



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

Learning Objectives

**Reproductive Anatomy**

At the end of this lecture the student should be able to:

1. Describe the processes of fertilization and implantation, and explain their anatomical correlates
2. Describe how the reproductive system attains its adult male or female form
3. Describe the functional anatomy of the female reproductive system
4. Describe the innervation and vascular supply of the female reproductive system

**Maternal Adaptations to Pregnancy**

At the end of this lecture the student should be able to:

1. List 4 maternal physiologic symptoms of pregnancy that could be considered pathological outside of pregnancy
2. Recite 5 physiologic cardiovascular changes that occur in pregnant women
3. Explain why pregnant women are at higher risk of morbidity and mortality if given a general anesthetic at term.
4. Discuss why pregnant women and women who are immediately postpartum are at increased risk of deep vein thrombosis
5. Name the three methods of nutrient transfer across the placenta.
6. Recite the 4 functions of amniotic fluid.

**Prenatal Screening and Diagnosis**

At the end of this lecture the student should be able to:

1. Explain the difference between prenatal screening and prenatal diagnosis
2. Discuss commonly used prenatal screening tests (including first and second trimester serum screening, cell free fetal DNA in maternal blood, first and second trimester ultrasonography).
3. Discuss risks, benefits, and limitations of commonly used prenatal diagnostic procedures.
4. Recognize the indications for preconception and prenatal carrier testing for genetic disorders depending on family history and specific ethnic background.

**Normal Obstetrics: Antepartum Care**

At the end of this lecture the student should be able to:

1. Given a woman's obstetrical history, correctly identify her gravidity, parity, number of abortions and number of live births.
2. Calculate a woman's expected date of confinement using an obstetrical wheel, Naegele's Rule, and first trimester ultrasound.
3. List 3 options for antenatal testing of fetal well being
4. List 5 situations when a woman should receive group B streptococcus prophylaxis.
5. List the indications for and contraindications to induction of labor
6. Given a clinical description of a pregnant woman's cervix at term, calculate her Bishops score.

**Intrapartum Care and Delivery and Immediate Postpartum care**

At the end of this lecture the student should be able to:

1. Define the 3 stages of labor and describe their typical duration
2. List and describe the cardinal movements of the fetal vertex in labor
3. Identify prolonged latent phase and discuss its management.
4. Explain the causes and management of protraction and arrest of the first stage of labor
5. Describe the causes and management of protraction and arrest of the second stage of labor.
6. Identify prolonged third stage of labor and discuss its causes

### **Perineum and Pelvic Diaphragm**

At the end of this lecture the student should be able to:

1. Explain why the pelvic inlet, ischial spines and the 4 pelvic types are important in obstetrics.
2. Identify the structures of the perineum.
3. Label the components of the pelvic diaphragm and list the structures that pass through this diaphragm.
4. Identify the ligaments of the female pelvis and pelvic structures.
5. Describe the innervation of the pelvic floor and perineum versus the uterus.

### **Intrapartum Care: Fetal Surveillance**

At the end of this lecture the student should be able to:

1. Correctly assign a 1 and 5 minute APGAR score to a newborn
2. Interpret a FHR tracing in labor
3. List the differential diagnoses of fetal bradycardia, fetal tachycardia, increased and decreased fetal heart rate variability
4. Identify the 3 types of fetal heart rate decelerations and explain their underlying pathophysiology

### **Operative Delivery**

At the end of this lecture the student should be able to:

1. Recite 10 prerequisites for operative vaginal delivery
2. List 6 potential complications of vacuum delivery and of forceps delivery
3. Recognize each of the 4 degrees of vaginal tears
4. List 8 indications for cesarean delivery
5. List 5 contraindications to a trial of vaginal birth after cesarean section

### **Labor Analgesia and Anesthesia**

At the end of this lecture the student should be able to:

1. Explain the pain pathways of parturition
2. List the analgesic options for a woman in labor
3. Describe the anesthetic options for operative vaginal delivery
4. Explain the benefits of regional anesthetic over general anesthetic for pregnant woman requiring surgery

### **Malpresentation**

At the end of this lecture the student should be able to:

1. List 5 risk factors for breech presentation
2. Explain the management options for a woman with a fetus in breech presentation at term
3. List 4 contraindications to breech vaginal delivery
4. List 4 possible complications of breech vaginal delivery

### **Postpartum Care**

At the end of this lecture the student should be able to:

1. List the "Bs" of postpartum rounds
2. Recall the 6 "Ws" of postpartum fever
3. List the "Bs" of the 6 week postpartum visit
4. Management of secondary postpartum hemorrhage

### **Gestational Hypertension**

At the end of this lecture the student should be able to:

1. Explain the classification of hypertension in pregnancy
2. Take a focused history from a patient with hypertension in pregnancy
3. List the investigations required to evaluate a patient with hypertension in pregnancy
4. Develop a management plan for a patient with hypertension in pregnancy

### **SG#1 Antepartum and Intrapartum Care**

At the end of this small group the student should be able to:

1. Describe what history, examination and testing needs to be done at a first prenatal visit occurring at 9-11 weeks gestational age, and at routine obstetrical visits at 15 weeks, 26 weeks, and at 35 weeks gestational age.
2. Describe your initial assessment of a woman who presents in labor at term.
3. Explain your initial assessment of a woman who presents with term prelabor rupture of membranes (TPROM or PROM)
4. Outline the management of prelabor spontaneous rupture of membranes at term in both GBS positive and GBS negative women
5. Interpret a NST

### **SG#2 Management of Labor**

At the end of this small group the student should be able to:

1. Describe how to perform a proper vaginal exam for a woman in labor including dilation, effacement, station and position.
2. Explain what constitutes normal progress in labor.
3. Interpret a fetal heart rate tracing in labor and manage appropriately.
4. List the three signs of placental separation
5. Explain how to actively manage the third stage of labor.

### **Pelvic floor Anatomy**

After completing the anatomy portion of the course, you will be able to:

1. Identify functionally important anatomical structures and spaces in the female reproductive system and pelvic floor on prosections and relevant clinical images.
2. Describe the systemic circulatory structures that supply and drain the structures of the female reproductive system and pelvic floor, and identify these structures on prosections and relevant clinical images.
3. Describe the innervation of the female reproductive system and pelvic floor.

### **Alloimmunization**

At the end of this lecture the student should be able to:

1. Define red cell alloimmunization
2. Describe the development of red cell alloimmunization.
3. Explain why the fetus of the sensitizing pregnancy usually escapes the effects of maternal antibodies.
4. List 5 situations where Rh Immunoglobulin should be administered.
5. Explain the management of a pregnant woman who is discovered to have D antibodies in her first trimester.

### **Preterm Labor and PPROM**

At the end of this lecture the student should be able to:

1. Define preterm birth, preterm labour, and preterm premature rupture of membranes
2. Explain an approach for diagnosing and managing preterm labour
3. Discuss prediction and prevention of preterm birth
4. Explain the management of a patient with preterm premature rupture of membranes

### **Growth Discrepancy**

At the end of this lecture students should be able to:

1. Define large for gestational age
2. Define small for gestational age and intrauterine growth restriction
3. List 5 causes of large for gestational age fetus
4. List 5 risk factors for a small for gestational age fetus
5. Identify which LGA and SGA pregnancies require intervention

## **Multiples**

At the end of this lecture the student should be able to:

1. Recall the frequency of monozygotic twins, dizygotic twins and triplets
2. Explain the etiology and classification of twinning
3. List the risks associated with multiple gestation
4. Create a plan of management for a twin pregnancy from a first trimester prenatal visit through delivery.

## **SG #3 Complicated Obstetrics**

At the end case #1 the student should be able to:

1. Define preterm pregnancy and list its risk factors.
2. Discuss the evaluation and management of a patient presenting with preterm labor
3. Explain the mechanism of action of betamethasone
4. Explain mechanism and maternal and fetal risks of the tocolytics Indomethasone and Nifedipine
5. Discuss the evaluation and management of a patient presenting with preterm prelabor rupture of membranes (PPROM)

At the end of case #2 the students should be able to:

1. Identify risk factors associated with gestational hypertension
2. Describe the fetal and maternal complications of gestational hypertension/pre-eclampsia/eclampsia
3. Develop a management plan for a patient with hypertension in pregnancy

## **Third Trimester Bleeding**

At the end of this lecture the student should be able to:

1. List the causes of third trimester bleeding
2. Describe the classic presentation of each cause of third trimester bleeding
3. Explain your management of a patient who presents with third trimester bleeding

## **Obstetrical Emergencies**

At the end of this lecture the student should be able to:

1. Describe the clinical presentation of cord prolapse
2. List 6 risk factors for shoulder dystocia
3. Explain the possible etiologies of postpartum hemorrhage
4. Describe the management of postpartum hemorrhage

## **Newborn Screening**

At the end of this lecture the student should be able to:

1. Explain the difference between screening and diagnostic testing and why specific tests may be targeted towards a defined population.
2. Understand the rationale for, and methods used in, universal newborn screening (NBS) programs.
3. Recognize the characteristics of a condition that make it a suitable target for universal NBS (e.g. Wilson and Jungner principles).
4. Understand the requirements for short-term follow up of positive screen results and long term follow-up of true positives.

## **Clinical Cytogenetics and Common Syndromes**

At the end of this lecture the student should be able to:

1. Describe the structure and function of chromosomes.
2. Demonstrate a basic understanding of cytogenetic nomenclature.
3. Understand the different indications for (and limitations of) routine karyotype, FISH, and chromosomal microarray.
4. Recognize the types of structural variation seen in human chromosomes (e.g. translocations, inversions, etc.) and their potential implications for health and reproduction.
5. Recognize key clinical features of common chromosomal aneuploidy syndromes.

## **Genetic Assessment of the Newborn with Multiple Congenital Anomalies**

At the end of this lecture the student should be able to:

1. Define dysmorphism.
2. Recognize that congenital anomalies may have intrinsic or extrinsic causes, and may occur in isolation or as part of a pattern
3. Discriminate between categories of anomalies such as malformation, deformation, disruption, dysplasia, syndrome, sequence, and association.
4. Describe the impact of teratogenic substances on development.
5. Formulate (in broad terms) the differential diagnosis of a child presenting with multiple congenital anomalies.

## **Diabetes in Pregnancy**

At the end of this lecture the student should be able to:

1. Differentiate between gestational and pregestational diabetes
2. Identify risk factors for gestational diabetes and screening methods for diagnosis
3. Understand the maternal, fetal, and delivery complications associated with pregestational diabetes
4. Recognize the role of insulin in pregnancy

## **Small Group #4 Obstetrical Emergencies**

This is session done with standardized patients in Medskills. At the end of this session the students will be able to assess, investigate, and manage a patient with third trimester bleeding.

At the end of this session the student will

1. Identify and appropriately manage hemodynamic compromise
2. Conduct a focused history and physical examination on a patient with third trimester bleeding.
3. Order and interpret the appropriate investigations for a patient with third trimester bleeding.
4. Integrate history, physical examination findings, laboratory results and fetal heart rate tracing to create a differential diagnosis for third trimester bleeding
5. Develop a logical stepwise management plan for a patient with acute third trimester bleeding

## **The Paediatric Top 10**

This lecture serves primarily as an introduction to Paediatric Medicine.

By the end of this lecture, the student will be able to:

1. Recognize differences in providing pediatric medical care compared to adult medicine
2. List five unique aspects of pediatric medical care

## **The Child in Transition from the Womb to the World**

At the end of this lecture the student will be able to:

1. Describe differences between fetal circulation and post-natal circulation:
  - a. Identify and describe the physiology of the four major circulatory shunts:
    - i. Placenta
    - ii. Ductus venosus
    - iii. Foramen ovale
    - iv. Ductus arteriosus
  - b. Describe the difference between fetal and adult hemoglobin
  - c. Compare cardiac, systemic and pulmonary pressures during intrauterine and extrauterine life
2. Describe processes of transition and adaptation from intrauterine life
3. Describe the mechanisms of fetal lung fluid production and resorption
4. Identify clinical consequences of derangements in transition:
  - a. Persistent pulmonary hypertension (PPHN)
  - b. Transient tachypnea of the newborn (TTN)

## **Care of the Normal Newborn**

At the end of this lecture the student will be able to:

1. Identify prenatal risk factors for adverse outcomes in a newborn
2. List the steps involved in the care of the normal newborn in the delivery room, including when resuscitation is needed, initial resuscitation steps, vitamin K administration and eye care
3. Define and describe signs of neonatal asphyxia

4. Describe steps in management of a depressed newborn
5. Describe components of the normal newborn exam including common abnormal findings
6. List criteria for newborn discharge
7. Describe community resources for neonatal follow-up

### **The Ill-Appearing Neonate**

At the end of this lecture the student will be able to:

1. Outline a practical approach to the history for sick neonates
2. Identify the most important part of the physical examination of a sick neonate
3. Name the most important diagnosis in the differential for a sick neonate
4. List 10 things to do in the first 5 minutes of management of any sick neonate

### **Healthy Newborns with Neonatal Jaundice**

At the end of this lecture the student will be able to:

1. Describe the physiology of bilirubin metabolism and excretion
2. Differentiate between conjugated and unconjugated bilirubin
3. Identify risk factors for the development of hyperbilirubinemia in the neonate
4. Identify initial steps in managements of an infant with suspected pathologic hyperbilirubinemia
5. Describe treatment options for hyperbilirubinemia in infancy, and their physiologic rationale
6. Formulate a management plan for an infant with hyperbilirubinemia, using information from history, physical examination findings, serum bilirubin level and the bilirubin nomogram
7. Identify complications of severe hyperbilirubinemia in infancy

### **Common Birth Injuries**

At the end of this lecture the student will be able to:

1. Describe and differentiate between caput succedaneum, cephalohematoma and subgaleal hemorrhage, including their location, physical findings and risk for significant blood loss
2. Identify risk factors for traumatic head injury in the neonate
3. Describe the mechanism, incidence and treatment of clavicular fracture
4. Describe the presentation of brachial plexus injuries and facial nerve injuries

### **Neonatal Hypoglycemia**

At the end of this lecture the student will be able to:

1. Identify the normal physiology of lower serum glucose in the first 2 neonatal days.
2. Describe the presentation of neonatal hypoglycemia nutritional history
3. Identify risk factors for the presentation of neonatal hypoglycemia
4. Develop a plan of treatment for identified neonatal hypoglycemia
5. Recognize the outcome of persistent untreated neonatal hypoglycemia

### **Infant Feeding and Nutrition**

At the end of this lecture the student will be able to:

1. Identify breast milk as the ideal nutrient source for most infants, and list six benefits of breastfeeding
2. Recognize common obstacles to breastfeeding
3. Discuss the nutritional components of breast milk and different types of formula
4. Outline feeding recommendations for an infant in the first year of life
5. List three strategies to prevent early childhood dental disease

### **Preterm Infants and their Complications**

At the end of this lecture the student will be able to:

1. Describe (in basic terms) the pathophysiology underlying the common short-term complications of prematurity:
  - a. Respiratory Distress Syndrome (RDS)
  - b. Patent Ductus Arteriosus (PDA)
  - c. Intraventricular Hemorrhage (IVH)
  - d. Necrotizing Enterocolitis (NEC)
  - e. Retinopathy of Prematurity (ROP)
2. Identify screening, management and prevention strategies for the above complications
3. Identify risk factors for long-term complications of prematurity:
  - a. Chronic Lung Disease of Infancy (CLDI)/Bronchopulmonary Dysplasia (BPD)

- b. Neurodevelopmental impairment
- c. Vision impairment
- d. Hearing impairment

### **Well Child Examination**

At the end of this lecture the student will be able to:

1. Identify evidence-based resources to guide well child health visits
2. Describe important considerations in successful performance of a physical examination in childhood (development of rapport; developmentally-appropriate interaction; organization; flexibility)
3. Describe special tests used in childhood physical examination and their indications
  - a. Tests for Developmental Dysplasia of the Hip
  - b. Cover-uncover test
  - c. Screening for scoliosis

### **Nutrition Beyond Infancy**

At the end of this lecture the student will be able to:

1. Identify strategies for taking a complete nutritional history in childhood or adolescence
2. Describe typical feeding concerns of parents at different stages of childhood
3. Describe common pitfalls in achieving healthy nutritional intake at various stages of childhood
4. Identify reliable resources for clinicians and parents to support healthy nutrition and obesity management

### **Typical Childhood Development (2 hours)**

At the end of this lecture the student will be able to:

1. Describe the normal progression of infant and child development, including developmental domains, milestones and “red flags”
2. Identify opportunities for anticipatory guidance based upon developmental stages
3. Describe appropriate prevention strategies for accident and injury in infancy and childhood
4. Understand the developmental context for key prevention messages for primary care, including:
  - a. Avoidance of alcohol in pregnancy
  - b. Benefit of folate supplementation in pregnancy and prior to conception
  - c. Risk factors for SIDS
  - d. The negative sequelae of shaking a baby
5. Compare developmental surveillance and screening
6. Given details of a developmental history and physical examination, identify the developmental age of the child and whether development is progressing typically or is delayed

### **Approach to Developmental Delay (2 hours)**

At the end of this lecture the student will be able to:

1. Define “global developmental delay,” “learning disability,” “intellectual disability”, and cerebral palsy
2. Identify atypical patterns of development, including:
  - a. Global developmental delay
  - b. Isolated domain-specific delays
  - c. Diagnostic groupings of delays, including specific “red flags” suggestive of specific developmental disorders
3. Describe an approach to the assessment and management of a child with a concern for developmental delay, including the need to:
  - a. Screen skills in other domains
  - b. Screen for loss of milestones
  - c. Recommend appropriate investigations for sensory deficits
  - d. Investigate for associated medical disorders
  - e. Recommend appropriate investigations to confirm suspected underlying diagnoses
  - f. Formulate a management plan, including:
    - i. Communication with family
    - ii. Medical treatment
    - iii. Educational and behavioral interventions
    - iv. Multidisciplinary referrals
    - v. Family support
4. Describe the necessity of advocacy for “early intervention” at all levels:

- a. Individual patient/family
- b. Community (lay, medical)
- c. Public health policy

### **Immunizations**

At the end of this lecture the student will be able to:

1. Define immunization
2. Describe the routine immunization schedule for children in Alberta
3. Describe the concept of herd immunity and the effect of reduced vaccine uptake
4. List contraindications to routine vaccinations
5. Identify adverse effects related to vaccines
6. Identify common vaccine fears and misconceptions
7. Identify resources for reliable vaccine information

### **Typical Child Behavior and Concerns**

At the end of this lecture the student will be able to:

1. Describe normal patterns of crying, define colic and identify red flags prompting further investigation for excessive crying in infancy
2. Define, describe the developmental basis for, and outline an approach to management of temper tantrums
3. Describe key features of effective discipline
4. Describe risk associated with the use of media (television, mobile devices, video games, internet) in childhood and adolescence, and strategies to promote healthy use of media

### **Autism Spectrum Disorder**

At the end of this lecture the student will be able to:

1. Identify the DSM-V diagnostic criteria for Autism Spectrum Disorder and distinguishing features from intellectual disability or global developmental delay.
2. Outline risks and red flags for investigation for ASD
3. Describe an approach to the assessment of a child with delayed communication or social skills, including:
  - a. Common screening tools and diagnostic tools and what distinguishes screening and diagnosis
  - b. A focused neurodevelopmental patient history
  - c. Relevant features of physical exam and observation to ASD
  - d. Investigations for underlying medical disorders
4. Identify common co-occurring conditions associated with ASD
5. Formulate a management including:
  - a. Communication with family
  - b. Medical treatment
  - c. Educational and behavioral interventions
  - d. Multidisciplinary referrals
  - e. Family support

### **Failure to Thrive**

At the end of this lecture the student will be able to:

1. Explain the concept of "Failure to Thrive" (FTT)
2. Demonstrate an organized approach for the differential diagnosis of a child with FTT
3. Outline important historical points and physical exam signs to be elicited when assessing a child with FTT
4. List investigations that should be considered in children with FTT

### **Small Group #5: Jaundice and the Unwell Newborn**

During this session, the student will:

1. Formulate a management plan for an infant with jaundice
2. List red flags on history or physical examination which should prompt further investigation, and identify those investigations
3. Formulate a management plan for an ill infant, targeted to likely etiology, based on history and physical examination findings provided

## **FASD and Toxic Stress Across the Lifespan: An Evolving and Interactive Case**

At the end of this lecture the student will be able to:

1. Understand fetal alcohol syndrome disorders
2. Understand types of stress and their impact on child development
3. Describe the concept of cumulative risk and how this applies to child development
4. Appreciate mental health disorders and stigma in patients with FASD and toxic stress
5. Understand medical surveillance and intervention for maternal substance use during pregnancy

## **Approach to Hypotonia and Gross Motor Delay**

At the end of this lecture the student will be able to:

1. Describe an approach to the history and physical assessment of a child presenting with gross motor delay.
2. Describe an approach to the hypotonic infant, especially differentiating central vs. peripheral hypotonia
3. Define cerebral palsy and list the two most important risk factors for this condition
4. List the most important investigations required for children presenting with differences in motor development.

## **School Difficulties (1.5 hours)**

At the end of this lecture the student should be able to:

1. Apply DSM-5 diagnostic criteria to determine if a child's difficulties are consistent with Attention Deficit Hyperactivity Disorder (ADHD)
2. Describe the differential diagnosis and common co-morbidities for ADHD
3. Discuss the epidemiology and prognosis of ADHD
4. Define Learning Disability (LD) and describe differentiating features from ADHD
5. Describe an appropriate management plan for a child with ADHD or LD, including
  - a. Educational and behavioral interventions
  - b. Multidisciplinary referrals
  - c. Family education and support
  - d. Medical treatment
6. List the indications and contraindications for first-line medical management of ADHD including the effects and side effects of stimulants and non-stimulants (ex. atomoxetine, guanfacine)
7. Distinguish between the key features of ADHD, Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) according to the DSM-5

## **Principles of Antibiotic Use**

At the end of this lecture the student will be able to:

1. Discuss the importance of using antibiotics properly
2. Outline antimicrobial sites of action and mechanisms of resistance
3. List the different families of antibiotics
4. List specific situations for which prophylactic antibiotics are indicated
5. Identify reliable resources for identifying appropriate antibiotics to be used for specific indications

## **Fever without Focus**

At the end of this lecture the student will be able to:

1. Define fever without focus
2. Describe the incidence and most common etiologies of fever without focus
3. Describe an approach to fever without focus in the following age groups:
  - a. 0-1 month
  - b. 1-3 months
  - c. 3-36 months

## **Seizures and Non-epileptic Events (1.5 hours)**

At the end of this lecture the student will be able to:

1. Identify and manage common paediatric seizure mimics
2. Classify seizures based on seizure type (ILAE 2017 classification)
  - a. Differentiate generalized onset from focal onset seizures
  - b. Describe main types of generalized seizures
3. Describe a clinical approach, including investigation and initial management, of common paediatric seizures and seizure disorders including:
  - a. Acute symptomatic seizures, including febrile seizures

- b. Single unprovoked seizure
- c. Childhood Absence Epilepsy
- d. Childhood Epilepsy with Centrotemporal Spikes (Previously Benign Epilepsy with Centrotemporal Spikes)
- e. Paediatric epileptic encephalopathies including West syndrome, Lennox Gastaut syndrome

### **The Child with Headaches (0.5 hours)**

At the end of this lecture the student should be able to:

1. Describe common causes of headaches in children
2. Differentiate types of headaches by key findings on history, examination and investigations

### **Common Ambulatory Gastroenterology Problems in Childhood**

1. For common GI problems presenting in “well children”, the student will:
  - a. Identify “red flag” symptoms that warrant further investigation
  - b. Formulate a differential diagnosis for the underlying etiology of each problem
  - c. Suggest initial investigations, if necessary
  - d. Discuss management of common conditions (eosinophilic esophagitis, celiac disease)
2. Identify the most common cause of bloody stools in infancy
3. Recognize that direct hyperbilirubinemia in infants is abnormal and warrants immediate further investigation

### **Common Elimination Problems in Children (Wetting and Constipation)**

At the end of this lecture the student will be able to:

1. Describe the typical progression, signs of readiness, and approaches to facilitate toileting
2. Describe an approach to the assessment and management of wetting (enuresis)
3. Describe an approach to the assessment and management of encopresis (soiling) and constipation

### **Small Group #6: ADHD and School Difficulties**

During this session the student will:

1. Apply a systematic approach in taking a pediatric history and physical exam. Beginning with the Presenting Complaints then moving through the Developmental History, Past Medical History and Family and Social History
2. Provide a differential diagnosis for school and academic struggles.
3. Apply DSM-V diagnostic criteria for ADHD
4. Identify the developmental and psychiatric conditions that commonly co-occur with ADHD
5. Outline an appropriate management plan for both a child with ADHD, as well as ADHD and co-morbidities.
6. Understand the difference between learning disability and intellectual disability and that not all inattention in the classroom is ADHD.

### **Sudden Death in Infancy (SIDS)**

At the end of this lecture the student will:

1. Define “Sudden Infant Death Syndrome”
2. List risk factors for SIDS
3. Describe strategies to decrease the risk of SIDS
4. Describe the impact of infant death on the family and community, and identify strategies to support the grief process

### **Small Group #7: Prematurity and Disorders of tone**

At the end of this session, the student will:

1. Discuss an approach to the child presenting with “abnormal tone”
2. Demonstrate the ability to obtain a developmental history
3. Recognize delays in development and appreciate signs of abnormal development that may represent a need for follow-up or referral.
4. Demonstrate a patient-centered and family-centered approach to patient care.

### **Common Nephrology Problems in Childhood**

At the end of this lecture the student will be able to:

1. Describe an approach to the investigation and management of a child with hematuria
2. List common etiologies of hematuria in children

3. Describe an approach to the investigation and management of a child with proteinuria
4. List common etiologies of proteinuria in children
5. List risk factors for UTI's in children

### **Infectious Rashes**

At the end of this lecture the student will be able to:

1. Describe an approach to a thorough history for a presenting rash
2. Describe a rash using standard terminology, including quality of rash and sites of distribution
3. Describe the appearance, etiology, prodromes and incubation periods of common infectious pediatric rashes, including but not limited to:
  - a. Varicella zoster virus
  - b. Roseola
  - c. Impetigo
  - d. Scarlet fever
  - e. Kawasaki Disease
  - f. Measles
  - g. Rubella
  - h. Molluscum
  - i. Rubeola

### **Small Group #8: Pediatric Neurology**

During this session, the student will:

1. List key features on history and physical examination for a child presenting with a paroxysmal event, in order to determine the nature of that event, and whether it represents a seizure or seizure mimic
2. Formulate a management plan for a child presenting with a paroxysmal event, based on the most likely etiology after interpreting data from history and physical examination
3. List key features on history and physical examination for a child presenting with headache
4. Formulate a management plan for a child presenting with headache

### **Serious Childhood Infections**

At the end of this lecture the student will:

Discuss the risk factors, pathophysiology, clinical presentation and treatment of the following serious infections:

- a. skin and soft tissue infections (SSTIs) including cellulitis and necrotizing fasciitis
- b. osteomyelitis and septic arthritis
- c. meningitis

### **Common Respiratory Tract Infections in Childhood**

At the end of this lecture the student will be able to:

1. Describe the presentation, risk factors, diagnosis, management and complications of common respiratory tract infections, including:
  - a. acute otitis media
  - b. pharyngitis
  - c. sinusitis
  - d. pneumonia
2. Describe patterns of physical findings related to specific viral syndromes causing pharyngitis

### **Non-infectious Rashes**

At the end of this lecture the student will be able to:

1. Discuss the presentation, diagnosis and treatment of non-infectious pediatric eruptions, including the following:
  - a. Common transient benign lesions of the newborn
  - b. Port Wine Stain
  - c. Atopic dermatitis
  - d. Seborrheic dermatitis
  - e. Diaper dermatitis
  - f. Stevens-Johnson Syndrome
  - g. Gianotti-Crosti Syndrome
  - h. Acropustulosis of infancy

### **Could this Child Have Cancer?**

At the end of this lecture the student will be able to:

1. Describe the burden of illness of childhood cancer, and cancer survivorship
2. Identify the most common types of childhood cancer by age group (<15yo, >15yo)
3. Identify 4 distinct clinical presentation suspicious for cancer, and their associated cancers
4. Identify known risk factors for childhood cancer
5. Describe common presentations of childhood cancer, and identify red flags in history or physical examination indicating that consideration of neoplastic disease and further investigation is warranted in the following presentations:
  - a. Headache
  - b. Lymphadenopathy
  - c. Musculoskeletal pain
  - d. Abdominal pain

### **Small Group #9: Community Paediatric Cases**

By the end of this session, students will be able to:

1. Discuss investigations and differential diagnosis of failure to thrive
2. Outline the typical history and management of pediatric constipation
3. Recognize and discuss investigative work up for a pediatric patient with proteinuria
4. Recognize common, benign causes of abnormal urinalysis

### **Approach to the Critically Ill Child**

At the end of this lecture the student will be able to:

1. Distinguish the three components of the Pediatric Assessment Triangle
2. Identify features of initial assessment unique to pediatrics
3. Using data from the PAT assessment, form a general impressions of the degree of illness and system(s) involved
4. Describe an approach to a focused history and physical examination for the critically ill child

### **Respiratory Emergencies**

At the end of this lecture the student will be able to:

1. Describe a clinical assessment of the child in respiratory distress
2. Provide a differential diagnosis of stridor in a child
3. Describe the clinical presentation and management of foreign body aspiration and croup.
4. Provide a differential diagnosis of wheeze in a child
5. Discuss the clinical presentation and management of bronchiolitis and acute asthma

### **Shock**

At the end of this lecture the student will be able to:

1. Outline the differences between adult and pediatric shock
2. Recognize compensated and uncompensated shock
3. Identify the most common causes of shock in children
4. Describe an approach to the management of hypovolemic, septic and anaphylactic shock

### **Gastroenteritis and Dehydration**

At the end of this lecture the student will be able to:

1. Describe normal pediatric fluid requirements
2. Outline an approach to assessing hydration status in children
3. Distinguish viral gastroenteritis from other causes of vomiting and diarrhea
4. Formulate a management plan for a child with mild, moderate and severe dehydration secondary to gastroenteritis

### **Non-Accidental Trauma**

At the end of this lecture the student will:

1. Define child abuse and neglect
2. Identify red flags on history raising concern for abuse and/or neglect
3. Identify suspicious injuries on physical exam
4. Describe appropriate investigations in the management of suspected non-accidental trauma
5. Describe the differential diagnosis for various injuries/mimics of trauma
6. Know your medical and legal responsibilities

### **Non-accidental Trauma: Multidisciplinary Approach**

At the end of this lecture the student will be able to:

1. Describe the roles of various team members of the Child Abuse Service
2. Describe the process of reporting cases of suspected abuse or neglect to Child and Family Services
3. Describe in basic terms the long term consequences of abuse, including the impact on brain development

### **Pediatric Multi-System Trauma**

At the end of this lecture the student will be able to:

1. Describe the differences in type and location of traumatic injuries in children compared to adults
2. Describe an approach to management of a child with multisystem trauma with attention to blunt abdominal trauma and closed head injury

### **Common Minor Trauma**

At the end of this lecture the student will be able to:

1. Describe the clinical presentation, assessment, and basic approach to management of the following common childhood injuries:
  - a. Minor head trauma
  - b. Concussion
  - c. Sprains
  - d. Fractures
  - e. Lacerations

### **Poisoning**

At the end of this lecture the student will be able to:

1. Outline a standard approach in managing a pediatric patient presenting with poisoning
2. Recognize autonomic syndromes (toxidromes) on physical exam to help determine the nature of the ingestion
3. Describe strategies to minimize gut absorption and enhance clearance of drugs
4. Identify N-acetylcysteine (NAC) as an antidote for the treatment of acetaminophen overdose, outline the mechanism of action, and describe how it is used

### **Common Surgical Conditions in Childhood**

At the end of this lecture the student will be able to:

1. Identify the signs and symptoms that suggest intestinal obstruction in an infant
2. List the major causes of intestinal obstruction in an infant, both congenital and acquired
3. Describe common groin abnormalities in children
4. Discuss the presentation of a Meckel's diverticulum
5. Outline an approach to the child with acute abdominal pain, including diagnosis and management of appendicitis and intussusception

### **Small Group #10: Pediatric Infectious Diseases: Common Infections**

During this session, the student will be given a clinical scenario and will be expected to develop a differential diagnosis and management plan for a child presenting with the following symptoms:

1. Pharyngitis
2. Otagia
3. Rhinorrhea
4. Cough and work of breathing

### **The Adolescent: Special Medical Concerns**

At the end of this lecture the student will be able to:

1. Describe the typical patterns of linear growth and pubertal development
2. Describe the major tasks of adolescent psychosocial development:
  - a. Independence
  - b. Body image
  - c. Peers
  - d. Identity formation
3. Describe the SSHADESS approach to interviewing adolescents
4. Describe issues of confidentiality and consent to treatment for adolescents in the family context

5. Describe Health Risk Behaviors during adolescence

### **Small Group #11: Pediatric Emergency Medicine**

During this session, the student will:

1. Identify key features on history and physical examination, and interpret those findings to develop a differential diagnosis and management plan for a child presenting with respiratory distress
2. Identify key features on history and physical examination, and interpret those findings to develop a differential diagnosis and management plan for a child presenting in shock
3. Identify key features on history and physical examination, and interpret those findings to develop a differential diagnosis and management plan for a child presenting with suspected poisoning

### **Typical Sleep in Childhood and Common Concerns**

At the end of this lecture the student will be able to:

1. Describe sleep needs for different age groups
2. Outline healthy sleep practices
3. Formulate a management plan for common concerns, including:
  - a. Nightmares
  - b. Parasomnias
  - c. Behavioral insomnia

### **The Child with a Chronic Medical Condition (Patient Presentation)**

At the end of this lecture, the student will be able to:

1. Appreciate the journey of a patient and family who have experienced our health care system throughout childhood and adolescence
2. Recognize the challenges and emotional impact of having/being a child with chronic medical needs
3. Appreciate the excellent QOL that can be achieved in pediatric patients with serious medical problems
4. Consider the importance of advocacy in our children/patients with chronic medical conditions

### **Breast anatomy**

Explain the embryological and subsequent hormonally related development of the female breast

1. Identify the anatomical structures comprising and surrounding the breast
2. Describe the blood supply of the breast
3. Describe the lymphatic drainage of the breast

### **Breast Concerns Over the Lifespan**

1. Review various patient presentations with breast concerns (mastalgia, lactation concerns, breast infection, breast lump, nipple discharge) at various stages of life.
2. Describe the relevant history, physical exam, potential investigations and treatment options.
3. Distinguish cyclic vs non-cyclic breast pain
4. Distinguish physiological vs pathological breast changes.
5. Describe current screening recommendations and a collaborative approach to decision making.

### **Malignant Breast Disease**

1. Describe the epidemiology of breast cancer in Canada
2. List the most relevant risk factors for breast cancer
3. Describe the screening recommendations for breast cancer in Canada
4. Describe the Staging and Principles of Treatment of malignant breast disease
5. Describe the Surveillance and follow up of malignant breast disease

### **Breast cancer screening**

1. Describe the current recommendations for mammographic screening of the breast
2. Describe the role of MRI and ultrasound in breast cancer screening
3. Describe sensitivity and specificity of mammography vs other types of breast imaging
4. Discuss implications of false negative and false positive screening results
5. Explain the BI-RADS reporting system for mammography
6. Describe quality assurance of screening mammography

### **Breast pathology**

1. Describe the normal histology of the breast
2. Describe terminology that distinguishes benign from malignant breast disease
3. Describe grading of breast cancer
4. Describe biomarkers and molecular tests relevant to breast cancer
5. Describe the gross and histopathologic features of the most common benign (Fibroadenoma and Intraduct Papilloma), and malignant (Invasive Ductal and Invasive Lobular Carcinoma) lesions of the breast
6. Describe limitations of Fine Needle Aspiration (FNA) vs core/excisional biopsy in terms of pathology diagnosis
7. Describe the most common cancer associated pathologic conditions associated with nipple and adjacent breast skin changes

For more detailed and up-to-date information on specific topics in obstetrics and gynecology, students should access practice guidelines and medical position at the following websites:

- The Society of Obstetrics and Gynecology:

<http://sogc.org/clinical-practice-guidelines/>

8.

### **Survivorship care and follow-up Define survivorship**

1. Describe recommendations for investigations and follow-up for surveillance of patients who have had curative intent treatment for breast cancer
2. Describe management of common late toxicities of breast cancer treatment
3. Describe relevant history, physical exam and investigations when local recurrence and/or metastatic disease is suspected
4. Describe metastatic disease presentations that require emergency management

### **Surgical Management of Breast Cancer**

1. Describe the surgical options for management of malignant breast disease
2. Describe sentinel node biopsy and how it guides management of malignant breast disease
3. Describe options for breast reconstruction after mastectomy

### **Patient presentation**

1. Describe the psychological, social, and financial issues associated with a diagnosis of breast cancer
2. Demonstrate an understanding of the psychosocial issues around a diagnosis of cancer, relevant to different cultures, faiths and traditions
3. Describe the role of an oncology psychosocial care provider in the hospital and in the community

### **SG#12 Benign Breast and Breast Cancer Cases**

1. Describe relevant history, physical examination, and investigations of a patient presenting with mastalgia and/or nipple discharge
2. Identify the anatomical structures comprising and surrounding the breast
3. Be able to distinguish between physiologic and pathologic nipple discharge
4. List two diagnostic imaging tests to evaluate pathologic nipple discharge
5. Be able to distinguish between cyclic and non-cyclic breast pain

### **Menstrual Cycle**

At the end of this lecture the student should be able to:

1. Define the menstrual cycle, follicular phase, and luteal phase
2. Recall the average duration of the menstrual cycle, follicular phase, and luteal phase
3. Explain the biofeedback loop of the menstrual cycle
4. List 4 physiologic changes resulting from the LH surge

### **Pelvic Pain**

At the end of this lecture the student should be able to:

1. List the differential diagnosis of pelvic pain
2. Understand the clinical presentations of the different causes of pelvic pain
3. Effectively order investigations to diagnose the cause of pelvic pain
4. Explain the treatment options for a patient with pelvic pain

### **SG#13 Malignant Breast Disease**

1. Describe relevant history, physical examination, and investigations of a patient presenting with a breast lump
2. Describe the hormonal and non-hormonal factors that are associated with breast cancer
3. Explain the BI-RADS reporting system for mammography
4. Describe the lymphatic drainage of the breast
5. Discuss the approach to staging of breast cancer with an emphasis on understanding how breast cancer spreads to regional and distant organs
6. Explain the role of adjuvant systemic therapy (chemo-, endocrine-, and molecular therapy)
7. Explain the role of adjuvant breast radiotherapy after breast conserving surgery
8. Describe recommendations for investigations and follow-up for surveillance of patients who have had curative intent treatment for breast cancer
9. Describe management of common late toxicities of breast cancer treatment
10. Describe relevant history, physical exam and investigations when local recurrence and/or metastatic disease is suspected
11. Describe metastatic disease presentations that require emergency management

### **Amenorrhea**

At the end of this lecture the student should be able to:

1. Define primary and secondary amenorrhea
2. Use the hypothalamic-pituitary-ovarian and outflow tract axis to explain the differential diagnosis of
  - a. Primary amenorrhea
  - b. Secondary amenorrhea
3. Demonstrate the focused and relevant history you would take from a patient who presents with amenorrhea.
4. List the relevant and useful diagnostic tests to investigate primary and secondary amenorrhea.

### **Pediatric Gynecology**

At the end of this lecture the student should be able to:

1. Explain how mullerian anomalies occur embryologically
2. List the differential diagnosis and describe the management of vaginal discharge in the pediatric population
3. Explain the management of labial adhesions in the pediatric population
4. Summarize how a patient with an imperforate hymen presents and how to manage her.

### **Abnormal Uterine Bleeding**

At the end of this lecture the student should be able to:

1. List the differential diagnosis of abnormal uterine bleeding
2. Explain the pathophysiology of anovulatory dysfunctional uterine bleeding
3. Recite the tests you would order to investigate abnormal uterine bleeding and explain the rationale behind why you would order each test
4. Discuss the management options for PCOS, ovulatory and anovulatory bleeding

### **Contraception**

At the end of this lecture the student should be able to:

1. Explain the mechanism of action for each of the following: the oral contraceptive pill, Depo Provera, the copper IUD and Mirena IUS

2. Counsel a woman on her contraceptive options including a discussion of the efficacy, risks, side effects, and benefits of each option.
3. Discuss emergency postcoital contraceptive options including timing of administration, side effects, risks, benefits, and efficacy

### **Pelvic Mass and Pelvic Mass Pathology**

At the end of this lecture the student should be able to:

1. List the differential diagnosis of a pelvic mass
2. Take a focused history, including symptom and risk factor delineation, from a patient presenting with a pelvic mass
3. Identify the clinical features of a pelvic mass that increase the index of suspicion for malignancy.
4. Describe the ultrasonographic features of an ovarian mass that increase the suspicion of malignancy
5. Recite the classification, pathogenesis, and key pathological features of select lesions of the female genital tract which present as a pelvic mass

### **SG#14 Abnormal Uterine Bleeding**

At the completion of this session the learner will be able to:

1. Take a focused history from a patient who presents with abnormal uterine bleeding
2. Develop a differential diagnosis for abnormal uterine bleeding
3. List the tests you would order to investigate abnormal uterine bleeding and explain the rationale behind why you would order each test
4. Explain the physical examination you would perform on a patient who presents with abnormal uterine bleeding.
5. Discuss the management options for abnormal uterine bleeding

### **SG#15 Contraception**

**At the completion of this session, the student should be able to:**

1. Take a history from a patient presenting for contraception.
2. Demonstrate the ability to counsel a patient regarding contraceptive options, pros/cons, and possible side effects and risks of each.
3. Be able to guide a patient through her contraceptive choices as she progresses through her reproductive life.

### **Menopause**

At the end of this lecture the student should be able to:

1. Define Menopause
2. Describe the spectrum of symptoms associated with menopause
3. Explain the treatment options for the symptoms associated with menopause
4. Discuss the risks associated with HRT with respect to breast cancer, endometrial cancer, cardiovascular disease, and DVT

### **PMP Bleeding**

At the end of this lecture the student should be able to:

1. Define postmenopausal bleeding
2. Recognize the most common etiologies of postmenopausal bleeding
3. List the tests used to investigate postmenopausal bleeding
4. Describe the common management strategies for postmenopausal bleeding

### **STIs, PID, and Vulvovaginitis**

At the end of this lecture the student should be able to:

1. Differentiate between bacterial vaginosis, trichomoniasis and vulvovaginal candidiasis based on clinical examination, symptomatology, pH, "whiff" testing, and microscopy

2. List the reportable STIs
3. List 5 of the criteria used to determine the need for hospitalization in a patient with PID
4. Explain the possible risks/long term sequelae associated with Chlamydia, gonorrhea and PID.

### **Infertility**

At the end of this lecture the student should be able to:

1. Discuss the major causes of male and female factor infertility
2. Take a focused history from an infertile patient
3. Order relevant investigations for infertility and interpret the results

### **First Trimester Bleeding**

At the end of this lecture the student should be able to:

1. Identify the major causes of 1st TM bleeding
2. Recognize the clinical presentations of spontaneous abortion, ectopic pregnancy and gestational trophoblastic neoplasia
3. Use Ultrasound and Lab Investigations to differentiate between the causes of 1st TM bleeding
4. Recommend appropriate therapy for spontaneous abortion, ectopic pregnancy and gestational trophoblastic neoplasia

### **Abnormal Uterine Bleeding Pathology**

At the end of this lecture the student should be able to:

1. List the classification of select neoplastic lesions of the placenta and uterus that cause abnormal uterine bleeding
2. Explain the pathogenesis of select neoplastic lesions of the placenta and uterus that cause abnormal uterine bleeding
3. Identify the key pathological features of select neoplastic lesions of the placenta and uterus that cause abnormal uterine bleeding

### **STIs: Ulcers & HPV**

At the end of this lecture the student should be able to:

1. List the differential diagnosis of vulvar ulcers.
2. Identify the clinical findings in each stage of syphilis
3. Describe the options for diagnosing genital herpes.
4. List treatment options for condyloma accuminata

### **Abnormal Pap and Abnormal Pap Pathology**

At the end of this lecture the student should be able to:

1. Identify patients at high risk for cervical dysplasia
2. Explain the pathogenesis of cervical dysplasia and malignancy
3. Discuss cervical cancer's primary and secondary prevention strategies
4. Identify cytological and histological features of cervical dysplasia and malignancy
5. Understand management of abnormal cervical cytological lesions found on pap smear
6. Explain the classification of cervical malignancy and its precursor lesions

### **SG #16 Pelvic Pain and Pelvic Mass**

By the end of this session the student should be able to

1. Take a focused history from a patient presenting pelvic pain
2. Describe the physical examination you would perform on a patient who presents with pelvic pain
3. List the differential diagnosis of pelvic pain
4. Effectively order investigations to diagnose the cause of pelvic pain
5. Discuss the management options for a patient who presents with acute pelvic pain

### **SG #17 Pelvic Mass Pathology**

At the end of this lecture the student should be able to:

1. Identify the key pathological features of select lesions of the female genital tract which present as a pelvic mass

### **SG #18 Abnormal Uterine Bleeding Pathology**

At the end of this lecture the student should be able to:

1. Identify the key pathological features of select neoplastic lesions of the placenta and uterus that cause abnormal uterine bleeding

### **Vulvar Dystrophies**

At the end of this lecture the student should be able to:

1. Identify vulvar anatomy
2. Describe how to completely evaluate a vulvar skin lesion
3. Identify the classic clinical presentation and appearance of lichen sclerosis
4. Summarize the typical clinical presentation of a Bartholin's Gland Abscess and its treatment.
5. Explain vulvar hygiene

### **Female Sexuality and Female Sexual Dysfunction**

At the end of this lecture the student should be able to:

1. Discuss the female sexual response cycle
2. Demonstrate how to take a history on a woman who presents with sexual dysfunction
3. List the differential diagnosis of female sexual dysfunction

### **SG#19 Abnormal Pap Pathology**

At the end of this lecture the student should be able to:

4. Describe the classification and key pathological features of cervical malignancy and its precursor lesions
5. Identify the pap test features of cervical malignancy and its precursor lesions

### **Incontinence**

At the end of this lecture the student should be able to:

1. Explain the physiology of normal bladder function
2. Define the types of urinary incontinence
3. List the risk factors for stress urinary incontinence
4. Explain the typical presentation for each type of urinary incontinence

### **Genital Prolapse**

At the end of this lecture the student should be able to:

1. List 6 risk factors for pelvic organ prolapse.
2. List the 3 main supports of the uterus
3. List 5 supports for the vagina
4. Discuss the treatment options for prolapse

### **SG #21 Gyne Emergencies**

At the end of this lecture the student should be able to:

1. Take a focused history from a patient presenting first trimester bleeding
2. Describe the physical examination you would perform on a patient who presents with first trimester bleeding
3. List the differential diagnosis of first trimester bleeding
4. Use Ultrasound and Lab Investigations to differentiate between the causes of first trimester bleeding
5. Discuss the management options for a patient who presents with an ectopic pregnancy or a spontaneous abortion

### **Pregnancy Termination: an Ethical Perspective**

At the end of this lecture the student should be able to:

1. Demonstrate an understanding of the history of abortion in Canada

2. Develop an understanding for the autonomy of a pregnant woman vs the rights of the fetus vs the responsibilities and conscience of the physician
3. Recall the guidelines for gestational ages at which pregnancies may be terminated in Alberta

### **Pregnancy Termination**

At the end of this lecture the student should be able to:

1. Define induced abortion
2. Demonstrate the focused history required for a patient requesting/requiring an induced abortion
3. List the testing that must be performed prior to an induced abortion
4. Discuss the options available for termination of pregnancy

### **G#22 Menopause and Prolapse**

At the end of case #1 the student should be able to:

4. Take a focused history from a patient presenting with menopausal symptoms
5. Describe the benefits associated with hormone replacement therapy (HRT)
6. Explain the risks associated with HRT
7. Discuss the role of progesterone in HRT

At the end of case #1 the student should be able to:

1. Take a focused history from the patient with pelvic organ prolapse
2. Describe the physical examination of a patient with pelvic organ prolapse
3. Describe the staging of pelvic prolapse
4. Explain management options for pelvic organ prolapse

### **Monogenic disorders and non-mendelian inheritance**

At the end of this lecture the student should be able to:

1. Describe the characteristic features of Mendelian inheritance patterns, and deduce the mode of inheritance from a pedigree.
2. Explain how factors such as reduced penetrance, delayed age of onset, variable expressivity, genetic heterogeneity (locus and allelic), anticipation, pleiotropy and environmental factors affect the phenotypic expression of a disease and the observed pattern of inheritance.
3. Assess recurrence risks for Mendelian disorders.
4. Appreciate concepts of non-Mendelian inheritance, including somatic and germline mosaicism, uniparental disomy, epigenetics and genomic imprinting, unstable repeat expansion and contraction, and maternal inheritance. Explain how these phenomena may affect phenotype and recurrence risk.

### **Hereditary Cancer**

At the end of this lecture the student should be able to:

1. Differentiate between sporadic, familial, and hereditary cancer based on medical and family history, and identify individuals at increased personal risk of cancer.
2. Describe the role of genetic testing for hereditary cancer (including benefits, limitations, and ethical implications) for patients and their unaffected family members.
3. Recognize the manifestations of common hereditary cancer syndromes.
4. Explain how genotype of the tumor and/or patient influences rational/targeted drug design and individualized cancer treatment.

### **Management of Genetic Disorders**

At the end of this lecture and the following patient presentation the student should be able to:

1. Define genetic counselling.
2. Recognize how and where to access appropriate information regarding management and surveillance, once a genetic diagnosis has been made.

3. Access information about appropriate patient support and resources including rare disease support groups, community groups, and other resources that may benefit the patient and family.
4. Understand that knowledge of the patient's genotype might alter medical management of a condition, and describe treatment strategies for genetic diseases, including supportive and targeted therapies.
5. Understand the experience and challenge for families living with rare genetic disorders.

### **SG#23 Genetics Small Group Case 1 (PKU)**

At the end of this case the student should be able to:

- Given a patient identified with a monogenic (single-gene) disorder, differentiate among the various modes of inheritance using pedigree information and knowledge of the particular condition.
- Recognize that an individual may be at higher risk than others for carrying a rare recessive allele by virtue of belonging to a particular ethnic group and/or due to consanguinity (inbreeding). Understand that carrier testing may be available via referral to Medical Genetics.
- Calculate recurrence risks for individual family members based on mode of inheritance, pedigree analysis (genetic relationship to affected), results of carrier testing (if possible), prior reproductive history, and frequency of the gene in the general population/ethnic group.
- Recognize the importance of early diagnosis and the role of universal newborn screening for treatable genetic conditions. Describe the difference between a screening test and a diagnostic test, using the example of PKU.

### **Genetics Small Group Case 2 (22q11 deletion syndrome)**

At the end of this case the student should be able to:

- Recognize the risk for an underlying genetic problem, particularly fetal aneuploidy or other chromosomal abnormalities, when fetal anomalies are present.
- Develop a differential diagnosis for fetal abnormalities (including both genetic and non-genetic causes) and counsel a pregnant patient about prenatal testing options.
- Communicate to patients the strengths and limitations of cytogenetic testing in pregnancy, including rapid aneuploidy testing, microarray and karyotype.
- Explain how a cytogenetic anomaly identified in an affected fetus influences the risk assessment for parents' future pregnancies.
- Recognize that the Medical Genetics service plays an important role in the multidisciplinary assessment and management of high-risk/abnormal pregnancies.
- Discuss the approach to management of an infant or child with a genetic disorder.

### **Genetics Small Group Case 3 (Hereditary Breast and Ovarian Cancer)**

At the end of this case the student should be able to:

- Recognize personal and family history factors that are suggestive of an inherited BRCA1 or BRCA2 mutation in a patient with breast and/or ovarian cancer.
- Recognize the autosomal dominant pattern of inheritance of BRCA1 and BRCA2 mutations in families (including transmission through males, and impact of incomplete penetrance and variable expressivity).
- Understand limitations of genetic testing for hereditary breast and ovarian cancer
- Recognize the ethical issues surrounding predictive testing for adult onset conditions in minors.
- Discuss an approach to cancer surveillance and prevention for patients and families with hereditary cancer predisposition.

#### **Genetics Small Group Case 4 (Whole Exome Sequencing)**

At the end of this case the student should be able to:

- Understand some of the possible indications for whole exome sequencing (WES) and its potential benefits in the diagnosis of genetic disorders.
- Understand the limitations of WES.
- Understand the concept of incidental findings in the setting of WES, and the potential implications for patients and families.
- Describe the elements of informed consent for WES