MINUTES OF THE CURRICULUM PLANNING COMMITTEE
December 1, 2010

PRESENT: John Bigbee, Georgia Blackwood, Linda Costanzo, Craig Cheifetz, Steve Crossman, Bob Diegelmann, Sue DiGiovanni, Alan Dow, Philip Ernest, Doug Franzen, Phil Hylemon, Pooya Jahanshahi, David Jessee, Sahar Lotfi-Emran, Ginny Pallante, Even Reiter, Paulina Rovner, Jeanne Schlesinger, Russ Seneca and Ike Wood.

ABSENT: Kate Bowers, MaryEllen Cleary, Jeff Dupree, Frank Fulco, Margaret Grimes, Rich Krieg, Maryann Martinovic, Charles Nottingham and Kimberly Oh.

The meeting was called to order at 3:10 p.m. by Ike Wood, Committee Chair.

The minutes of the September 1, 2010 meeting were reviewed. Ms. Pallante suggested that for the genetics longitudinal theme, Rachel Baughman Gannaway be replaced with Sue Ming to add more diversity to the planning group. Otherwise the minutes were approved.

Drs. Costanzo and DiGiovanni presented the update of the first three semesters of THE new curriculum with recommendations for examinations. Dr. DiGiovanni explained that they had collapsed the section from seven groups to five groups. They recommended a quiz during the middle of the first group to acquaint students with the types of questions they will encounter on a medical school examination. In general, examinations would occur every three weeks. The committee made recommendations for rearranging some topics and regrouping resulting in six groups. Overall, there will be less time than usual for topics which will require faculty to prioritize what should and should not be covered. Discussion ensued about whether there should be a comprehensive examination at the end of the Scientific Foundations of Medicine. Consensus was that there should be such an examination that is clinically driven, covers important concepts and presented patient vignettes that would require integration of the topics learned during the first semester. As an example, Dr. DiGiovanni suggested HIV infection as a clinical presentation that would lend itself to many aspects of the material covered in the Scientific Foundations of Medicine. It was stressed that on self-assessments and prior examinations, students should have the opportunity to work through questions written in the format of the comprehensive examination to give them practice on how to approach such questions. Also, it was recommended that the students be given a study break (reading period) to prepare for the comprehensive examination. As the details of the semester continue to be developed, it was recommended that careful consideration be given to the weight of the seven examinations and the comprehensive examination.

Dr. Franzen suggested that each group, with the updated format, allowed for a logical progression in naming them. Drs. Costanzo, DiGiovanni and Franzen and Ms. Rovner will make recommendations for names of the groups to be presented at the next meeting.

Dr. Crossman recommended that the Scientific Foundations of Medicine and the Applied Medical Sciences should each have a course committee with basic scientists, clinicians
(i.e., a designated individual responsible for a group or section) and primary care physicians. The committee was in agreement. Drs. DiGiovanni and Dow will make recommendations for the make-up of the two committees and present them at the next meeting.

Drs. Cheifetz and Dow presented their recommendations for the advanced clinical concentrations including a pragmatic model for student progression based on competency. They recommended that students select an educational track by January 1\textsuperscript{st} of their third year. Upon track selection, a student would be assigned a mentor. Suggested tracks included:

- Anesthesia
- Brain and Behavior (included neurology and psychiatry)
- Emergency Medicine
- Inpatient Medicine (includes dermatology, radiology, PM & R, ophthalmology, pathology, radiation oncology)
- Pediatrics
- Primary Care
- Surgery (included ENT, orthopedics, urology, plastics, neurosurgery)
- Women’s Health

Dr. Crossman recommended that since the ICRP track is already in existence, it be added.

Dr. Dow described a Family Medicine program that is being developed at Texas Tech that would enable the medical school to pick students from the top half of the class to pursue a track in medical school which would allow the students to graduate in three years. The students would then enter one of Texas Tech’s Family Medicine Residency Programs. Dr. Dow said that with the new curriculum, it is conceivable that any student could finish a semester early. Dr. Crossman explained that the Department of Family Medicine is working on a similar program for VCU SOM, but was awaiting implementation until the new curriculum had been developed. Dr. Wood suggested that Dr. Crossman present the proposed program at the next meeting so that, when possible, elements can be built into the new curriculum.

Further details of Drs. Cheifetz and Dow’s recommendations are included in the handouts provided. They outlined the next steps to be taken to develop the advanced clinical concentrations.

Dr. Crossman presented the overall format for the continuity clinic with cross-pollination from social work, pharmacology, medicine and nursing. He reported that plans are to begin the continuity clinic in the fall of 2012 with approximately 20 medical students. He and the workgroup for the clinic continue to work with Cheryl Garland and have identified two practices in the east end that have VCC patients. There patients would have chronic medical problems, but would not be too unstable such that there needs could not be met by the student teams with preceptors. He also reported that the workgroup continues to look for funding opportunities. The meeting was adjourned at 4:55 p.m.
Respectfully submitted,
Ike Wood, M.D.
Committee Chair

NOTES:

- The next committee meeting will be on Wednesday, March 16 from 3-5 p.m. in Sanger 1-050
- Assignments prior to next committee meeting:
  - Name the sections of the Scientific Foundations of Medicine (Costanzo, DiGiovanni, Franzen and Rovner)
  - Recommend membership for the course committees in the Scientific Foundations of Medicine and Applied Clinical Sciences (DiGiovanni and Dow)
  - Further develop the next steps in the Advanced Clinical Correlations (Cheifetz and Dow)
  - Organize meetings to develop topics and sequencing of the Brain and Behavior Section (Wood)
  - Begin having individuals recommended for the longitudinal themes to begin making suggestions for topics to be covered and where (Wood)
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<td>• Membrane structure</td>
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<td>• Organelles, cytoskeleton and their basic processes</td>
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<td>• Connective tissue</td>
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<td>• Membrane transport</td>
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<td>• Morphology of the neuron</td>
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<td>• Cardiac Muscle (brief)</td>
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<td>• Basic embryology (through embryonic folding)</td>
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<td>• Basic vocabulary and orientation of the body</td>
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<td>• Autonomic nervous system: physiology and pharmacology</td>
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<td>• Cellular injury and death</td>
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<td>• Introduction to cells and tissues—B and T cells</td>
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<td>• Cell signaling—chemokines and cytokines</td>
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<td>• Antimicrobial therapy for each</td>
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Longitudinal Curriculum

- Clinical skills
- Communication skills
- Cultural competency and diversity
- Ethics and professionalism
- Evidence-based medicine
- Genetics
- Growth, development and aging
- Integrative medicine/complementary medicine
- Knowledge management/informatics
- Patient safety
- Physical and psychological comfort of the patient
- Population health
- Social and behavioral context of health and illness
- Wellness and preventions
- Career development

Add Tobacco Health Implications; Indoor and Outdoor Pollution effects on Health

Continuity Clinic/FCM
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<td><strong>Hematology/Oncology</strong></td>
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<td><strong>GI/Endocrine/Reproduction</strong></td>
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<td>Introductory lecture with review of normal basic hematopoiesis (Histology)</td>
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<td>Anatomy Section</td>
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<td>Structure of bone marrow (Histology)</td>
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<td>wall &amp; inguinal region (appendectomy &amp; hernia)</td>
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<td>Blood cell types (Histology)</td>
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<td>abdominal/pelvic cavity/peritoneum</td>
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<td>Normal morphology (lab)</td>
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<td>organs based on celiac axis</td>
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<td>Heme synthesis and metabolism—basic overview with more detailed lesson on heme (bilirubin) metabolism in the GI section (Biochemistry)</td>
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<td>o spleen &amp; pancreas</td>
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<td>Oxygen-hemoglobin basics (Biochemistry)</td>
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<td>o liver &amp; gall bladder</td>
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<td>Sickle cell anemia</td>
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<td>o GI system (virtual dissection of oral cavity followed by esophagus) up to duodenum</td>
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<td>RBS membrane disorders</td>
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<td>superior and inferior mesenteric organs</td>
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<td>Malaria, babesiosis and rickettsia (Microbiology)</td>
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<td>o duodenum to left colic flexure, descending colon, rectum, anus</td>
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<td>Immune-mediated anemias</td>
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<td>posterior abdominal wall &amp; viscera</td>
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<td>Porphyrias</td>
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<td>anal triangle</td>
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<td>Iron metabolism—deficiency anemia/sideroblastic anemia/overload</td>
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<td>formation of GI tract (embryology)</td>
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<td>Transfusion medicine</td>
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<td>Coagulation cascade/anticoagulation/fibrinolysis physiology</td>
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<td>Thrombotic states</td>
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<td>Benign WBC disorders</td>
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<td>Classic myeloproliferative disorders (CML/PV/ET/PMF)</td>
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**QUIZ**

- Neoplasia (Pathology)
- Leukemias
- Lymphomas
- Bone marrow transplantation (Immunology)
- Graft vs. host (Immunology)
- Chemotherapy pharmacology
- Anticoagulation therapy
- Oncogenes
- Cancer immunology and virology
- Pediatrics cancers
- Radiation oncology

**EXAM**

**MSK**

**GROUP 1**

- Formation of the limbs (Embryology)
- Connective tissue proper (Histology and Dermatology)
- Supporting connective tissues: cartilage and bone (Histology)
- Bone development and repair (Histology)
- Back muscles and laminctomy (Anatomy)
- Regional bone and joint problems—spine (Orthopedics)
- Back pain (PM & R)
- Shoulders and arm (Anatomy)
- Regional bone and joint problems—shoulder and elbow (Orthopedics)
- Forearm and hand (Anatomy)

**Quiz**

- Regional bone and joint problems—hand and wrist (Orthopedics)
- Thigh and gluteal region (Anatomy)
- Leg and foot (Anatomy)
- Regional bone and joint problems—hip and knee (Orthopedics)
- Regional bone and joint problems—ankle and foot (Orthopedics)
- Review of Radiology of the Bones (Radiology)
- Sports related injuries (PM & R)
- Arthritis (PM & R)
- Practical sessions—regional musculoskeletal medicine (PM & R)

**GROUP 2**

- Primer on calcium, Vitamin D and parathyroid hormone (Physiology)
- Diseases of Bone—General (Pathology)
  - Includes metabolic bone diseases, avascular necrosis, osteomyelitis, osteoporosis
- Bone tumors (Pathology)

**Quiz**

**GI—Follow the Food**

1. Oral Cavity
   - Histology (teeth, tongue and salivary glands
   - Salivary glands (digestion)
   - Secretions
   - Physiologic role of enzymes

2. Overview of the tubular GI
   - Histology (general structure of the tubular GI tract)
   - Enteric nervous system: GI motility, hormonal pathways involved with digestion, paracrine and neurocrine

3. Esophagus
   - Histology
   - Swallowing reflex
   - Pathophysiology
     - Motility disorders (Path & Rx)
     - Inflammatory disorders (Path & Rx)
     - Malignancy (Path & Rx)
     - Gastroesophageal reflux disease

4. Stomach
   - Histology/functional anatomy (fundus, antrum, cardia, etc.)
   - Physiology (acid secretion & motility)
   - Pathophysiology
     - PUD (peptic ulcer disease)/bleeding/Helobactor pylori (Path & Rx)
     - Malignancy (Path & Rx)
     - Gastronomas (Path & Rx)
     - Pyloric stenosis

5. Pancreas & Biliary system
   - Functional histology
   - Physiology of the biliary system
   - Exocrine pancreas
   - Pathophysiology
     - Acute/chronic pancreatitis (Path & Rx)
     - Pancreatic neoplasm (Path & Rx)
     - Gall stones (Path & Rx)

**Quiz**

6. Small Intestine
   - Functional histology
   - Digestion and absorption
   - Motility & secretion
   - Carbohydrates, proteins, lipids & nutrition
   - Biochemistry of carbohydrates
   - Pathophysiology
     - Diarrhea
     - Whipple’s disease
     - Bacterial overgrowth
     - Lactose intolerance
     - Short bowel
     - Celiac disease
     - Mesenteric ischemia
     - Infections
     - Path & Rx of above
     - Malignancy (Path & Rx)
     - Carcinoid (Path and Rx)

7. Large Intestine
   - Functional Histology
   - Motility & secretion
   - Physiology of defecation
   - Pathophysiology
     - Irritable bowel
     - Inflammatory bowel
     - Polyps
     - Diverticulosis
     - Diverticulitis
     - Malignancy
     - Ischemic & infectious colitis
     - Hirschsprung’s disease
     - Path/Rx of above

8. Anus/Anal Canal
   - Functional histology
   - Pathophysiology
Bone pathology lab (Pathology)

GROUP 3
• Rheumatoid arthritis (Rheumatology)
• Juvenile rheumatoid arthritis (Rheumatology)
• Osteoarthritis (Rheumatology)
• Seronegative spondylarthropathies (Rheumatology)
• Rheumatoid arthritis (Rheumatology)
• Juvenile rheumatoid arthritis (Rheumatology)
• Osteoarthritis (Rheumatology)
• Seronegative spondylarthropathies (Rheumatology)
• Lyme Disease (Microbiology)
• Systemic lupus and related connective diseases (Rheumatology)
• Systemic vasculitic diseases (Rheumatology)
• MSK Pharmacology I—NSAIDs and corticosteroids (Pharmacology)
• MSK Pharmacology II—Disease modifying anti-rheumatic drugs (DMARDs) (Pharmacology)
• Practical sessions on diagnosis and therapy of arthritic syndrome (Rheumatology)

GROUP 4
• Basic structure and function of skin (Dermatology)
• A review of basic dermatology—lecture (Dermatology)
• Descriptive dermatology (Dermatology)
• Common dermatologic problems (Dermatology)
• Dermatologic problems in systemic diseases (Dermatology)
• Joint and skin Pathology lab (Pathology)

9. Liver
   ○ Functional Histology
   ○ Liver structure & metabolism (drugs, bilirubin)
   ○ Pathophysiology
     • Metabolic & vascular diseases of the liver
       ○ Hemochromatosis, Wilson’s disease & alpha-1a antitrypsin deficiency, Budd-Chiari syndrome
     ○ ETOH & drug induced liver injury
   ○ Autoimmune disease
     • Hepatitis
   ○ Primary biliary cirrhosis
   ○ Primary sclerosing cholangitis
   ○ Liver cirrhosis & complication
   ○ Viral hepatitis
   ○ Glycogen storage disease
   ○ Liver transplant

   Interdigestive system

10. Imaging studies of the GI system (to include obstruction, volvulus, intussusception)

EXAM

Endocrine
HTH-PIT Axis
• Embryology/Anatomy/Histology
• Review of second messengers
• HTH-PIT-End organ pathways
  ○ Normal posterior pituitary function
  ○ Normal control of growth hormone secretion and growth
    • Acromegaly
    • Growth disorders in children
  ○ Normal control of prolactin secretion
    • Breast histology and functional stages
    • Lactation
    • Prolactinoma
    • Benign and malignant breast disorders
 ○ Normal HTH-PIT Thyroid Axis
    • Histophysiology
      • Synthesis of thyroid hormones
      • Physiology of thyroid hormones
    • Pathophysiology
      • Hyperthyroid
      • Thyroiditis
      • Hypothyroid
      • Thyroid nodules and goiter
  ○ Normal HTH-PIT Adrenocortical Axis and Adrenal Medulla
    • Histophysiology
      • Synthesis of Adrenal hormones
      • Physiology of Adrenal hormones
    • Pathophysiology
      • Adrenal cortex
        ○ Adrenal insufficiency
        ○ Cushings
      • Adrenal Medulla
        ○ Pheochromocytoma
• Calcium metabolism
  ○ Histophysiology
  ○ Pathophysiology
    • Hypocalcemia
    • Hypercalcemia
    • Osteoporosis?
• Multiple Endocrine Neoplasia (MEN)
• Polyglandular Autoimmune Disorder

Metabolism
• Histophysiology of the Endocrine Pancreas
  ○ Insulin secretion and action
    • Insulin receptors
    • GLUT transporters
  ○ Glucagon secretion and action
• Biochemistry of lipid metabolism – Dr. Diegelmann/Dr. Grogan
• Pathophysiology of Diabetes
  ○ Type 1
    • DKA
  ○ Type 2
  ○ Systemic complications
  ○ Pharmacology of Diabetes drugs
  ○ Management
• Hypoglycemia
• Obesity
  ○ Normal control of appetite
• Hyperlipidemia – Coordinate with Cardiovascular

EXAM

Reproduction
• Normal HTH-PIT Gonadal
  ○ Anatomy of the perineum and pelvis
    • Urogenital triangle
    • Pelvic wall, diaphragm, and vessels
    • Pelvic viscera
Clinical pelvic anatomy
Embryology and sexual differentiation (include GU)
General principles of the axis
Histophysiology
- Male
  - Testis
  - Ducts and glands
  - Penis and erectile function
- Female
  - Ovarian cycle
  - Uterine cycle/menstrual cycle
  - Histology of the normal Endometrium & Myometrium
Puberty – male and female
- Normal puberty
- Precocious puberty
- Delayed puberty
- Hypogonadism
- Small group REI/OB viewpoint
Infertility – male and female
- Pharmacology treatment for infertility
Menopause
- Pharmacology treatment for menopause
Normal human sexual response cycle
- Sexual disorders
- Treatment of sexual disorders
- Alternative sexual practices
Contraception, sterilization & abortion
Pathophysiology
- Female
  - Benign uterine disease
  - Benign ovarian disorder
    - Benign pathology
  - Abnormal uterine bleeding
  - Endometriosis
  - Urogynecology
  - Cancer
    - Adnexa
    - Vagina and vulva
    - Cervix
    - Uterus
    - Gestational trophoblastic disease
- Male
  - Hypospadias
  - Testicular disorders
    - Testicular torsion
    - Undescended testis
  - Disorders of the epididymis
  - Prostatic disorders
    - Benign prostatic hypertrophy
    - Prostatic cancer
  - Retrograde ejaculation
- Urinary incontinence
- Neoplasms of bladder
- Infectious disease
  - Gyn infections & genital ulcer disease
  - UTI
- Pregnancy
  - Disorders of early pregnancy
  - Teratogens
  - Placental histophysiology
  - Hormones of pregnancy
  - Fetal physiology
  - Placental pathology
  - Labor
    - Normal
    - Pharmacology of induction
    - Abnormal
    - Pharmacology of the tocolytics
    - Preterm labor
  - Infections
  - Hypertension
  - Physiologic of pregnancy
  - Breastfeeding
  - Immunization, multiple gestation, and Intrauterine Fetal Demise
  - Endocrine disorders of pregnancy
  - Cardiovascular disorders of pregnancy
  - Prenatal diagnosis
  - Ultrasound
  - Obstetrical hemorrhage
- Intimate partner violence

Longitudinal Curriculum
- Clinical skills
- Communication skills
- Cultural competency and diversity
- Ethics and professionalism
- Evidence-based medicine
- Genetics
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**Cardio**

- **Anatomy**
  - Thoracic wall/Lungs
  - Heart/Pericardium
    - Normal & abnormal coronary arteries
  - Mediastinum
- **Embryology**
  - Development of the heart and lungs
  - Congenital heart defects
- **Histology**
  - General histology of the vasculature
  - Histology of the Heart
    - Cardiac muscle
- **Physiology**
  - Cardiovascular system overview
  - Cardiac contraction, ejection, cardiac function curve
  - Control of Cardiac output
  - Cardiac oxygen consumption
  - Cardiac electrophysiology
    - ECG
  - Cardiac autonoms
  - Hemodynamics
  - The arterial system
  - Microcirculation
  - Control of peripheral circulation
  - Special circulations
    - Vascular endothelial function
  - Regulation of arterial blood pressure
  - Exercise and hemorrhage
  - Temperature regulation
  - Cardiac cycle
- **Dysrhythmias**
  - Cellular mechanisms of cardiac dysrhythmias
  - Dysrhythmias
  - Treatment
- **Atherosclerosis**
  - Hemodynamic disorders
  - Pathology
    - Atherosclerotic & vascular diseases
    - Ischemic heart disease
  - Risk factors for atherosclerotic artery disease
  - Peripheral arterial disease
- **Dyslipidemias**
  - Treatment
- **Anginas & Myocardial infarction**
  - Pharmacology of Ischemias
- **Valvular disease**
  - Valve pathology
  - Pathophysiology of valve disease
  - IHSS & MVP
  - Rheumatic fever/Heart disease
  - Endocarditis
- **Cardiac tumors**
- **Pericardial disease**
- **Syncope**

**Pulmonary**

- Functional histology of the respiratory system
- **Physiology**
  - Lung volumes
    - Mechanics of breathing
  - Chemistry of gas exchange
  - Oxygen transport
  - Carbon dioxide transport
  - Pulmonary circulation
  - Ventilation/perfusion and defects
  - Control of breathing
    - Adaptation to exercise and high altitude
- **Radiology of the chest**
- **Pathophysiologic disorders**
  - Obstructive lung disease
    - Asthma
    - Wheezing infant
    - Pediatric airway
    - Cystic fibrosis
    - COPD
  - Restrictive disease
    - Interstitial lung disease
    - Occupational lung disease
    - Pleural disorders, effusions, and pneumothorax
  - Sleep apnea and obesity hypoventilation syndrome
  - Infectious diseases
    - Otitis
    - Rhinitis
    - Pneumonia
    - TB
Treatment and public health
- Fungal infection
- Immunocompromised host

Neoplasms
- Head and neck
- Lung and pleura
- Mediastinum

Pulmonary vascular disease
- Pulmonary embolism
- Cor pulmonale
- Pulmonary hypertension

Pulmonary edema and respiratory failure
- SIDS and apnea
- Meconium aspiration
- Respiratory distress syndrome

Heart
- Pediatric and congenital heart disease pathology and pathophysiology

Renal
- Histology of the urinary system
- Physiology
  - Body fluids
  - Fluid shifts
  - Regulation of body fluids
  - Renal blood flow, GFR, and evaluation of renal function
  - Reabsorption and secretion
  - Sodium transport
  - Potassium transport
    - Pathophysiology of potassium
  - Magnesium transport
  - Concentrating and diluting mechanisms
- Systemic hypertension
  - Essential hypertension
  - Secondary causes of hypertension
  - Treatment
- Congestive heart failure
  - Morphological responses of the cardiovascular system
  - Pathology of myocardial disease
  - Primary myocardial disease
  - Pathophysiology of heart failure
  - Management of heart failure
- Pathophysiology of fluid and electrolytes
  - Volume disorders
  - Hyper and hypotension
    - SIADH and diabetes insipidus
- Acid/base
  - Physiology
  - Renal acid/base physiology
  - Acid/base disorders
- Diuretics
- Urinalysis
- Glomerular disorders
- Cystic disease of the kidneys
- Nephrolithiasis
- Acute kidney injury
- Chronic kidney disease
  - Diabetic kidney disease
  - ESRD management
    - Dialysis
    - Renal transplant
- Neoplasms of the kidney
- Renal pharmacology

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Continuity Clinic/FCM

New Medical School Curriculum