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Issue 5
November 22, 2005

Mark your calendar!
New Curriculum Update Retreat
Wednesday, December 7, 2005
5:30-8:00PM
Wolstein Research Building

THEME OF ISSUE 5: WEEKLY THEMES PROVIDE FRAMEWORK FOR BLOCKS

Block design leaders met October 17 to present an overview of the **Foundations of Medicine and Health Blocks 1 through 6** (the first one and one-half years of the new curriculum) as expressed via their *weekly themes*. Each design team has used the major “**concepts**” that they first developed to come up with a *series of weekly themes* that provides *continuity throughout the entire block*. These themes will be pivotal in subsequently designing the cases, clinical immersions, and concluding reflection and integration week of each block. Keep in mind that the themes presented are all *drafts*. Each block is an amalgam of content areas and representative of collaborative integration rather than ownership by any one group.

Note two important components in the overall design of the blocks. The **Clinical Immersion** is a one-week period in each of blocks two through six that will be devoted to providing students with a meaningful and timely clinical context to expand and enhance their basic science learning. The idea is to focus on *basic science in the clinical setting*, rather than on the clinical setting itself. Activities are intended to flow from block objectives that are best addressed in a clinical setting and will include some combination of direct patient contact, hands-on workshops, debriefing/discussion, and simulation. The program will feature outcomes and accountability that are consistent with the assessment strategies of the entire curriculum. The goal is to create a rigorous and stimulating experience that answers the common student question – “Why am I studying this material?”

Reflection and Integration forms the final week of the individual blocks. During this week no new material is taught. Instead students have the opportunity to reflect on the challenging topics introduced both during the block and in the blocks that have preceded it. Cases for the student-centered learning groups will bring together important concepts from several of the topics taught in the previous weeks. They will encourage thinking across organ systems and across the basic science mechanisms underlying the clinical presentations. The reflection and integration will stretch beyond the boundaries of the block. Learning sessions will encourage review and reflection of material learned in previous blocks and the transfer of concepts to the current context.

David Aron, M.D. (David.Aron@med.va.gov), design leader for **Block 1, The Scholarly Physician and the Ethos of Medicine: The Doctor’s Role at the Bedside and in Society**, described the **first week** as an **intensive, 9:00 a.m. to 8:00 p.m. daily** experience focused on **diabetes**, with the goal of demonstrating how a single disorder has ramifications ranging from the molecular to the societal levels. Field experiences in health care organizations and in the community are

planned. For the remaining weeks, two approaches are being considered. One would concentrate on four themes, three of which derive from the universal patient questions that every physician must answer.

- Week 1 Ethos of Being a Physician
- Week 2 Diagnosis What's wrong with me?
- Week 3 Prognosis..... What's going to happen to me?
- Week 4 Therapeutics..... What can you do to help me?
- Week 5 Reflection and Integration

The alternative would continue the approach used in Week 1 but apply it during Weeks 2 and 3 to another disorder, e.g., HIV-AIDS. In Weeks 4 and 5, a non-disease-oriented approach would be used to show how the social and behavioral context—as illustrated in a social issue like class—manifests in health outcomes, and what the underlying mechanisms might be. All of these areas, whether based on what a physician does or based on disease/class orientation, will be approached with the same degree of rigor that characterizes the science of molecular biology, organ physiology, and pathophysiology. Topics related to professionalism and population medicine would be integrated throughout the block. Regardless of the organization of the topics, the pedagogical approach will be **learner-centered**. Thus, Block 1 will set up the **Case System Approach**, where students work with each other as a team, in analyzing issues and cases.

Georgia Wiesner, M.D. (glw2@case.edu), design leader for **Block 2, Building a Human Being**, described the block as an integration of Endocrinology, Reproductive Biology, Development, Genetics, Molecular Biology, and Cancer Biology. The block is laid out chronologically by beginning inside a cell and gradually building a human body. Follow the progress of weekly **themes for Block 2**:

- Week 1 Building Blocks of Life
Structure and function of genes and macromolecules
- Week 2 Sex Cells
Gametogenesis and reproductive cycle
- Week 3 Products of Conception
Normal and abnormal embryo development
- Week 4 Who's your daddy?
Traditional and non-traditional inheritance
- Week 5 From Genes to Body Parts
Fetal growth and development
- Week 6 To Grow or Not to Grow
Hormonal control of growth
- Week 7 The Sweet Life
Glucose control
- Week 8 Control Your Hormones
Hypothalamic control of hormone secretion
- Week 9 Genes in Populations
Finding and testing genetic mutations
- Week 10 Genes Gone Wild
Cancer biology and treatment
- Week 11 Clinical Immersion
- Week 12 Reflection and Integration

The Block 2 design team is trying to determine **what material needs to be taught now in the early stages of medical education**. All blocks need to identify topics/concepts that can best be presented *subsequent* to the first year and one-half—such as basic science at a more sophisticated level or uncommon yet important material pertaining to a clinical situation. The complexity of Genetics patients where almost every system is affected in some way lends itself to deferring some material later in the curriculum or shifting material to other blocks. Students in both the **University** and **College** Programs will participate together in the same third year basic core clinical rotations. There will be dedicated half-days during Basic Cores I and II for program-specific curricula. For students in the University Program, these half-days will

include case-based learning that will facilitate the spiraling of basic science concepts—the return to previous basic science concepts but now in greater depth and complexity, as well as the introduction of new concepts that relate to the clinical experiences.

Block 2 is also hashing out issues that affect other blocks as well:

1. **What can we expect students to know?** Designing learning experiences about nucleic acids, for example, is complicated by the common dilemma of a heterogeneous class—many students are already very familiar with the material, and yet for others, this is their first exposure. Time constraints preclude profound in-class preparatory teaching. A simpler introduction is more practical along with resources that students can access outside the class sessions.
2. **What are students required to read on their own?** This can be decided once groups agree on what is a reasonable amount of learning objectives for students to master for a given week and a reasonable amount of required reading. The required reading should ideally support a specific case and be used by the student to gain mastery of the learning objectives. Supplemental reading would be encouraged.
3. **How will the resources be developed and provided to the students?** How many of the resources are we responsible for *locating*? How many will we *create ourselves*? Using the learning objectives as a basis, design teams need to delineate first what kind of information is needed—including both required and supplemental. Then they need to search for appropriate resources (Web-based, readings, chapters, etc.). Resource development may require additional support. The design team may also choose to enlist additional support via an expanded group of resource searchers (students, librarians, IT staff).
4. **How do we link resources with the cases?** Students will be expected to prepare for every session. The resource links may be supported by the IT staff.

Martin Snider, Ph.D. (mds5@case.edu), design co-leader for **Block 3, Food to Fuel**, explained that the major content areas—GI, Nutrition, Energy, Metabolism, and Biochemistry—share some affinity but also have unique content. During Week 1, students will analyze their own diets, an activity that will continue throughout the block. Biochemistry content offers the challenge of teaching to a class ranging from those students with a high degree of expertise to those with no previous exposure. Dr. Snider and his co-leader, **Colleen Croniger, Ph.D.** (cmc6@case.edu), are exploring resources that would provide additional preparation for students in need. The block will venture into areas such as the liver, obesity, and toxicity. The pattern of immune system function in the GI tract traverses Block 3 as an overall theme. “Spiraling” will be used to teach the basic concepts of immunology, as “visiting” faculty from Block 5 introduce mucosal immunity in Block 3 and then revisit it in greater depth later in their own block. Plans for Block 3’s clinical immersion focus on Nutrition and Metabolism and include experiences dealing with clinical obesity, food to fuel needs in the intensive care unit patient, and nutritional challenges of patients with gastro-intestinal abnormalities.

Block 3’s themes follow:

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| Week 1: | Assessment and Nutritional Requirements |
| Week 2: | Biochemical Tools and Concepts |
| Week 3: | Propelling the Food Forward |
| Week 4: | Digestion and the Stomach |
| Week 5: | Absorption and Distribution of Food |
| Week 6: | Diseases of the Pancreas and Small Intestine |
| Week 7: | Storage of Fuels |
| Week 8: | The Liver and Energy Homeostasis |
| Week 9: | Too Much of a Good Thing—Overnutrition and Toxicity |
| Week 10: | Colon Compaction and Elimination |
| Week 11: | Clinical Immersion with a Focus on Nutrition and Metabolism |
| Week 12: | Reflection and Integration |

Jim Finley, M.D. (jfinley@metrohealth.org), and **Amy Wilson-Delfosse, Ph.D.** (axw41@case.edu), are co-leaders for **Block 4, Homeostasis**, which integrates Cardiovascular, Pulmonary, Renal, Cell Physiology, and Pharmacology concepts. The block begins with the effects of both standard and extreme exercise on the normal physiology of cellular mechanisms in three organ systems: heart, lung, and kidney. The case of a marathon runner will be examined, with moderate exercise

occurring during the training phase and extreme exercise during the race. The block progresses to single organ dysfunction and then to multi-organ dysfunction. The Clinical Immersion week will likely include a focus on acute multi-organ dysfunction in the ICU patient. This immersion is slated to occur in Week 9, intentionally before the end of the block, to allow time for students and faculty to assess where they are in their learning. One of the challenges for this design team is to keep the organ systems integrated in terms of the block's cases.

Block 4's themes follow:

- Week 1: Cellular Mechanism: Travels with an Erythrocyte
- Week 2: Normal Physiology of the Heart, Lungs, and Kidneys
- Week 3: Mild to Moderate Exercise
- Week 4: Extreme Exercise
- Week 5: Pathophysiologic Response to Kidney Dysfunction
- Week 6: Pathophysiologic Response to Heart Dysfunction
- Week 7: Pathophysiologic Response to Lung Dysfunction
- Week 8: Acute Multi-Organ Dysfunction
- Week 9: Clinical Immersion Week
- Week 10: Chronic Multi-Organ Dysfunction I
- Week 11: Chronic Multi-Organ Dysfunction II
- Week 12: Reflection and Integration

Robert Kalayjian, M.D. (rkalayjian@metrohealth.org), is the design leader for **Block 5, Host Defense and Host Response**, which integrates Immunology, Hematology, Microbiology & Infectious Diseases, Dermatology, and auto-immune rheumatology disease. Host Defenses will be the overriding theme of Block 5. The presentation of the molecular and cellular basis of immunity will include an overview of defects in immunity, including autoimmunity and immunodeficiency. Normal hematopoietic and lymphoid development and function will be contrasted with abnormal development through study of anemias, aberrant lymphoreticular proliferation, leukemias and clotting disorders. The pathogenic mechanisms of infection by invading microorganisms will be presented in the context of clinical syndromes and mechanisms of host defenses, in concert with detailed principles of antimicrobial therapies. The role of skin as a barrier to infection and its function as a window to underlying systemic, particularly immune-mediated, diseases will be coordinated with an overview of important autoimmune disorders.

Block 5's themes follow:

- Week 1: Patterns of Immune System Function
- Week 2: Immunity at the Molecular and Cellular Level
- Week 3: Aberrations in Lymphoid Development
- Week 4: Hematopoiesis and the Host
- Week 5: Mechanisms by which Microbes Invade the Host
- Week 6: How the Host Responds to Microbes
- Week 7: Management of Infectious Disease Syndromes
- Week 8: Skin as a Window to the Immune System and a Barrier to Infection
- Week 9: The Balance between Self and Non-Self
- Week 10: Clinical Immersion
- Week 11: Reflection and Integration

Design co-leader, **Shana Miskovsky, M.D.** (shana.miskovsky@uhhs.com), represents the orthopedic component of **Block 6, Cognition, Sensation, and Movement**, which integrates the Neurosciences, Mind, and Musculoskeletal systems. Block 6 incorporates in-depth study of physical diagnosis and anatomy in the context of clinical presentations. Suggestions for musculoskeletal activities during the clinical immersion include:

- Cervical spine injuries seminar—athlete transport from the playing field to the hospital, c-spine precautions and clearance
- Gait lab experience—"Walk this way."
- Knee Arthroscopy simulation—explore anatomy from the inside-out
- Joint and bursal injections seminar and practical—techniques and anatomical landmarks

- Extremity immobilization and splinting workshop
- Compartment syndrome seminar and simulation—etiology, anatomical correlations and diagnosis
- Rehabilitation/physical therapy workshop—patient progression from protected weightbearing to walking
- Elective submersion in sports medicine—join the sports medicine team on the sidelines

The clinical immersion is situated during Week 11 prior to the Reflection and Integration Week. **Kathy Clegg, M.D.** (kac9@case.edu), co-leader for Block 6 described the psychiatry portion of the clinical immersion as continuing the small group interview of psychiatric patients that is currently well received by the students. The neurosciences component of the clinical immersion will allow student groups to examine and interview patient volunteers with selected neurological disorders (i.e. Parkinson’s disease). The current curriculum already makes use of a popular field experience bussing the whole class to MetroHealth Medical Center where students are broken up into small groups to meet with selected rheumatology patients.

Themes for Block 6 follow:

- Week 1: Joint Form and Function in Health and Disease
- Week 2: The Injured Spine and Extremity (Soft Tissue, Nerve, and Bone)
- Week 3: Lumps and Bumps—Musculoskeletal Infections and Tumors/Cellular Function in the Nervous System
- Week 4: Sensory and Motor Systems
- Week 5: Associative and Integrative Function
- Week 6: Pathological Processes Affecting the Nervous System—Part I
- Week 7: Pathological Processes Affecting the Nervous System—Part II
- Week 8: Pathological Processes Affecting the Nervous System—Part III/Theories of the Mind: Child Development and Psychopathology
- Week 9: Diagnosis and Treatment of Major Psychiatric Disorders
- Week 10: Medicine and Psychiatry Interface
- Week 11: Clinical Immersion
- Week 12: Reflection and Integration

In addition to the six vertical blocks, there are two *longitudinal blocks* and five separate *longitudinal themes*. Longitudinal blocks and themes occur throughout the entire one and one-half years of the Foundations of Medicine and Health curriculum.

Stephen Post, Ph.D. (sgp2@case.edu), design co-leader for the **Bioethics longitudinal theme**, favors integration of bioethics across all the vertical blocks in as many cases as possible. Learning objectives have already been developed and agreed to by the vertical block leaders, so that the current task before design teams is integration. Dr. Post and team will be working with the vertical block leaders in an editorial capacity to ensure implementation. Some block leaders have already begun designing all their cases to contain an ethical issue and are carefully delineating the bioethics learning objectives integral to each case. Vertical block leaders should e-mail Dr. Post (address above) as needed to attend vertical block team meetings, or they can simply e-mail Dr. Post their cases for review.

Barbara Freeman, Ph.D. (bkf@case.edu), design leader for **Block 7, Structure: Anatomy, Histopathology, and Radiology**, shared the four weekly topics developed to date, for inclusion in **Block 2, Building a Human Being**. Block 7 will continue developing weekly themes for each of the 11 weeks of Block 2, with the goal of eventually meshing these themes with those of Block 2. Each block will be planned in turn.

All four weekly topics appear on next page.

Block 7 themes for the first four weeks of Block 2 follow:

Week 1: Difficulty Conceiving

What is the pathway of the ovum?
 What is the pathway of the spermatozoa?
 What factors can make it difficult to conceive?

Week 2: Successful Conception

Changes associated with implantation and pregnancy
 Fetal circulation vs. adult circulation
 Development of fetal heart; defects
 Development of neural tube; defects

Week 3: Changes during Pregnancy

Anatomy of bony and ligamentous pelvis
 The breast

Week 4: Birth

Changes in fetal circulation
 Episiotomy, C-section
 Reducing pain at childbirth

QUICK OVERVIEW OF THE NEW CURRICULUM

As the development of the new curriculum continues, you will note revisions in the overview materials reflecting the most current design plans.

Use these *New Curriculum Update Bulletins* to keep informed about the progress of curriculum planning.

Recall that the curriculum vision for the CASE System of Medical Education focuses on **four pillars: civic professionalism, leadership, research and scholarship, and clinical mastery.**

The curriculum develops the pillars through **four major components:**

- 1) *Foundations of Medicine and Health*
- 2) *Research and Scholarship*
- 3) *Core Clinical Rotations*
- 4) *Advanced Clinical and Scientific Studies*

CASE System of Medical Education

Year I	Year II	Year III	Year IV
Foundations of Medicine and Health (20 months, including vacation)	Core Clinical Rotations (48 weeks, flexible scheduling)		
	Research and Scholarship (4-month block plus electives, flexible scheduling)		
		Advanced Clinical and Scientific Studies (10 months, flexible scheduling)	

Foundations of Medicine and Health

July 2006

March 2008

	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	LONGITUDINAL THEMES	BOARD REVIEW BLOCK
Longitudinal Block & Themes	The Scholarly Physician and the Ethos of Medicine: The Doctor's Role at the Bedside and in Society	Building a Human Being <i>1 Week Clinical Immersion</i> (Endo, Repro, Development, Genetics, Mol Biol, Cancer Biology)	Food to Fuel <i>1 Week Clinical Immersion</i> (GI, Nutrition, Energy, Metabolism, Biochemistry)	Homeostasis <i>1 Week Clinical Immersion</i> (CV Pulm, Renal, Cell, Regulation, Pharmacology)	Host Defense and Host Response <i>1 Week Clinical Immersion</i> (Host Defense, Microbiology, Blood, Integument, Auto-immune)	Cognition, Sensation, and Movement <i>1 Week Clinical Immersion</i> (Neuro, Mind Musculoskeletal)				
		Reflection & Integration	Reflection & Integration	Reflection & Integration	Reflection & Integration	Reflection & Integration				

RESEARCH AND SCHOLARSHIP

Each student will:

- Undertake a mentored experience in research and scholarship
- Have a minimum of 4 months protected time for his/her scholarly project
- Identify a research question, develop an approach to studying the question, prepare a proposal, pursue the project and interpret the observations
- Develop a thesis in the format of a journal manuscript

CORE CLINICAL ROTATIONS

The Core Clinical Rotations encompass three **16-week blocks** of clinical experiences that also incorporate basic science objectives. There are two 16-week blocks of basic core rotations (Basic Core I and Basic Core II) and 16 weeks of advanced core rotations (Advanced Core). Students experience both breadth and depth in clinical care, along with basic science integration, through clinical experiences that are developmental and provide opportunities to reinforce, build upon, and transfer knowledge and skills.

The new core clinical rotations will begin in July 2006 for current students in the Class of 2008 and will be shared by students in both the University and College programs. In the following year they will begin as early as March of the second year for students in the University program. Each 16-week block will be offered at our three affiliated teaching sites (UH/VA, MetroHealth, CCF). For Basic Core I and Basic Core II, students are based at one site for the 16-week block. The Advanced Core can be taken in modules and shared among teaching sites.

CORE CLINICAL ROTATIONS March 2008-July 2009

BASIC CORE I:
Family Medicine, Internal Medicine, Surgery
Basic Science Integration
(16 weeks at one of 3 teaching sites)

BASIC CORE II:
Neurosciences, Pediatrics, Psychiatry, Women's
Health (OB/GYN)
Basic Science Integration
(16 weeks at one of 3 teaching sites)

ADVANCED CORE:
In planning stages
Basic Science Integration
(Non-sequential rotations totaling 16 weeks, multiple sites)

TYPICAL OPTIONS FOR CORE CLINICAL ROTATIONS AND RESEARCH

March 08			July 09
Research 16 weeks (March-July)	Basic Core I or II 16 weeks	Basic Core I or II 16 weeks	Advanced Core 16 weeks Flexible scheduling
Basic Core I or II 16 weeks	Research 16 weeks (July-November)	Basic Core I or II 16 weeks	Advanced Core 16 weeks Flexible scheduling
Basic Core I or II 16 weeks	Basic Core I or II 16 weeks	Research 16 weeks (November-March)	Advanced Core 16 weeks Flexible scheduling

ADVANCED CLINICAL AND SCIENTIFIC STUDIES

- Sub Internships
- Areas of Concentration: in-depth scholarship integrating basic science and clinical experiences
- Further clinical and research electives

EDITOR'S CORNER

A Thank You Note

This being our “Thanksgiving” edition,
Design teams can be grateful they’ve completed their mission
Of creating their own special “theme park” for all to see,
Although, I must admit it’s mostly Greek to me!

Students are quick to express appreciation
For what they perceive as strengths in course organization.
Weekly themes eliminate the rambling digression
Into disjointed topics and focus instead on logical progression.

Persevering through meetings lengthy and reflective,
Each design team prioritized block concepts and learning objectives
To formulate a different but related theme for every week.
At a few sample block themes, let’s take a peak:

Block 1 offers a field experience into diabetes complications
With far-ranging bedside-to-societal ramifications.
Block 2’s “Who’s your daddy?” inspects the gene pool,
While Block 3 tracks the entire conversion of “Food to Fuel.”

To gauge the influence of exercise, Block 4 has no compunction
About invading the marathon runner’s heart, lung, and kidney function.
In Block 5, Hematopoiesis looks at blood cell production,
And Block 6 considers offering sports medicine instruction.

Combining individual scientific and clinical expertise with a collective ingenuity,
Design teams have succeeded in insuring block continuity.
They’ve covered all the “thematic” bases.
Now it’s on to writing cases!

Your ideas are welcome. Email me suggestions for future themes/features for the *New Curriculum Update Bulletin*.



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