INTRODUCTION:
- > 392,000 babies born in Canada each year – GENERALLY HEALTHY
- > 80% of infants born at full-term gestation are normal birth weight and have no obvious congenital defect or illness

1) IMMEDIATE CARE:

PURPOSES:
- Preserve function & physiology transition from fetal → neonatal state
- Stabilize and assess systems which may have sustained injury
- Conserve warmth
- Assessment

IMMEDIATE CARE:

As infant is delivered	• Face wiped • Mouth and nostrils suctioned
At delivery	• Assessed for visible abnormalities • Umbilical cord clamped and cut • Normal baby begins to breathe & cry • APGAR score done • Cord blood test • Baby dried, skin-to-skin contact with mom

APGAR SCORE:

Activity (muscle tone)	0	Limp; no movement				
	1	Some flexion of arms and legs				
	2	Achieve motion				
Pulse	0	No HR	1	< 100 bpm	2	≥ 100 bpm
Grimace (reflex response)	0	No response to airways being suctioned				
	1	Grimace during suctioning				
	2	Grimace+pull away, cough/sneeze during suctioning				
Appearance (color)	0	Whole body is completely blueish gray or pale				
	1	Good color in body with blueish hands or feet				
	2	Good color all over				
Respiration (breathing)	0	not breathing				
	1	Weak cry; may sound like whimpering, slow or irregular breathing				
	2	Good, strong cry; normal rate & effort of breathing				

- Clinical tool to identify neonates who may require resuscitation
- Assessed at 1 and 5 minutes after birth
- Used to determine effectiveness of resuscitation measures
  - DOES NOT predict intelligence or long-term outcome!

CORD BLOOD SAMPLE: blood type, Rh test, serologic tests for syphilis

2) ROUTINE CARE

PHYSICAL ASSESSMENT	• Vital signs • Behavior/activity • Color/perfusion • Initial void and stool • Jaundice
CLASSIFICATION (GA & birth weight)	• SGA < 10th percentile • AGA 10th – 90th percentile • LGA > 90th percentile

3) TRANSITION PERIOD:
- Time for newborn to adjust to life outside of the uterus (8-12 hours)
- Stages: reactivity, sleep, reactivity

4) SUBSEQUENT CARE:

FIRST FEEDING	• When infant indicates need for feed • Sterile water offered initially to assess swallowing • Breast ideally initiated in the delivery room • Formula unnecessary in the delivery room
ROOMING IN	• Infant kept in crib at mother's bedside • Parents responsible for newborn care, infection control, safety and newborn security

5) LENGTH OF STAY: becoming progressively shorter
- Uncomplicated vaginal delivery: 1-2 days ; Cesarean birth: 3-5 days
- Hospital setting provides opportunity for important early counselling

VITAMIN K:

USE	• Prevents Vitamin K deficient bleeding in newborn • Early vitamin K deficiency → bleeding in 1st week of life ○ Often in CNS • Incidence = 0.25 – 1.7%
CAUSES:	• Inadequate activity of vitamin K dependent coagulation • Low levels of vitamin K at birth
DOSE:	• Vitamin K 1 mg IM/SC x 1 dose OR • Vitamin K 2 mg PO with first feeding → at 2-4 weeks → at 6-8 weeks of age (= x 3 doses in total) • NOT routinely given IV

EYE CARE (OPTHALMIA NEONATORUM)

DEFINITION	• Inflammation of conjunctiva in infant < 30 days • May result in blindness	
COMMON BUGS	• *N. gonorrhea* (**highest potential for causing blindness)	• *Chlamydia* • *Staph aureus* • *Viridans streptococci*
RISK FACTORS	• Premature rupture of membranes • Mom has STD • Local eye injury during delivery • More common with vaginal delivery ○ CAN occur in babies born via caesarean	
DRUG THERAPY	• Must be administered within 1 hour of birth • Dispensed in single use containers ○ 0.5% erythromycin base opt ung	
CONTROVERSY	• Most data related to neonatal eye infection from *N. gonorrhea* • Neonatal gonococcal opthalmia is rare in Canada • Erythromycin = only opth abx eye ung available for use in newborns → questionable efficacy • Prophylaxis is **mandatory in BC** • Maternal screening (& txt) for chlamydia and gonorrhea likely <u>more effective</u> than abx eye ung • Applying medication to eye of newborns may result in mild irritation	

NEONATAL JAUNDICE:

OVERVIEW	• All newborns have ↑ bilirubin levels for 1st week of life • 50% newborns have visible jaundice • Breakdown of RBCs → release bilirubin into serum
CAUSED BY:	• ↑ RBC volume • Immaturity of hepatic billi conjugation • ↑ enterohepatic billi circulation • ↓ RBC survival • ↓ bili uptake from plasma by liver
CONCERNS	• Risk of bilirubin encephalopathy/kernicterus • Possible sign of serious underlying illness
TXT	• Breastfeeding • Fluids • Phytotherapy • Exchange transfusion

UMBILICAL CORD CARE:

OVERVIEW	• Cord is cut → stump dries → dry gangrene → falls off • Risk of systemic infection • Normally falls of 5-15 days after birth
HOME CARE	<u>No method found to be most effective in preventing infxn</u> • Wash hands with soap & water before and after • **Keep cord clean and dry** • Cotton swab soaked in water to clean around base • Expose cord to air or cover loosely with clean clothes • Fold diaper below the level of the umbilicus • Skin to skin contact with mother to promote colonization with non-pathogenic bacteria
AVOID	• Alcohol swabs NOT recommended • Avoid button, coins, bandages, or binders

CIRCUMCISION: not recommended routinely by Canadian Pediatric Society
- Possibly some benefit in high-risk populations and circumstances
- Potentially: ↓UTI and STIs (including HIV)

NEWBORN SCREENING:

OVERVIEW:

PURPOSE	• To screen all newborns for disorders where:
	  ○ Sx not clinically present until reversible damage has occurred
	  ○ Treatment is available

IN BC	• 22 diseases screened • 40,000 babies screened each year • Approx. 40 (1 in 1000) diagnosed with one of the diseases
PROCEDURE	• Heel poke blood sample at 24-48 hours of age

METABOLIC DISORDERS

TREATMENT	• Usually dietary
	  ○ Restriction of foods
	  ○ Use of nutritional supplements

AMINO ACID DISORDERS	• **Phenylketonuria (PKU) ** most common** • Maple Syrup Urine Disease (MSUD) • Citrullinemia (CIT) • Argininosuccinic Acidemia (ASA) • Homocystinuria (Hcy) • Tyrosinemia 1 (Tyr 1)
FATTY ACID OXIDATION DISORDER	• **Medium-chain Acyl-CoA Dehydrogenase Deficiency (MCAD) **most common** • Long-chain Hydroxyacyl-CoA Dehydrogenase Deficiency (LCHAD) • Very-long chain AcylCoA Dehydrogenase Deficiency (VLCAD) • Trifunctional protein Deficiency (TFP)
ORGANIC ACID DISORDERS	• Galactosemia (GALT) • Propionic Acidemia (PROP) • Methylmalonic Acidemia (MUT) • Cobalamin Disorders (Cbl A, B) • Glutaric Aciduria Type 1 (GA 1) • Isovaleric Acidemia (IVA)

ENDOCRINE DISORDERS:

CONGENITAL HYPOTHYRODIISM	INCIDENCE	1: 30000
	PATHO-PHYSIOLOGY	Thyroid does not produce enough T4
	CONCERNS	Lack of thyroid hormone → cretinism → growth retardation, developmental delay and other abnormal features
	TREATMENT	**Levothyroxine** 10 mcg/kg PO daily, increase dose by 12 mcg/d q2 weeks until TSH < 20 mU/L and T4 = 130-190 nmol/L *(Then you can slow down titration to hit normal levels. Treatment is life-long*)
CONGENITAL ADRENAL HYPERPLASIA		

OTHERS:

HEMOGLOBINOPATHIES	• Sickle Cell Disease • Sickle Cell / Hemoglobin C • Sickle Cell / β-thalassemia
CYSTIC FIBROSIS	