical practice guideline for the diagnosis and management of the initial UTI in febrile infants and children 2 to 24 months. *Pediatrics*, 2011; 128(3): 595-610.
https://pediatrics.aappublications.org/content/pediatrics/128/3/595.full.pdf
https://pediatrics.aappublications.org/content/pediatrics/138/6/e20163026.full.pdf
Clinical practice guideline from the Subcommittee on UTI, steering committee on quality improvement and management.

Genitourinary Complaints (hematuria, dysuria, polyuria, frequency, pain)

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Interpret the results of a urinalysis.
2. Describe the etiology and propose a management plan for primary and secondary enuresis.
3. Clinically recognize and propose a management plan for IgA nephropathy and post-infectious glomerulonephritis.
4. List the classification system of vesicoureteral reflux.
5. Clinically recognize and propose a management plan for balanitis, phimosis, testicular torsion and vulvo-vaginitis.
6. Provide parents / guardians with information regarding circumcision.

Resources

Management of primary nocturnal enuresis
http://www.cps.ca/en/documents/position/primary-nocturnal-enuresis
Canadian Paediatric Society Position Statement (2005, 2013, 2016)

Acute poststreptococcal glomerulonephritis: An update. Ahn SY et al. *Current Opinion in Pediatrics* 2008; 20: 157-162.
https://journals.lww.com/co-pediatrics/fulltext/2008/04000/acute_poststreptococcal_glomerulonephritis__an.10.aspx
(accessible from AHS computers)
This review summarizes the recent advances in the pathogenesis, host susceptibility factors, diverse clinical presentations and treatment of the condition.

Newborn male circumcision
http://www.cps.ca/en/documents/position/circumcision
Canadian Paediatric Society Position Statement (2015, 2021)

Growth

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Accurately plot and interpret a growth curve.
2. Clinically recognize familial short stature and constitutional growth delay.
3. Identify a patient with and list a differential diagnosis for, failure to thrive and obesity.
4. Describe the physiological and psychological consequences of obesity and malnutrition
5. Recognize that there are specific growth charts for some syndromes with abnormal growth (examples: Turner syndrome, Down syndrome).

Resources

Failure to thrive: Current clinical concepts. Jaffe AC. *Pediatrics in Review* 2011; 32: 100-108.
Excellent review on failure to thrive – a common and important paediatric problem.

Short stature in childhood – Challenges and choices. Allen DB et al. *NEJM* 2013; 368: 1220-1228.
This article works through a case and highlights the distinguishing features of familial short stature and constitutional delay – the two most common causes of short stature in children.

Headache

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Explain the pathophysiology and clinically recognize the signs and symptoms, of increased intracranial pressure.
2. Recognize the clinical features and propose a management plan for patients with concussion.
3. Recognize the clinical features of a migraine headache and a brain tumor.

Resources

Sport-related concussion: Evaluation and management
http://www.cps.ca/documents/position/sport-related-concussion-evaluation-management
Canadian Paediatric Society Position Statement (2012, 2014)

Pediatric Headache: A Review. *Pediatrics in Review* Blume HK. 2012; 33: 562-576.
Good and clear review article. Epidemiology of headaches, patterns of headache (nice graph), primary headache syndromes, secondary headaches, substances that can cause headaches, headaches in systemic disease, evaluation of headache, red flags and neuroimaging studies. Management of headaches.

Inadequately Explained Injury (Child Abuse)

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Define the different types of child maltreatment.
2. List the risk factors for child maltreatment.
3. List the "red flags" of a history and physical examination that raise the suspicion of child maltreatment.
4. Recognize normal and abnormal patterns of injury in children.
5. List the appropriate people to be contacted if child abuse is suspected.

Resources

Which injuries may indicate child abuse? Maguire S. *Arch Dis Child Educ Pract Ed* 2010 95: 170-177.
https://ep.bmj.com/content/edpract/95/6/170.full.pdf
Overview article in BMJ.

The medical assessment of bruising in suspected child maltreatment cases: A clinical perspective.
http://www.cps.ca/en/documents/position/medical-assessment-of-bruising
Canadian Paediatric Society statement (2013, 2017)

Limp / Extremity Pain

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Describe the components of normal gait in the paediatric population.
2. Explain the pathophysiology of bone and soft tissue injury and repair in the paediatric population.
3. Recognize the clinical features and propose a management plan for patients with osteomyelitis, septic arthritis, rheumatic fever and post-infectious and reactive arthritis.
4. Recognize the clinical features of a bone tumor, growing pains, juvenile idiopathic arthritis, Legg Calve Perthes disease, Osgood Schlatter disease, slipped capital femoral epiphysis and transient synovitis.

Resources

pGALS – A screening examination of the musculoskeletal system in school-aged children. Foster HE et al. *Arthritis Research Campaign* No. 15, 2008.

https://www.macpeds.com/documents/15.1pGalsRheumatologyExam.pdf

Brief article outlining an MSK screening examination with excellent visuals/images.

Approach to Acute Limb Pain in Childhood. Tse SML et al. *Pediatrics in Review* 2006; 27: 170-180.

http://pedsinreview.aappublications.org/content/27/5/170

Case based discussion of non-inflammatory and inflammatory causes of acute limb pain.

Evaluation of the child with joint pain or swelling

http://www.uptodate.com /contents/evaluation-of-the-child-with-joint-pain-or-swelling?detectedLanguage=en&source=search_result&search=joint+pain&selectedTitle=2~150&provider=noProvider

The images and tables from the article are most useful. Table format of the pGALS physical examination with pictures. Useful table of the differential diagnosis of the child with limp.

Lymphadenopathy

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Distinguish between infectious and non-infectious causes of lymphadenopathy in the paediatric population.
2. Recognize the clinical features and propose a management plan for patients with cervical adenitis, mononucleosis and reactive lymphadenopathy.
3. Recognize the clinical features of lymphoma.

Resources

Lymphadenopathy. Sahai S. *Pediatrics in Review* 2013; 34: 216-227.
Includes definition of lymphadenopathy, anatomy and physiology, differential diagnosis of lymph node enlargement (systemic and local), history and physical findings, investigations and management. Article has good pictures of lymph nodes in head & neck area and in other body parts. Brief description of diseases causing lymphadenopathy.

Cervical Lymphadenopathy and Adenitis. Peters TR et al. *Pediatrics in Review* 2000; 21: 399-405.
Infectious causes of lymphadenopathy, nice tables.

Mental Health

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. List the features on history and physical examination that are consistent with depression and anxiety in children and youth.
2. Conduct a history to assess a patient's risk of suicide.
3. Conduct a history to explore the reasons for school refusal.

Resources

Grieg Health Record
http://www.cps.ca/tools-outils/greig-health-record
Grieg Health Record for ages 6 to 17 years; covers mental health, adolescence, social and home context.

Depression and suicide in children and adolescents. Prager, LM. *Pediatrics in Review* 2009;30(6):199-206.
Overview article on depression and suicide in children and adolescents.

Anxiety and separation disorders. Bagnell A. *Pediatrics in Review* 2011; 32: 440.
Overview of common pediatric anxiety disorders with differential diagnoses.

Separation anxiety disorder and school refusal in children and adolescents. Hann GL et al. *Pediatrics in Review* 2006, 27: 56.
Good review on school refusal in separation anxiety in all ages.

Murmur / Cyanosis

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Describe the structural and dynamic changes that occur following birth in the cardiovascular system, including closure of the ductus arteriosus.
2. Describe the classification system of murmurs.
3. Describe the characteristics of "innocent" murmurs.
4. List the indications for prostaglandin infusion in a newborn.
5. Draw a picture and describe the signs and symptoms, of each of the following:
    a. Ventricular septal defect
    b. Atrial septal defect
    c. Patent ductus arteriosus
    d. Tetralogy of Fallot
    e. Transposition of the great arteries
    f. Coarctation of the aorta

Resources

Park's Pediatric Cardiology for Practitioners, 6th Edition
Available through UofC library e-books.

Evaluation and Management of Heart Murmurs in Children. Frank JE et al. *American Family Physician* 2011; 84: 793-800.
https://www.aafp.org/afp/2011/1001/afp20111001p793.pdf
Review article on evaluation and management of murmurs.

Lucile Packard Children's Hospital at Stanford: Congenital heart Disease
https://www.stanfordchildrens.org/en/topic/default?id=congenital-heart-disease-90-P02346
Includes diagrams and written descriptions of all congenital heart disease; provides an approach to the diagnosis of congenital heart disease.

University of Washington: Demonstration of Heart Sounds & Murmurs
http://depts.washington.edu/physdx/heart/demo.html
This site includes audio demonstrations of heart sounds and murmurs, as well as includes links to the pathophysiology

Neonatal Jaundice

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Calculate the ratio of conjugated bilirubin to total bilirubin and decide if the baby has unconjugated or conjugated hyperbilirubinemia.
2. Propose an investigation plan for a baby with conjugated hyperbilirubinemia.
3. Propose a management plan physiologic, breast-milk and breast-feeding jaundice.
4. Propose a management plan for a baby with kernicterus.
5. Describe the maternal and baby blood groups that are a set-up for hemolytic anemia.

Resources

Hyperbilirubinemia in the Newborn. Bryon J. *Pediatrics in Review* 2011; 32(8): 341-349.
Some foundational knowledge on bilirubin metabolism. Discusses physiologic versus pathologic hyperbilirubinemia. More focus on unconjugated hyperbilirubinemia (e.g. breast milk and breastfeeding jaundice).

Conjugated hyperbilirubinemia in children. Brumbaugh D et al. *Pediatrics in Review* 2012; 33(7): 291-302.
Foundational knowledge. Addresses cholestasis in newborns and older children. Addresses the importance of early diagnosis in newborns. Good visuals.

Guidelines for the detection, management and prevention of hyperbilirubinemia in term and late preterm and newborn infants
https://www.cps.ca/en/documents/position/hyperbilirubinemia-newborn
Canadian Paediatric Society Position Statement (2007, 2011, 2018)

Newborn

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Propose an investigation and management plan for a baby with each of the following: respiratory distress, cyanosis, hypoglycemia, hypothermia, sepsis, hypotonia.
2. List the associated medical issues of a premature baby, a large for gestational age baby and a small for gestational age baby.
3. Describe the management of an abnormal newborn screen.
4. Correctly perform a physical examination on a newborn. Recognize abnormal physical examination findings and list the significance of each abnormal finding.
5. Recognize and identify dysmorphic features in a newborn.
6. List the signs and symptoms that are suggestive of neonatal abstinence syndrome.
7. Explain why vitamin K is given immediately after birth.
8. Describe the risk factors for birth trauma and list the injuries a baby might sustain following a traumatic delivery.
9. List the congenital infections that are routinely screened for during pregnancy.

Resources

Care of the well newborn. Phillpi WJB. *Pediatrics in Review* 2012; 33: 4-18.
Overview article; very comprehensive article covering many aspects of neonatal evaluation and care (antenatal care, early postpartum transitioning, anticipatory guidance, discharge readiness).

Respiratory Distress in the Newborn. Hermansen C et al. American Family Physician 2007; 76(7).
http://www.aafp.org/afp/2007/1001/p987.pdf
Covers diagnosis and management of common causes of respiratory distress in the newborn (transient tachypnea of the newborn, respiratory distress syndrome, meconium aspiration) with good visuals (X-rays). Gives a good differential of less common causes.

Management of Neonates with Suspected or Proven early-onset Bacterial Sepsis. Polin RA. *Pediatrics* 2012; 129(5): 1006-15.
https://shastahealth.org/sites/default/files/residency/Nenonatal-Sepsis-Evaluation.pdf
A good overview. Discusses infants at risk for early-onset sepsis, including evaluation, treatment, prevention, as well as clinical challenges.

Pallor / Anemia

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Describe the physiologic consequences of anemia.
2. Interpret a CBC and differential and iron studies.
3. Recognize the clinical features and propose a management plan for patients with iron deficiency anemia.
4. Recognize the clinical features of hemolysis and hemoglobinopathies.

Resources

Evaluation of anemia in children. Janus J et al. *American Family Physician* 2010; 15(12): 1462-1471.
http://www.aafp.org/afp/2010/0615/p1462.html
https://www.aafp.org/afp/2010/0615/afp20100615p1462.pdf
Good basic article with flow diagrams capturing diagnosis based on age and MCV.

Rash

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Recognize the clinical features and propose a management plan for patients with acne, cellulitis, diaper rashes, eczema, impetigo, scabies, seborrhea dermatitis and urticaria,
2. Recognize the clinical features of viral exanthems, drug eruptions, Henoch Scholein purpura and scarlet fever.

Resources

Newborn skin: Part 1 Common rashes. O'Connor NR et al. *American Family Physician* 2008; 77(1): 47-52.
https://www.aafp.org/afp/2008/0101/afp20080101p47.pdf
Good general article on common newborn rashes including seborrhea dermatitis. Good visuals.

Evaluating the febrile patient with a rash. Mckinnon HD Jr et al. *American Family Physician* 2000; 62(4): 804-816.
https://www.aafp.org/afp/2000/0815/p804.html
General article on viral exanthems with good tables and pictures.

Atopic dermatitis and ichthyosis. Epps RE. *Pediatrics in Review* 2010; 31(7): 278-286.
Review article of atopic dermatitis, treatment and complications- good visuals. (Atopic dermatitis p 278-283.)

Respiratory Distress / Cough

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Propose a management plan for patients with an acute exacerbation of asthma.
2. List triggers of an acute exacerbation of asthma.
3. Explain physiologic rationale for out-patient treatment of asthma.
4. Propose a management plan for patients with anaphylaxis, croup, bronchiolitis and pneumonia.
5. Recognize the clinical features of pertussis, epiglottitis, tracheitis, foreign body, cystic fibrosis and congestive heart failure.

Resources

Managing the paediatric patient with an acute asthma exacerbation
https://www.cps.ca/en/documents/position/management-acute-asthma-exacerbation
Canadian Paediatric Society Position Standard (2012,017) Outlines management of acute asthma exacerbation.

Achieving control of asthma in preschoolers. Kovesi T et al *CMAJ* 2010; 182 (4): E172-184.
https://www.cmaj.ca/content/cmaj/182/4/E172.full.pdf
Outlines chronic management of asthma.

www.ucalgary.ca/icancontrolasthma
Website for families about how to control asthma – translated into 11 different languages!

Uncomplicated pneumonia in healthy Canadian children and youth: Practice points for management
https://www.cps.ca/en/documents/position/pneumonia-management-children-youth
Canadian Paediatric Society Practice Point (2011, 2018, 2021) Outlines etiology, clinical presentation, investigation and management of community acquired pneumonia.

Bronchiolitis: Recommendations for diagnosis, monitoring and management or children one to 24 months of age.
https://www.cps.ca/en/documents/position/bronchiolitis
Canadian Paediatric Society Position Standard (2014, 2018)

Emergency treatment of anaphylaxis in infants and children.
https://www.cps.ca/en/documents/position/emergency-treatment-anaphylaxis
Canadian Paediatric Society Position Standard (2011, 2018) Outlines clinical presentation and management of anaphylaxis.

Further key asthma references:
Canadian Thoracic Society asthma management continuum – 2010 consensus summary for children six years of age and over and adults. Lougheed MD et al. *Canadian Respirology Journal* 2010; 17(1): 15-24.
https://cts-sct.ca/wp-content/uploads/2018/01/Asthma-Consensus-Summary.pdf

Canadian Thoracic Society 2012 guideline update: Diagnosis and management of asthma in preschoolers, children and adults. Lougheed MD et al. *Canadian Respirology Journal* 2012; 19(2): 127-164.
https://downloads.hindawi.com/journals/crj/2012/635624.pdf

Seizure / Paroxysmal Event

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Distinguish between seizures and paroxysmal events.
2. Distinguish between simple febrile, complex febrile and non-febrile seizures.
3. Distinguish between generalized and focal seizures.
4. Recognize the clinical features and propose a management plan for patients with status epilepticus, arrhythmia and syncope.
5. Recognize the clinical features of apparent life-threatening events and breath-holding spells.

Resources

Pediatric Syncope: Cases from the Emergency Department. Fischer WJ et al. *Emergency Medicine Clinics of North America* 2010; 28(3): 501-516.
Good table on causes of syncope; good approach to syncope in emergency department. Includes critical elements in history and physical, diagnosis. Good table on EKG findings in syncope. Includes five cases on different causes of syncope.

Pediatric Seizures. Sidhu R et al. *Pediatrics in Review 2013; 34(8): 333–342.*
Overview of all types of peadiatric seizures

Emergency management of the paediatric patient with generalized convulsive status epilepticus
https://www.cps.ca/en/documents/position/emergency-management-of-the-paediatric-patient-with-convulsive-status-epilepticus
Canadian Paediatric Society Position Statement (2021): very practical

Febrile Seizures. Guideline for the Neurodiagnostic Evaluation of the Child With a Simple Febrile Seizure. *Pediatrics 2011; 127(2) 389–394.*
https://pediatrics.aappublications.org/content/pediatrics/127/2/389.full.pdf
Clinical practice guidelines from the American Academy of Pediatrics.

Sore Ear

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Clinically recognize and propose a management plan for patients with:
    a. otitis media
    b. otitis externa

Resources

Management of acute otitis media in children six months of age and older
https://www.cps.ca/documents/position/acute-otitis-media
Canadian Paedatric Society Position Statement (2016). Good review, tables and figures.

Sore Throat / Sore Mouth

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Clinically recognize and propose an investigation and management plan for patients with:
    a. Oral thrush
    b. Peritonsillar abscess
    c. Pharyngitis
    d. Retropharyngeal abscess / cellulitis
    e. Stomatitis
2. List the factors associated with dental decay in paediatric patients and counsel parents regarding the prevention of dental caries.

Resources

Throat Infections. Gereige R et al. *Pediatrics in Review* 2011; 32(11): 459-469.
Overview of pharyngitis, peritonsillar abscess, retropharyngeal cellulitis. Very good pictures.

Oral conditions. Krol DM et al. *Pediatrics in Review* 2007; 28(1): 15-22.
Covers conditions such as oral candidiasis, viral stomatitis and ulcerative lesions. Good pictures

Vomiting

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Describe metabolic and electrolyte abnormalities that occur with vomiting.
2. Recognize the clinical features and propose a management plan for patients with gastroesophageal reflux / gastroesophageal reflux disease, intussusception, malrotation / volvulus and pyloric stenosis.
3. Recognize the clinical features of intestinal atresia.

Resources

Vomiting. Parashette KR et al. *Pediatrics in Review* 2013; 34: 307.
Review article on vomiting. Comprehensive review of vomiting; age specific including the older child. Discussion of organic and non-organic causes of vomiting.

Well Child Care

Objectives

By the end of the Paediatric Clerkship, a medical student will be able to:

1. Conduct a history that includes social-economic, cultural, home and environment factors.
2. Provide parents / guardians with information regarding anticipatory guidance, injury prevention and healthy active living.
3. Assess immunization status and provide parents / guardians with information regarding vaccine schedules and the risks and benefits of immunizations.
4. Recognize the factors that contribute to sleep issues, sudden infant death syndrome and poor dental health.
5. Provide parents/ guardians with advice regarding parenting, discipline, crying and colic.
6. Determine if an infant and a child is receiving appropriate nutrition and provide advice regarding an optimal diet for growth and development.
7. Determine if a child is hypertensive by consulting appropriate blood pressure tables for height and gender.

Resources

Rourke Baby Record: Evidence-based infant/child health maintenance guide
http://www.rourkebabyrecord.ca/evidence.asp

Grieg Health Record
http://www.cps.ca/tools-outils/greig-health-record
Grieg Health Record for ages 6 to 17 years; covers mental health, adolescence, social and home context.

Healthy active living: Physical activity guidelines for children and adolescents
https://www.cps.ca/en/documents/position/physical-activity-guidelines
Canadian Paediatric Society Position Statement (2012)

Relationships matter: How clinicians can support positive parenting in the early years
https://www.cps.ca/en/documents/position/positive-parenting
Canadian Paediatric Society Position Statement (2019)

Recommended Reading

Paediatric Clinical Skills
Richard B. Goldbloom
2011 Fourth Edition, Saunders

Nelson Essentials of Paediatrics
Karen Marcdante and Robert M. Kliegman
2014 Seventh Edition, Saunders

First Exposure Paediatrics
Joseph Gigante
2006 First Edition, McGraw-Hill

Berkowitz's Paediatrics: A Primary Care Approach
Carol Berkowitz
2008 Third Edition, American Academy of Paediatrics

The Five Minute Paediatric Consult
Editor: M. William Schwartz
2008 Fifth Edition, Lippincott William and Wilkins

Neonatology at a glance
Tom Lissauer, Avroy A Fanaroff, Michael Weindling
2011 Second Edition, Wiley Blackwell

The Newborn Child
Peter Johnston
2003 Ninth Edition, Churchill Livingstone

Illustrated Textbook of Paediatrics
Tom Lissauer, Graham Clayden
2012 Fourth Edition, Elsevier

See Resources section at www.canuc-paeds.ca

Useful Internet links

Paeds Cards	https://cards.ucalgary.ca/institute/6
PaedsPortal	https://papers.ucalgary.ca/paediatrics/
canuc-paeds Curriculum	www.pupdoc.ca/en/canuc-paeds/
Canadian Paediatric Society	www.cps.ca
American Academy of Paediatrics	www.aap.org
The American Academy of Paediatrics Journal	http://paediatrics.aappublications.org/content
Archives of Disease in Childhood	http://adc.bmj.com/
Paediatrics in Review Journal	http://pedsinreview.aappublications.org/
Council on Medical Student Education in Pediatrics	www.comsep.org
Health Canada	www.hc-sc.gc.ca
Alberta Childhood Asthma Pathways	www.albertachildhoodpathways.com
AHS Acute Childhood Asthma Pathway	Pathway
Community Paediatric Asthma Service	http://www.ucalgary.ca/icancontrolasthma/

Initial Empiric Antibiotic Therapy in Hospitalized Children 2012 **(internal link)**

Pediatric Inpatient Unit (Hospital Pediatrics) - Calgary **(internal link)**

Alberta Precision Laboratories (APL) Test Directory

National Advisory Committee on Immunisation (NACI)	http://www.phac-aspc.gc.ca/naci-ccni/
USA Centers for Disease Control and Prevention	http://www.cdc.gov/
Paediatric On-Line Cases	http://www.pedscases.com/

Hand Washing

Infection prevention/control is particularly crucial in paediatrics. Wash hands before and after every patient (for your own protection and the patients') using soap and water or alcohol cleanser. For patients under enteric isolation, soap and water must be used. See specific guidelines for neonatology:

AHS MyLearning Module

Before the start of the NICU rotation, please login to MyLearningLink and complete the two listed modules below. Link: https://mylearninglink.ahs.ca/elearning/bins/index.asp

Username: FirstNameLastName

In "Courses & Registration" search for the following modules to complete:

- Hand Hygiene Interactive Module
- Infection Prevention and Control: Personal Protective Equipment and You

Please complete the quiz at the end of the Hand Hygiene module and save the certificate of completion for your record.

Drug Calculations for Paediatrics

Basic concepts

- most drugs in paediatrics are dosed on body weight
- some drugs are based on body surface area
- some neonates' drugs are based on their birth weight until they surpass their birth weight
- references (eg Lexicomp) may list dosages in **mg/dose** or **mg/day**

Example

Emily is admitted for query meningitis. She is 4 days old; her birth weight was 3.5 kg. She now weighs 3.2 kg. One of the drugs you decide to treat her with is ampicillin.

Lexicomp-on-line entry for ampicillin.

Usual dose for neonates:

postnatal age < 1 wk and > 2000 g for meningitis is 150 mg/kg/day, divided q8h.

Drug dose is based on her birth weight of 3.5 kg.

150 mg/kg/day x 3.5 kg = 525 mg/day

Drug is given q8h (in three divided doses).

525 mg/day divided by 3 = 175 mg/dose

Order is written as:

Ampicillin 175 mg IV q8h (150 mg/kg/day)

It is important to include the dose you used to calculate the patient's drug in brackets as part of your order.

Paediatric Fluid Calculations

"Maintenance Fluids" (4-2-1 Rule) – this only maintains "usual intake" (or urine output)

***Note there are many approaches for calculating fluid requirements in paediatrics, this is one approach.**

- Used to calculate approximate basic fluid requirements in ***otherwise healthy*** children and infants
- Need to make adjustments for patients with fever, renal impairment, heart disease, SIADH or uncontrolled losses (e.g. post surgical, vomiting or diarrhea) and neonates
- Gives ***per hour*** fluid requirement

Give **4 mL/h for each kg of first 10 kg** (or portion thereof)

Give **2 mL/h for each kg of second 10 kg** (or portion thereof)

Give **1 mL/h for each remaining kg**

Examples: Calculate "Maintenance Fluids" for each of the following:

*a) 4.2 kg baby = **4** x 4.2 = 16.8 mL/hr*

*b) 11 kg child = (**4** x 10) + (**2** x 1) = 42 mL/hr*

*c) 36 kg child = (**4** x 10) + (**2** x 10) + (**1** x 16) = 76 mL/hr*

Total Fluid Intake TFI for Term Neonates

Neonatal Day 1	60	mL/kg/day
Neonatal Day 2	80	mL/kg/day
Neonatal Day 3	100	mL/kg/day
Neonatal Day 4	120	mL/kg/day
Neonatal Day 5	150	mL/kg/day

Range for normal neonates 100 - 200 mL/kg/day

May need to restrict fluids for babies with Congenital Heart Disease/Acute Kidney Injury (specify maximum TFI in orders)

Fluid in (as TFI) *calculate* as mL/kg/day **Urine Out express *calculate* as mL/kg/hour**

Choice of Fluids

- Use the gut whenever possible (e.g. po or ng)
- By NG, fluids can be given continuously or bolused
- IV: As a general rule, it is safe to use D5W-0.45%Saline for most infants & children.
  For very young babies you may consider D10W-0.45%Saline.
  There are other exceptions, particularly when ADH is present and acting to produce relative oliguria
  eg with head injuries or meningitis, when a reduced rate is needed as there is an inability to excrete water
  (eg 75%, 50%, or even less, of the usual "maintenance rate")
  D5W-0.9%Saline may be more appropriate

- For patients with DKA refer to the DKA protocol for fluid management
- 20 mmol/L KCL is often added to IV's (even TKVO) as long as the patient has normal kidney function & normal serum potassium
- Bolus using 0.9% Saline or Ringers Lactate only (usually 10 - 20 mL/kg) – ***no KCL***
- Remember TKVO can be a lot of fluid for a small child

Above calculations apply for usual fluid requirements, not nutritional requirements

Where Paediatric Clinical Presentations are Taught and Assessed

Clinical Presentation	**Paeds Monday Power Hour (Mandatory)**	***Virtual patient case (Almost ready for use)***	**Calgary Cards**	**Resident Teaching Session (Recommended)**	**Paeds Simulation (Mandatory) (Not all Clerks do all sessions)**	**Course 8**	**canuc-paeds Resources**
Abdominal Pain & Abdominal Mass	x		X			x	x
Acutely Ill Child	x		X		x		x
Adolescent Health Issues			X				x
Altered Level of Consciousness			X			x	x
Bruising & Bleeding		X	X			x	x
Dehydration	x		X				x
Development / Behavioural / Learning Problems	x	X	X			x	x
Diarrhea	x		X			x	x
Edema			X			x	x
Eye Issues	x						
Fever	x		X	x	x	x	x
Genitourinary Complaints (Hematuria / Dysuria / Polyuria / Frequency / Pain)						x	x
Growth Problems	x		X				x
Headache			X			x	x
Inadequately Explained Injury (Child Abuse)	x		X				

Clinical Presentation	**Paeds Monday Power Hour (Mandatory)**	***Virtual patient case (Almost ready for use)***	**Calgary Cards**	**Resident Teaching Session (Recommended)**	**Paeds Simulation (Mandatory) (Not all Clerks do all sessions)**	**Course 8**	**canuc-paeds Resources**
Limp / Extremity Pain			X			x	x
Lymphadenopathy			X				x
Mental Health Concerns			X				x
Murmur	x	x					x
Neonatal Jaundice	x	x	X	x			x
Newborn	x	x	X	x		x	x
Pallor / Anemia	x		X	x		x	x
Rash	x		X			x	x
Respiratory Distress / Cough	x	x	X	x	x	x	x
Seizure / Paroxysmal Event			X	x	x	x	x
Sore Ear	x		X				x
Sore Throat / Sore Mouth	x	x	X				x
Vomiting						x	x
Well Child Care (Newborn / Infant / Child)	x						x

Important Procedures	**Paeds Monday Power Hour (Mandatory)**	***Virtual patient case (Almost ready for use)***	**Calgary Cards**	**Resident Teaching Session (Recommended)**	**Paeds Simulation (Mandatory) (Not all clerks do all sessions)**	**Course 8 (Mandatory)**	**canuc-paeds Resources**
Plot a Growth Curve	x	x					x
Write a Prescription	x	x					

Clinical Presentations – Logbook/Course 8 Terminology

Clinical Presentation **Proposed 2016 from canuc-paeds**	**Course 8 Terminology**	**Logbook Terminology (if different)**
Abdominal Pain & Abdominal Mass	Abdominal Pain Abdominal Mass	
Acutely Ill Child	Peds emergency, acutely ill	
Adolescent Health Issues	Periodic Health Exam	
Altered Level of Consciousness	Mental Status Altered	
Bruising / Bleeding	Coagulation abnormalities	
Dehydration	Sodium abnormal BP abnormal	Dehydration
Development / Behavioural / Learning Problems	Developmental Delay Attention Deficit	
Diarrhea	Diarrhea	
Edema	Edema	
Eye Issues	Eye redness Vision loss	
Fever	Temperature abnormal	
Genitourinary Complaints (hematuria, dysuria, polyuria, frequency, pain)	Urinary frequency Urinary obstruction Blood in urine	
Growth Problems	--	Stature abnormal
Headache	Headache	
Inadequately explained injury (Child abuse)	Abuse (domestic violence) Violence, family	
Limp / Extremity Pain	Joint pain Fractures/dislocations	Deformity/limp
Lymphadenopathy	--	Lymphadenopathy
Mental Health Concerns	Mood disorder Panic/anxiety Personality disorders Psychotic patient Suicidal behavior/prevention	
Murmur	--	Murmur/extra heart sounds
Neonatal Jaundice	Jaundice Depressed Newborn	Neonatal jaundice
Newborn	Depressed Newborn	
Pallor / Anemia	Hemoglobin abnormal	
Rash	Skin rash macules Skin rash papules/blisters Skin ulcers/tumors	
Respiratory distress / Cough	Cough Cyanosis/hypoxia Dyspnea Wheezing	
Seizure / Paroxysmal event	Seizure	

Clinical Presentation **Proposed 2016 from canuc-paeds**	**Course 8 Terminology**	**Logbook Terminology (if different)**
Sore Ear	Ear pain	
Sore Throat / Sore Mouth	Sore throat	Sore throat, rhinorrhea Mouth, oral disorders
Vomiting	Vomiting, nausea	
Well Child Care (newborn, infant, child)	Periodic health exam	Paediatric Health Supervision

Evaluation and Course Requirements

PAEDIATRICS Class of 2025

- Final Written MCQ (summative) = MP
- Midpoint Formative ITERs= MC
- Satisfactory Final Preceptor ITERS = MP
- Formative Midpoint MCQ = MC*
- Logbook = MC*
- Passport = MP
- On-call Expectations = MC
- Clinical Expectations = MC
- Attendance and participation in teaching sessions = MC
- Professionalism Expectation = MP
- Meet all expectations outlined in Core Document = MC

MP = must pass (failure to do so will result in overall evaluation of "Unsatisfactory" for rotation)

MC = must complete (failure to do so will result in overall evaluation of "Satisfactory with Performance Deficiency" for rotation)

MC* = must complete before rotation deadline (failure to do so will result in requirement to defer summative examination to the deferral/rewrite date)

Please refer to Clerkship Student Handbook - https://cumming.ucalgary.ca/mdprogram/current-students/clerkship/student-handbook and core document on OSLER - https://osler.ucalgary.ca/.

Calculators for MCQ exam – simple calculators are allowed for your exams.

Assessment Dates

The assessment dates provided in the Evaluation and Course Requirements may be subject to change due to circumstances beyond the MD Program's control. In the event that an assessment date must be changed notification of the change will be emailed to the student by the evaluation team and posted on OSLER. Students will be given as much notice of the assessment date change as possible.

The pre-clerkship schedule of all courses can be found on the timetable here
https://cumming.ucalgary.ca/mdprogram/current-students/pre-clerkship-year-1-2/timetable
The detailed day by day schedule is found on Osler. https://osler.ucalgary.ca/

Grading

The University of Calgary Medical Doctor Program is a Pass/Fail program. The grading system that will appear on a student's legal transcript is as follows:	
Grade	Description
CR	Completed Requirements
RM	Remedial Work Required
F	Fail
I	Incomplete
W	Withdrawal
MT	Multi-Term (Used for Part A Courses that fall under 2 different terms in the calendar year.)
For Pre-Clerkship - A student's final grade for the course is the sum of the separate components. It is not necessary to pass each mandatory component separately in order to pass the course.	

For Clerkship - A rotation signed off as "Satisfactory with Performance Deficiencies" will appear as a credit on a student's medical school transcript.

Assignments/Projects

The following criteria shall generally apply to all written assignments. Students are expected to submit all major assignments on or before the due dates. Unless prior arrangements have been made, major assignments worth marks submitted after the specified due date will be considered late. Late major assignments will receive a 0 % grade. Other assignments will not be accepted after the due date.

Timeliness

In general, dates listed in Core Documents are intended to act as guidelines for assisting students to complete their learning activities and assignments in a timely fashion. Students encountering difficulties completing assignments due to health or other serious factors must contact the Course Chair to arrange a deferral of term work. A Physician/Counsellor Statement to confirm an absence for health reasons may be required.

Professional Conduct

As members of the University community, students and staff are expected to demonstrate conduct that is consistent with the University of Calgary Calendar. The specific expectations cited in the Calendar include

- Respect for the dignity of all persons
- Fair and equitable treatment of individuals in our diverse community
- Personal integrity and trustworthiness
- Respect for academic freedom, and
- Respect for personal and University (or Host Institution) property.

Students and staff are expected to model behaviour in class that is consistent with our professional values and ethics. Students and staff are also expected to demonstrate professional behaviour in class that promotes and maintains a positive and productive learning environment. All students and staff are also expected to respect, appreciate, and encourage expression of diverse world views and perspectives. All members of the University community are expected to offer their fellow community members unconditional respect and constructive feedback. While critical thought and debate is valued in response to concepts and opinions shared in class, feedback must at all times be focused on the ideas or opinions shared and not on the person who has stated them.

Where a breach of an above-mentioned expectation occurs in class, the incident should be reported immediately to the Associate Dean or his/her designate. As stated in the University Calendar, students who seriously breach these guidelines may be subject to a range of penalties ranging from receiving a failing grade in an assignment to expulsion from the University.

University of Calgary Medical School – Student Code of Conduct
https://cumming.ucalgary.ca/mdprogram/current-students/pre-clerkship-year-1-2/student-code-conduct

Electronic Submission of Course Work

Most assignments will be submitted via email to the Program Coordinator, UME unless otherwise stated. Assignments may be submitted in MS Word or Rich Text formats. It is the student's responsibility to confirm with the Program Coordinator that the assignment has been received. This may be done through utilization of the return receipt function available on most email packages, or by a follow up confirmation email to the Program Coordinator.

It is the Program Coordinator's responsibility to reply to any confirmation email from the student, and to inform the student promptly if there are any problems with the file (unable to open attachment, damaged data, etc.). In such cases, it is the responsibility of the student to promptly consult with the Program Coordinator regarding an alternate delivery method (e.g. courier, fax, etc.). It is the student's responsibility to retain a copy of the original document.

One45 Overview
The MD Program utilizes the One45 Software Program for assessment purposes for all evaluations in Year 1, 2 and 3. Students are able to view completed evaluations online through this software program. Evaluations and assessment data are collected at regular intervals. It is the student's responsibility to distribute their evaluations to preceptors during any given course and to follow up with preceptors if evaluations have not been completed by the deadline given out by the Undergraduate Medical Education (UME) Office. In addition to assessments and evaluations, One45 is also utilized to evaluate your preceptors and to gather information from students on their learning experiences. All students are provided training at the beginning of their program in Year 1. This would include a personal log in access code and password. One45 is used throughout your training in the MD Program (Undergrad) as well as Residency (PGME). Website Link to Access One45: https://calgary.one45.com/ Problems Accessing One45: Please contact the Academic Technologies at osler@ucalgary.ca

Course Evaluation/Feedback
Student feedback will be sought at the end of each learning session as well as at the end of each course through the electronic UME evaluation tool. At the end of each learning activity (ie. Lecture, small group, orientations, etc.), students will be asked to complete online evaluation forms to provide feedback to instructors regarding the effectiveness of their teaching and achievement of the learning objectives. An overall course evaluation will be completed following course completion. Students are welcome to discuss the process and content of the course at any time with the Course Chairs or Preceptors.

Clinical Core Overview (Pre-Clerkship Only)
Please refer to the Clinical Correlation Guidelines here: https://cumming.ucalgary.ca/mdprogram/about/governance/policies Course specific learning objectives for Clinical Core in the setting of this course can be found in the course documents.

Clinical Correlation Rules of Conduct
Students and preceptors will not be used as patients for clinical correlation sessions. This means that students will not examine the preceptor, the preceptor will not examine the students and students will not examine one another.

UME Policies, Guidelines, Forms, & TORs
Please refer to the MD program website https://cumming.ucalgary.ca/mdprogram/about/governance

Reappraisals and Appeals
Please refer to the CSM Reappraisal of Graded Term Work and Academic Assessments and CSM UME Academic Assessment and Graded Term Work Procedures for details regarding reappraisals and appeals https://cumming.ucalgary.ca/mdprogram/about/governance/policies

Please note by policy and terms of reference if you plan to request a reappraisal of the result(s) of this exam/course, a formal reappraisal request in writing needs to be submitted to md.reappraisals@ucalgary.ca within 10 days of receiving the result.

If the student disagrees with the decision of the UME Student Evaluation Committee, the student may appeal that decision to the UME University Faculty Appeals Committee. Please refer to the CSM UME Academic Assessment and Graded Term Work Procedures for procedure for appeals.
https://cumming.ucalgary.ca/mdprogram/about/governance

Academic Accommodation

Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available https://live-ucalgary.ucalgary.ca/student-services/access.

Student Accessibility Services, please contact their office at (403) 220-8237, visit: MacEwan Student Centre room 452 or email: access@ucalgary.ca. Students who have not registered with the Student Accessibility Services are not eligible for formal academic accommodation.

Accommodations on Protected Grounds Other Than Disability

Students who require an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the appropriate Assistant or Associate Dean

Students who require an accommodation unrelated to their coursework, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience).

For additional information on support services and accommodations for students with disabilities, visit
https://live-ucalgary.ucalgary.ca/student-services/access

Academic Integrity

The University of Calgary is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect.

It is expected that all work submitted in assignments should be the student's own work, written expressly by the student for this particular course. Students are referred to the section on academic integrity in the University Calendar (https://www.ucalgary.ca/pubs/calendar/current/k-3.html) and are reminded that plagiarism is an extremely serious academic offence.

Student Misconduct

A single offence of cheating, plagiarism, or other academic misconduct, on term work, tests, or final examinations, etc., may lead to disciplinary probation or a student's suspension or expulsion from the faculty by the Dean, if it is determined that the offence warrants such action. A student is defined as any person registered at the University for credit or non-credit courses.

Freedom of Information and Protection of Privacy

The Freedom of Information and Protection of Privacy (FOIP) Act indicates that assignments given by you to your course instructor will remain confidential, unless otherwise stated, before submission. The assignment cannot be returned to anyone else without your express permission. Similarly, any information about yourself that you share

with your course instructor will not be given to anyone else without your permission.

Emergency Evacuations and Assembly Points

Assembly points for emergencies have been identified across campus. The primary assembly point for the Health Sciences Centre (HSC) building is HRIC - Atrium. For more information, see the University of Calgary's Emergency Management website: https://www.ucalgary.ca/risk/emergency-management/evac-drills-assembly-points/assembly-points

Emergency Evacuation Procedures - https://www.ucalgary.ca/risk/emergency-management/plans-and-procedures. In the case of an emergency during exam, immediately stop writing the examination and follow the direction of the invigilator and go to the nearest exit. Students should not gather personal belongings.

Internet and electronic device information and responsible use:

Students are welcome to use laptops and other electronic note-taking devices in this course unless otherwise stated. Please be considerate of others when using these devices.

Supports for student learning, success, and safety

Student Advocacy & Wellness Hub (SAWH): https://cumming.ucalgary.ca/student-advocacy-wellness-hub/home

AMA Physician and Family Support Program: https://www.albertadoctors.org/services/physicians/pfsp

Student Union Wellness Centre: https://www.ucalgary.ca/wellnesscentre/

Safewalk: http://www.ucalgary.ca/security/safewalk

Campus security - call (403) 220-5333

Student Success Centre: https://www.ucalgary.ca/ssc/

Library Resources: http://library.ucalgary.ca/

Student Union (https://www.su.ucalgary.ca/about/who-we-are/elected-officials/) or Graduate Student's Association (https://gsa.ucalgary.ca/about-the-gsa/gsa-executive-board/) representative contact information

Student Ombudsman: http://www.ucalgary.ca/ombuds/role

Copyright

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy) and requirements of the copyright act (https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html) to ensure they are aware of the consequences of unauthorized sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

Wellness and Mental Health Resources

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness, and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the excellent mental health resources available throughout the University community such as counselling, self-help resources, peer support, or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, https://www.ucalgary.ca/wellnesscentre/services/mental-health-services) and the Campus Mental Health Strategy website (http://www.ucalgary.ca/mentalhealth).

Research Ethics
If a student is interested in undertaking an assignment that will involve collecting information from members of the public, he or she should speak with the Assistant Dean, Research (UME) and consult the CHREB ethics website (https://ucalgary.ca/research/researchers/ethics-compliance/chreb) before beginning the assignment.

ATSSL Guidelines
Please refer to the ATSSL Web Lab PPE Requirement: http://www.ucalgary.ca/mdprogram/about-us/ume-policies-guidelines-forms-terms-reference