Outline of a 2 year Neonatology educational course (80 lectures)

PLUS 2 graduate level courses (GENETICS and BIOSTATISTICS & EPIDEMIOLOGY

Approximate Percent in Examination

I. Maternal-Fetal Medicine (6 lectures) 6%

Lecture 1
Physiology and maternal adaptation to pregnancy

Lectures 2
A. Maternal medical disorders affecting the fetus
B. Effect of medications and environmental agents on fetus

Lectures 3
Obstetric conditions and complications affecting the fetus

Lectures 4
Early fetal assessment, screening, ultrasound and treatment modalities during pregnancy

Lectures 5
Fetal monitoring including FHR and Doppler

Lectures 6
Labor and Delivery

II. Asphyxia and Resuscitation (3 lectures) 4%

Lectures 1
Perinatal Asphyxia/ Hypoxic Ischemic Encephalopathy

Lecture 2
Neonatal resuscitation

Lecture 3
Simulation and case studies

III. Cardiovascular (8 lectures) 9%

Lecture 1
Embryology, Development and physiology

Lecture 2
Cyanotic congenital heart disease

Lecture 3
Acyanotic congenital heart disease

Lecture 4
Cardiopulmonary distress in the absence of congenital heart disease

Lecture 5
Ultrasonography – define the anatomy with case studies

Lecture 6
Electrocardiography, electrophysiology, and dysrhythmias

Lecture 7
Pharmacologic therapy of heart disease

IV. Respiratory (12 lectures)..... 12%

Lecture 1
Embryology and lung development

Lectures 2
Pulmonary physiology

Lecture 4
Surfactant metabolism

Lecture 5
Respiratory distress syndrome (RDS)/Transient tachypnea

Lecture 6
Pneumonias, meconium aspiration syndrome (MAS), and PPHN

Lecture 7
Other causes of respiratory distress including CDH, CPAM, chylothorax and air-leak syndromes

Lecture 8
Apnea of prematurity and neonatal respiratory control

Lecture 9
Non-invasive Respiratory support (CPAP and NIMV).

Lecture 10
Mechanical Respiratory Therapy (PPV, HFOV, HFJV)

Lecture 11
Inhaled iNO and ECMO, iNO

Lecture 12
Chronic lung disease, bronchopulmonary dysplasia

V. Genetics, Dysmorphism and IEM (20 lectures)..... 7%

Graduate level course done once every 3 years by the division of Medical Genetics

VI. Nutrition (6 lectures) 8%

Lecture 1
Nutrition and growth (fetal and neonatal) including changes in body composition

Lecture 2
Large- and small-for-gestational age (LGA - SGA) infants

Lecture 3
Minerals, vitamins, and trace elements

Lecture 4
Enteral nutrition

Lecture 5
Parenteral nutrition

Lecture 6
Energy requirements with case studies

VII.Water/Salt/Renal (3 lectures)..... 5%

Lecture 1
Water and electrolyte metabolism

Lecture 2
Normal and abnormal renal function and development in the fetus and neonate

Lecture 3
Acquired renal disease

VIII.Endocrine/Metabolic/Thermal (6 lectures) 5%

Lecture 1
Sexual differentiation and adrenal disorders

Lectures 2
Thyroid disorders

Lecture 3
Pituitary and Adrenal disorders

Lecture 4
Glucose metabolism

Lecture 5
Calcium, phosphorous, and magnesium metabolism

Lecture 6
Thermal regulation

IX. Immunology (3 lectures) 3%

Lectures 1
Development and biology of the immune system

Lectures 2
Specific components of the immune system: B-lymphocytes (Ig), T- lymphocytes and PMNs

Lecture 3
Complement system, circulating factors and inflammation

X. Infectious Diseases (6 lectures) 6%

Lectures 1 & 2
Infections of organ systems

Lectures 3 & 4
Etiologic agents: Bacteria

Lectures 4 & 6
Etiologic agents: Viruses, Fungi and Protozoa
Preventive measures

XI. Gastroenterology (6 lectures) 4%

Lecture 1
Development of the GI tract including digestion and absorption

Lecture 2
Developmental anomalies and GI obstruction

Lecture 3
Pancreas, CF and malabsorption syndromes

Lecture 4
Abdominal wall defects

Lecture 5
Acquired disorders of the GI tract including NEC

Lecture 6
Liver disease of the newborn infant/Abdominal masses

XII. Bilirubin (2 lectures) 2%

Lecture 1
Bilirubin: Biochemistry, Metabolism & Toxicity

Lecture 2
Bilirubin: Physiologic, Pathologic and Breast Milk Jaundice

XIII. Skin Disorders (2 lectures) 2%

XIV. Hematology/Oncology (4 lectures)..... 5%

Lecture 1
Erythrocytes disorders

Lecture 2
Platelets and coagulation

Lecture 3
Leukocytes and Transfusions

Lecture 4
Neonatal Oncology

XV.Neurology (6 lectures)..... 7%

Lecture 1
Neurologic evaluation and neuro-diagnostic laboratory tests (LP)

Lecture 2
Development of the nervous system including CBF and neurotransmitters

Lecture 3
NTD and hydrocephalus

Lecture 4
Intracranial hemorrhage, vascular injury and Neurological trauma

Lecture 5
Seizures and Neurodiagnostic evaluations

Lecture 6
Other Neurologic Disorders including vascular malformations and neurocutaneous disorders

XVI. Developmental outcome (3 lectures)..... 3%

Lecture 1
Neurodevelopmental examination and diagnosis of ND impairment

Lecture 2
Cerebral palsy and Mental retardation

Lecture 3
Effects of the environment and Neonatal abstinence/withdrawal syndromes

XVII. Eyes, Ears, Nose, Mouth, Throat, and Neck (3 lecture) 3%

Lecture 1
Normal development and abnormalities of EENT

Lecture 2
Normal development and abnormalities of mouth, throat and neck

Lecture 3
Retinopathy of prematurity

XVIII. Basic Principles of Pharmacology (2 lectures) 2%

XIX.Health Services Delivery, Ethics & Family counseling (2 lectures) 2%

Lecture 1
Organization and Health Services Delivery

Lecture 2
Ethical issues, limits of viability and end of life care

XX. Core Knowledge in SA (12 lectures)... ..... 5%

Lecture 1
Principles of Teaching and Learning

Lecture 2-4
Evidence Based Neonatology – workshop/excercises

GL course done once every 3 years by MD/MPH Obstetrician in conjunction with MFM fellows
8 lectures